

How to Conduct a Survey

1. What is Survey

Survey questionnaires present a set of questions to a subject who with his/her responses will provide data to a researcher. On the surface, it seems a fairly simple task to write up a set of questions to collect information, but there are many pitfalls that should be avoided to develop a good survey questionnaire. We will focus here on describing some of the key elements in designing a survey questionnaire, and then highlighting some tips and tricks to for creating a good survey questionnaire.

Why Survey?

You may ask, "Why is it important to survey?" Depending on your **survey problem** and your **survey goals**, this question can be answered in myriad different ways (See related [link](#)).

This tutorial will explore critical reasons for conducting surveys, examine various types of survey problems, and provide an overview of the various types of surveys available to meet your specific survey goals.

Critical Reasons for Conducting Surveys

Organizations conduct surveys to discover answers to certain questions. These questions are diverse, and vary widely depending on how you plan to apply the data to your survey problem, and what data-driven decisions you will make as a result of the data acquired.

Below are four critical reasons for organizations to conduct surveys:

1. To Discover What's Going On

In a non-threatening survey environment, your organization will learn about what motivates survey respondents and what's important to them.

2. To Provide An Opportunity To Discuss Key Topics With Your **Target Population**

Communicating with respondents about your survey topic allows for deeper insight into your survey problem, and can shed light on topics related to your survey problem within a larger context.

3. To Prioritize Your Actions Based on Objective Data

Rather than relying on subjective "gut" feelings, you can gather objective information to make sound data-driven decisions. Therefore, you can immediately address issues that are important, rather than wasting resources on things that no one cares about.

4. To Provide a Benchmark

Surveying provides a "snapshot" of your target population and their attitudes about your survey problem. This helps you to establish a **baseline** from which you can compare whether target population attitudes and perceptions relative to the survey problem are getting better or worse over time.

Click [here](#) for an example case study of an effective survey effort.

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2. What is the research questions that I try to answer? (Research Questions or My hypothesis)

Types of Survey Problems

Survey problems vary widely, depending on the specific goals and needs of each organization. Organizations conduct surveys to answer questions like those listed in the table below:

Type of Survey	Sample Questions
Market Research	<ul style="list-style-type: none">• How well-positioned is my product or service?• Would I increase my market share if I changed an aspect of my product or service?• How do visitors use my Web site?
Product Development	<ul style="list-style-type: none">• Will our new idea for a product or service work?• Will our target population be excited about our new product?• What does our target population need that they can't find?
Employee Performance Evaluation	<ul style="list-style-type: none">• Do clients think our staff is courteous and helpful?• What do our clients think of the service they receive from our employees?

3. How Can Survey help me answer my research questions? (The purpose of the survey)

The key to developing a good survey questionnaire is to keep it short while ensuring that you capture all of the information that you need. This is not an easy task. Before you even begin to design your survey questionnaire, you should develop a set of objectives for your research and list out the information that you are trying to capture. This list of objectives and research goals will serve as your plan for the survey questionnaire.

Now that you know what you are looking for, you can begin to structure the questions that will help you capture the information. Once you have developed your survey questionnaire, you can use your objectives to go back through the questions and determine if each of the questions is providing you with information that you need. Any question that is not providing necessary information should be removed.

4. Dos and Don't Dos on the Survey (Survey design)

Which Type of Survey Should I Choose?

There are many types of surveys from which to choose. After determining your survey design, use the comparison chart below to help you decide whether Web surveys, mail surveys, telephone surveys, or personal interview surveys are best suited to your specific needs and applications:

Type of Survey	Advantages	Disadvantages	Recommendation
Web Survey	<ul style="list-style-type: none"> • Very low cost • Extremely fast • Complex questioning assures better data • Anonymity of respondents results in more honest answers to sensitive topics • Respondents provide more detail to open-ended questions. • Survey software simplifies compilation and analysis of data collected. 	<ul style="list-style-type: none"> • Do not reflect population as a whole • Respondent completion rates lower for longer surveys • Random respondents may reply if your survey appears on Web page. 	<ul style="list-style-type: none"> • When desired target population consists mainly of Internet users. <p>Examples:</p> <ul style="list-style-type: none"> • Business-to-business research • Employee Attitude surveys
Mail Survey	<ul style="list-style-type: none"> • Frequently used for social research • Low cost (almost 75% less than personal interviews) • Eliminates potential bias 	<ul style="list-style-type: none"> • May result in biased sample • Low response rate • Time! Need to wait at least several weeks for all responses to arrive 	<ul style="list-style-type: none"> • Target population is highly literate or is in a group with specialized interests
Telephone Survey	<ul style="list-style-type: none"> • Reach 96% of all homes • CATI software streamlines process 	<ul style="list-style-type: none"> • Sales calls often pose as "research" calls 	<ul style="list-style-type: none"> • General population surveys

	<ul style="list-style-type: none"> • Interviewers can ask for clarification on responses; additional detail 	<ul style="list-style-type: none"> • Typical calling window interrupts respondents' personal time • Call screening is common • No visual support 	
Personal Interview Survey	<ul style="list-style-type: none"> • Frequently used to gauge attitudinal behavior • Very good response rates • Longer interviews tolerated 	<ul style="list-style-type: none"> • Do not reflect population as a whole • Respondent completion rates lower for longer surveys • Random respondents may reply if your survey appears on Web page. 	<ul style="list-style-type: none"> • When desired target population consists mainly of Internet users. <p>Examples:</p> <ul style="list-style-type: none"> • Business-to-business research • Employee Attitude surveys

How do you ensure your questions—and resulting responses—are on track with your **survey goals**? By taking a few preventative measures, you can avoid question/response bias in your surveys (see related **article**).

This tutorial will examine techniques for preventing response bias in your survey efforts, as well as present two critical construction principles of effective survey questions.

Techniques for Preventing Response Bias

There are many ways to prevent response bias in your surveys. Below are several key suggestions to consider when developing your survey questions.

Write questions that are clear, precise, and relatively short

Because every question is measuring something, it is important for each to be clear and precise. Your goal is for each respondent to interpret the meaning of each survey question in exactly the same way. If your respondents are not clear on what is being asked in a question, their responses may result in data that cannot or should not be applied to your survey goals. Keep questions short; long questions can be confusing and stressful for respondents (see related **article**).

Do not use “loaded” or “leading” questions

A loaded or leading question biases the response given by the participant. A **loaded question** is one that contains loaded words. For example, politicians often avoid the loaded word “environmentalist” because it creates a negative reaction in some people regardless of the content of the statement.

A **leading question** is phrased in such a way that suggests to the respondent that the researcher expects a certain answer:

Example

Don't you agree that social workers should earn more money than they currently earn?

- Yes, they should earn more
- No, they should not earn more
- Don't know/no opinion

The phrase “Don't you agree” leads the respondent. A more neutral wording would be:

Do you believe social worker salaries are a little lower than they should be, a little higher than they should be, or about right?

- Social worker salaries are a little lower than they should be
- Social worker salaries are a little higher than they should be
- Social worker salaries are about right
- Don't know/no opinion

Avoid double-barreled questions

A double-barreled question combines two or more issues or **attitudinal objects** in a single question.

Example

Do you think professors should have more contact with university staff and university administrators?

Clearly, this question asks about two different issues: Do you think professors should have more contact with university staff? AND Do you think that teachers should have more contact with university administrators?

Combining the two questions into one question makes it unclear which attitude is being measured, as each question may elicit a different attitude. Tip: If the word “and” appears in a question, check to verify whether it is a double-barreled question.

Avoid double negatives

When respondents are asked for their agreement with a statement, double negatives can occur.

Example

Do you agree or disagree with the following statement?
Teachers should not be required to supervise their students during recess.

If the respondent disagrees, you are saying you do *not* think teachers should *not* supervise students. In other words, you believe that teachers *should* supervise students. If you do use a negative word like “not”, consider highlighting the word by underlining or bolding it to catch the respondent’s attention.

Construction Principles

Below are two critical construction principles you should apply to prevent survey bias.

Use both mutually exclusive and exhaustive response categories for closed-ended questions

Categories are mutually exclusive when there is no overlap:

Example

What is your current age?

- 10 or less
- 10 to 20
- 20 to 30
- 30 to 40
- 40 to 50
- 50 or greater

These categories are *not* mutually exclusive because there is overlap present. For example, a person who is 20 years old could be placed into two separate categories (same with those respondents aged 30, 40 and 50).

Categories are exhaustive when there is a category available to all potential responses. Below is an example of a question where categories are *not* exhaustive:

Example

What is your current age?

- 1 to 4
- 5 to 9
- 10 to 14

The categories are not exhaustive because there is no category available for respondents more than fourteen years old or respondents less than one year old.

Here is an example of response categories that are **both** mutually exclusive and exhaustive:

What is your current age? (Check one box only.)

- Less than 18
- 18 to 29
- 30 to 39
- 40 to 49
- 50 or older

Reverse the wording in some of the questions to help prevent response sets.

A **response set** is the tendency for a respondent to answer a series of questions on a certain direction regardless of their content.

One technique used to prevent response sets is to reverse the wording in some of the survey items. Below is an example of this in a rating scale question:

Please rate your manager on each of the following descriptive scales. Place a checkmark on the space between each pair of words that best indicates your opinion:

Sociable	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	Unsociable
Kind	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	Cruel
*Hard	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	Soft
Successful	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	Unsuccessful
*Wise	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	Foolish
Strong	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	Weak

You can see that items 3 and 5 (with asterisks) are “reversed” when compared to the rest of the items, i.e., most of the left-hand descriptors are associated with positive attributes while the right-hand descriptors are associated with negative attributes.

Important: Avoiding response bias is key to the success of your survey project. Implementing the above strategies will ensure that your survey delivers valid data that you will be able to effectively apply to your survey problem.

Tips to creating a good survey questionnaire:

Here are some tips and tricks to help you ensure you are developing a good survey questionnaire:

- **Clearly state your intentions with the research.**

Many people are hesitant to answer questions about themselves and their opinions. If you are developing your survey for a science fair project, people will probably be more willing to help if you clearly state your intentions. At the top of your survey, write a brief statement explaining why you are collecting the information and reassure each respondent that the information is entirely anonymous. If you need to know specifics about a person, respect their privacy by identifying them as subject1, subject2, etc...

- **Include instructions with your survey questionnaire**

What may seem obvious to you probably is not very obvious to someone else. To ensure that you collect valid survey results, make sure you include instructions on how to answer the survey questionnaire. There should probably be a short introductory set of instructions at the top of the survey questionnaire, and additional instructions for specific questions as needed.

Your overall instructions may be something like:

Please mark the appropriate box next to your answer choice with an "x" (X). Please answer all of the questions to the best of your ability.

- **Don't ask for personal information unless you need it.**

Asking individuals to provide you with personal or demographic information (age, race, income level, etc...) may irritate some respondents and prevent them from completing your survey questionnaire. However, in many instances, this information is necessary for the research. If you

need to ask for this type of information it is best to place the questions at the END of your survey questionnaire.

- **Keep the questions short and concise**

The wording for survey questions should be short and concise. Each question should be clearly stated so that there is no misunderstanding about what is being asked. The best way to ensure your questions are well worded is to test them by having other people review and test your survey before you distribute it to the full sample.

- **Ask only one question at a time (the double barreled question)**

This is a very common mistake in survey questionnaires and one that will severely impact the results of your data. When you are writing a question, you must make sure that you are only asking one question at a time.

Here is an example of a double-barreled question:

Bad Question: Double-barreled Question

How have teachers and students at your school responded to the new 45-minute lunch period?
 Satisfied
 Unsatisfied

Good Question

How have teachers at your school reacted to the new 45-minute lunch period?
 Satisfied
 Unsatisfied

How have students at your school reacted to the new 45-minute lunch period?
 Satisfied
 Unsatisfied

You notice that the double-barreled question is asking about teachers AND students. This means that a "satisfied" response could mean any of the following:

Teachers are satisfied
Students are satisfied
Teachers and students are satisfied

An "unsatisfied" response could mean any of the following:

Teachers are unsatisfied
Students are unsatisfied
Teachers and students are unsatisfied

Since the question was phrased in such an ambiguous way, you will not know what the respondent intended with their response unless you ask them, invalidating your data.

To solve this problem, you simply need to break this question into two separate questions, as shown in the example above.

You will also notice that the two rephrased questions above are very similar and that the key word (which differentiates the two questions) has been underlined. This is a good technique to ensure that the respondents are reading the questions correctly when the structures are so similar.

- **Make sure the questions are unbiased**

When developing your survey questionnaire, you want to make certain that you are asking the questions in a neutral way, ie that you are not leading them toward a particular answer. This may seem simple, but when you are writing questions you will often find that the way you phrase the question may reflect your underlying opinion. Here is an example of a leading question:

Example of a Leading Question and How to Correct it

Bad Question: Leading

Do you think that the new cafeteria lunch menu offers a better variety of healthy foods than the old one?

- Yes
- No
- No Opinion

Good Question: Neutral

How do you feel about the new cafeteria lunch menu compared to the old one?

- The new menu offers a better variety of healthy foods
- The old menu offers a better variety of healthy foods
- The selections are similar
- No opinion

The leading question drives the respondent to the conclusion that the new menu is healthier than the old. A yes response to this question is the easiest, and many respondents may simply take the path that requires the least amount of thinking. The neutral question presents a better way to phrase this question by removing the bias.

- **Ask questions that can be answered by your subjects**

Make sure that the questions you are asking are questions that people will be able to answer. The most common mistake is to ask questions that most people simply cannot remember. Here is an example:

How much did you spend on school supplies last year?

- \$0 - \$10
- \$11 - \$20
- \$21 - \$30
- over \$30

While this question appears to be perfectly acceptable, it is unlikely that many students will really remember how much they spent on school supplies. Most responses will probably be guesses rather than actual numbers, and many respondents may become frustrated trying to calculate in their heads how much they spent. If a guess is all that you are looking for, then simply rephrasing the question to the following will make it much easier for the respondent.

How much do you estimate you spent on school supplies in the last year?

- \$0 - \$10
- \$11 - \$20
- \$21 - \$30
- over \$30

- **Order/group questions according to subject**

If you have more than six questions in your questionnaire, then you should make an effort to organize your questions so the respondents can answer them as quickly as possible. A good way to organize the questions is to group them together by subject. This way your respondents can focus their thoughts and answer a series of questions around these thoughts.

- **Present the questions in a clean and organized layout**

A clean layout will make it much simpler for people to respond to the questions and for you to collect the data. Make sure that your method for marking answers is well explained and that your answer boxes are consistent throughout the questionnaire. See the following links for some sample survey questionnaires from Science Buddies.

[Sample Survey: Science Buddies Advisor Survey](#)

[Sample Survey: Science Buddies Teacher Survey](#)

- **Test the survey questionnaire**

Once you have developed your survey questionnaire, you should conduct a small test (5 -10 people) to make sure that respondents clearly understand the questions you are asking and that you are capturing the information that you need for your study.

5. How to ask survey questions?

Types of Questions:

There are two different types of questions that can be used to collect information. The first is called a structured or fixed response question and the second is called non-structured or open question. It is important to understand when and how to use these questions when designing your survey.

Structured (fixed response)

Structured questions are questions that offer the respondent a closed set of responses from which to choose. Structured questions make data collection and analysis much simpler and they take less time to answer. Structured questions are best suited in the following situations: (1) when you have a thorough understanding of the responses so that you can appropriately develop the answer choices (2) when you are *not* trying to capture new ideas or thoughts from the respondent.

Examples of Structured Questions

Do you have a driver's license?	Which subject do you enjoy the most at school?	How many hours a day do you spend doing homework?
<input type="checkbox"/> Yes	<input type="checkbox"/> Math	<input type="checkbox"/> 0 to 1 hour
<input type="checkbox"/> No	<input type="checkbox"/> Science	<input type="checkbox"/> 2 to 3 hours
	<input type="checkbox"/> English	<input type="checkbox"/> 4 to 5 hours
	<input type="checkbox"/> Foreign Language	<input type="checkbox"/> more than 5 hours
	<input type="checkbox"/> History	
	<input type="checkbox"/> Government	
	<input type="checkbox"/> Art / Music	
	<input type="checkbox"/> Other	

When writing the selection of responses for a structured question, you should make certain that the list covers **all possible alternatives** that the respondent might select AND that *each of the answers is unique* (ie they do not overlap). So for example, in the homework question above, we have included every option on the number of hours (from 0 to infinity). Also, you will notice that we were careful not to overlap the hours when defining the ranges by stating them as "0 to 1 hour" and "2 to 3 hours" rather than saying "0 to 1 hour" and "1 to 2 hours".

Sometimes, including general catch all responses (such as "Other", "Don't know", "None of the above", etc...) at the end of a list of answer choices will help to ensure that the data you are collecting will be accurate. In the school subject example above, you will notice that the last answer choice is "Other". Since the selection of non-required courses varies dramatically from school to school the option of "Other" helps to ensure that you are capturing the responses that do not fit into the broader subject areas already listed, rather than forcing respondents to select one of the other subject areas. Similarly, adding "Don't know" to a response list for a question that some of the respondents may not be capable of answering will help ensure you are collecting valid data. In general however, you want to use the "Don't know" option sparingly. You should try to ensure that your respondents are capable of answering the majority of the questions on your survey questionnaire.

You should also make sure that all of the answers are *relevant* to the question. Irrelevant responses may distract the respondent in addition to adding unnecessary length to your survey questionnaire. Consider the following change to the favorite school subject question.

Example of a Bad Question With an Irrelevant Answer Choice

- Which subject do you enjoy the most at school?
- Math
 - Science
 - English
 - Foreign Language
 - History
 - Government
 - Art / Music
 - Football Practice
 - Other

If we added a choice of "Football practice", we may find that football practice is someone's favorite "activity" at school, but it is not relevant to this particular question which asks "Which *subject* do you enjoy the most at school?"

Consistency is very important in writing the list of responses. All of the responses should be similar so that no single response stands out to the individual except the answer that is true for them. Consistency simply helps to ensure that you are not leading respondents to a particular answer by making that answer different from the others. It also makes it much easier for respondents to find the answer that is relevant to them. Here's an example using the homework question you have already seen above:

Example of a Bad Question with Inconsistent Answer Choices

- How many hours a day do you spend doing homework?
- 0 to 1 hour
 - 120 to 180 minutes
 - 4 to 5 hours
 - more than 5 hours

In this example, the second choice is exactly the same as what we had before, but it is listed in minutes rather than hours making it inconsistent with the other answer choices. Listing answer choices in this way is very confusing for the respondent and makes it more likely that they will provide you with incorrect information.

Sometimes you will be interested in obtaining a person's opinion on a topic, subject, product, event, etc.... To capture varying degrees of emotion about a subject, it is best to use either a rating or a ranking question. A rating question asks respondents to explain the degree with which they feel about a certain topic, subject, event, etc... For example:

Example of a Rating Question

Please describe how you felt about the Homecoming Pep Rally.

Unsatisfied	Somewhat Satisfied	Satisfied	Very Satisfied	Extremely Satisfied
(1)	(2)	(3)	(4)	(5)

A ranking question asks respondents to explain how they feel about something by comparing it to other items in a list. For example:

Example of a Ranking Question

Please rank the following Homecoming activities in order of preference (starting with 1 for your favorite activity).

- ___ Homecoming Pep Rally
- ___ Homecoming Parade
- ___ Homecoming Football Game
- ___ Homecoming Dance

In general, if you are trying to get a respondent's opinion about something, it is best to have them do a rating rather than a ranking. A ranking asks respondents to list their responses in order of preference. This type of question leads you to an answer where the respondent is comparing one thing to another rather than giving you their feeling about each individual item. The disadvantage to a ranking is that if the respondent feels the same about two or more items, they are still forced to sort them into a ranking. The

results of a ranking basically tell you which is the most preferred and which is the least preferred item on the list, but you do not know from a ranking if the respondent likes or dislikes any or all of the items on the list.

Non-structured (open-ended)

Non-structured questions, or open-ended questions, are questions where there is no list of answer choices from which to choose. Respondents are simply asked to write their response to a question. Here is an example:

Example of a Non-structured Question

What do you like best about the Science Buddies Classroom Scientists Program?

It is best to use non-structured questions when you are exploring new ideas and you don't really know what to expect from the respondents. In some situations, you may have a partial list of answer choices, but you may still have some doubt or uncertainty about other possible responses. You can create a partially structured question such as the following:

Example of a Partially Structured Question

Why did you sign up for the Science Buddies Classroom Scientists Program (please select all that apply)?

- I really enjoy science
- My teacher asked me to sign up
- My teacher made me sign up
- My parents asked me to sign up
- I'm bored in science class & thought this would be fun
- I thought it would help me do a better project
- I thought it would help me win the Science Fair
- I thought having a Mentor to talk to would be fun
- I knew other students who were doing it
- Other _____

Open-ended questions let you get more insight into the respondents' thoughts and ideas about a subject. As we have already mentioned, open-ended questions are useful when you are trying to capture new ideas or information for which you have no basis to develop an all inclusive set of structured responses. The disadvantages to using open-ended questions is that it can be much more time consuming and difficult to analyze the data. In general you should try to minimize the number of open-ended questions in

your survey questionnaire. If you find yourself designing a survey questionnaire where the majority of the questions are open-ended, then you may need to do more exploratory research to get a better foundation of knowledge for the subject you are researching.

6. Survey Implementation Logistics

Instructions

○ 1

First start off by **developing** the survey objectives. You will need to know what information you are trying to gather and who you are trying to target. Setting an objective is the most important part of creating a survey.

○ 2

Write draft questions and determine the measurement **scale**. The draft questions will be determined based on the objective that you set. The measurement scale will be designed based on the type of questions that you ask and the replies you are looking for. For example, it may be best to use a number scale (rate 1-10) or a quality scale (good, very good, poor, etc) or even yes/no or open ended questions.

○ 3

Determine the required sample size to make your survey statistically meaningful. Depending on the population size of your intended audience, a certain number of samples will be needed in order to make the survey results statistically significant. There are many calculators available on the Internet that will calculate the sample size needed. I have used one on isixsigma.com. but there are many others that are available.

○ 4

Determine the method of distribution to your target audience. You can use the internet, direct mail, or handing out questionnaires. You just need to make sure to keep it anonymous so that you get a greater number of responses and more accurate responses. I like to use the website surveymonkey.com which will assist you in preparing the survey and obtaining anonymous responses.

○ 5

Now that you have the questions and method of distribution, now it is time to design the survey. Taking the questions that you developed, this step involves putting them together in the method of

distribution that you chose and double checking that the survey is complete and will allow you to reach your objective.

o 6

Send out the survey to your target audience.

o 7

Compile and analyze results. If the survey was successful, you would be able to achieve your objective that you set out to obtain. You should now be able to make decisions based on the feedback that was received.

7. Check with your researcher before you deploy your survey

8. Technical support from our assistant:

- Create your online survey form from Novi Survey
- Support your deployment
- Assist your survey report

9. Findings and Reports

10. References

http://www.sciencebuddies.org/science-fair-projects/project_ideas/Soc_survey.shtml

http://www.ehow.com/how_4999898_create-survey.html

http://books.google.com/books/about/How_to_design_surveys.html?id=E1MfAQAAIAAJ

<http://knowledge-base.supersurvey.com/survey-questions.htm>