Quantitative Research Questionnaire

Surveys are used in practically all walks of life. Whether it is deciding what is for dinner or determining which Hollywood film will be produced next, questionnaires will likely be used. The terms survey and questionnaire are often used interchangeably, but there is a subtle difference. A questionnaire is the tool that is used to get the data, where survey usually refers to the analysis of the data.

In this project, you will create and administer a questionnaire for some sort of issue. This may be (but not limited to) a social issue, a political issue, a community issue or a school issue. Before we scribble down questions and rush to hand out a questionnaire, there are nuances that must be learned. As opposed to asking random questions, a quantitative questionnaire will have questions specifically designed to yield numerical data which can be used to uncover evidence and draw conclusions.

Why is quantitative questionnaire an important research method?

Quantitative Research Questionnaires seek to ask questions specifically designed to yield numerical data. Questionnaires are particular helpful when trying to collect opinions of many people.

Through giving a questionnaire, the researcher creates a sample. In order to achieve the best results, the sample should be random. For example, asking every tenth person who enters a popular mall would achieve better results than asking your friends because the mall customers would likely have more diverse perspectives and include people of different ages, races, genders, and socioeconomic statuses. Ideally, this will create a representative sample.

A sample size typically relates to the amount of people that are given a questionnaire. If the sample size is larger then there is more confidence in the results. Collecting 1,000 questionnaires would yield more accurate results than collecting 3.

Once collected, in a quantitative questionnaire the answers are converted to a numeric score. With this numerical data, statistical measures such as median, mean, and standard deviation and the margin of error can be used as evidence to draw conclusions.

Definition:

quantitative - related to the measurement of an amount or size of something.
Usually objective in nature.

sample - a set of individuals or items selected from a population for analysis to estimate the whole population.
Sampling Techniques

A **random sample** is one in which every member of the population has an equal chance of being selected.

A **convenience sample** is a sample that is chosen to be easy for the researcher.

A **stratified random sample**, the population is divided into subgroups so that each member is in only one subgroup. Individuals are randomly selected from each subgroup.

A **census** is the count or measure of the entire population.

Below are examples of different sampling techniques for studies. Identify the sampling technique being used from the samples listed above.

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A. A journalist asks his family how they feel about water pollution.

B. For quality assurance, every 10th engine part is selected from an assembly line and tested for durability.

C. A study on attitudes about smoking is conducted at Otterbein College. The students are divided by class (freshmen, sophomore, junior and senior). Then a random sample is selected from each class and interviewed.

D. A student asks 12 friends to participate in a psychology experiment.

E. Law enforcement officials use a radar gun to measure the speed of every 5th vehicle on an interstate.

F. A journalist interviews all 123 people after they leave a restaurant and asks them how confident they are that the food is safe.

G. Twenty-five students are randomly selected from each grade level at a high school and surveyed about their study habits.

H. Calling randomly generated telephone numbers, a study asked 1001 U.S. adults which medical conditions could be prevented by their diet.

I. Soybeans are planted on a 48-acre field. The field is divided into one acre subplots. A sample of plants is taken from each subplot to estimate the harvest.

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Types of Questions

For a quantitative research questionnaire, the types of questions that will be most often used are called fixed response questions. In other words, they are questions where options are given. It is important to understand when and how to use these questions when designing your questionnaire.

When writing the 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 (i.e. they do not overlap).

Examples of Structured Questions

<table>
<thead>
<tr>
<th>Do you have a driver's license?</th>
<th>Which subject do you enjoy the most at school?</th>
<th>How many hours a day do you spend doing homework?</th>
</tr>
</thead>
<tbody>
<tr>
<td>() Yes</td>
<td>() Math</td>
<td>() 0 to 1 hour</td>
</tr>
<tr>
<td>() No</td>
<td>() Science</td>
<td>() 2 to 3 hours</td>
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<td></td>
<td>() English</td>
<td>() 4 to 5 hours</td>
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<td></td>
<td>() World Language</td>
<td>() more than 5 hours</td>
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<tr>
<td></td>
<td>() History / Government</td>
<td></td>
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<tr>
<td></td>
<td>() Art / Music</td>
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<td>() Other</td>
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</table>

Example of a Rating Question

A rating question asks respondents to explain the degree with which they feel about a certain topic, subject, event, etc...

Example of a Ranking Question

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

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 Bad Question Game

While asking a question seems easy, there are many ways this can go poorly. Below are examples of bad questions. For each example, try to determine the weakness in each question and offer a solution to improving.

Example #1

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

What seems to be the problem?

How can this question be improved?

Example #2

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

What seems to be the problem?

How can this question be improved?

Example #3

Do you think that the new cafeteria lunch menu offers a better variety and assortment of healthy and fresh foods versus the old one?
() Yes
() No
() No Opinion

What seems to be the problem?

How can this question be improved?

Example #4

How much did you spend on groceries last year?
() $0 - $1,000
() $1,000 - $2,000
() $2,000 - $3,000
() over $3,000

What seems to be the problem?

How can this question be improved?
## Questionnaire Planning Guide

In this project, you will put your question writing and data analysis skills to the ultimate test with a real survey. You will create and administer a questionnaire to a random sample. Your questionnaire may be about a social issue (like human trafficking), a political issue (like school funding), a community issue (like crime) or a school issue (like dress code). Select a topic that you feel passionate about and the results might be more meaningful.

Select at least four questions (using different question types) and use this planning guide to outline your study. Once approved, you can create your questionnaire on a word processor or an online program like Survey Monkey or Google Forms. You will then analyze the survey results for each question AND write a report.

<table>
<thead>
<tr>
<th>Topic / Purpose of Study</th>
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<tbody>
<tr>
<td>Potential Questions (Are they structured questions, rating questions or ranking questions?)</td>
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<td>Sample (Describe the size of your desired sample and who you would attempt to include)</td>
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<td>Time of Study (When do you expect to conduct the study? Will it be done over multiple days?)</td>
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<td>Logistics (How do you plan to get a random sample? Do you need to travel?)</td>
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</table>
Report Guidelines

Now that all the questionnaires are returned, all the raw data has been collected, and all calculations have been made, you finally have results from your study! Now it's time to put the professor hat on and put all your work to use. In a two-page paper, you will write a report on your study.

In your paper, be sure to include the following points --

- restate the goals of your study
- describe your sample, how the data was collected and techniques you used
- summarize your findings & interpret the results
- describe your most important & surprising findings
- share limitations of your study and improvements that could have been made
- reflect on the experience and the meaning of the results

At the end of your report, attach a copy of your questionnaire and your Survey Analysis raw data and calculation forms for each question. The paper will be graded based on the following rubric.

Meets the requirements

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Calculations are accurate

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Includes insightful analysis of data

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<td>Weak use of the data and the connections are unclear</td>
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<td>Inconsistent analysis and use of data</td>
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<td>Data is analyzed in an insightful and accurate way</td>
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Mechanics

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Comments

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