Survey Module

This module will guide you through the process of conducting surveys for your project.
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What is a Survey?

A survey is a method of gathering information for a sample of a target population through a sequence of focused, targeted questions. The sample is scientifically chosen to reflect the larger population. Information is collected by standardized procedures to ensure that each individual is asked the same questions in the same way and sequence.

With regard to the mode of administration, one can distinguish between surveys that are administered orally (face to face, telephone), and those that are written and self-administered (mail, online).

What is the use of a Survey?

The main purpose of a survey is to gather (at least predominantly) quantitative information, generally (but not always) on a large-scale, that can be analyzed statistically and generalized to the population being studied. (See → Quantitative Methods Module and → Qualitative Methods Module.)

General scope and limits

Surveys can be used to profile principal characteristics of target population (such as needs, radio listenership, etc.), but cannot provide detailed and in-depth qualitative information. They may, for example be part of a conflict assessment (→ Conflict Assessment Module).

Surveys can be used to compare

- Changes over time (generate / compare against baseline data (→ Baseline Module));
- Actual situation against targets established in program/project design (→ Logframe Module and → Indicator Collection);
- One population against another (e.g. to assess outcomes of an intervention by comparing the targeted population with a similar one that did not experience the intervention).

Surveys can and should be used in conjunction with other methods, particularly qualitative ones, depending on study purpose. (See → Mixed Methods Module and → Monitoring Modules (Context) and → Evaluation Modules (Design / Utilization / Reflection)). They can, for instance, be used to

- Gather information that informs further qualitative or quantitative research; or
- Follow-up on qualitative and quantitative findings that are interesting or hard to explain, and explore what may have caused them.
Advantages and Disadvantages

Well-designed surveys are most useful when

- You need information from a large sample, for instance to analyze interventions affecting large numbers of people;
- You want to learn about characteristics of the whole population, e.g., neighborhood, region or country;
- Statistical analysis is required or desired;
- You want to be able to make generalizations.

Surveys have the further advantages that

- Anonymity is easy to guarantee;
- They do not necessarily require respondents to be literate. They can be either written or conducted by interview.

If surveys are **not done right**, however, seemingly objective answers will be biased, and conclusions based on them will be false.

Surveys, by themselves, are **not useful to**

- Study complex processes;
- Solicit opinions or narratives;
- Explore unknown issues, topics, or phenomena.

For such tasks you should consider other methods that are more appropriate for this kind of analysis. See ➔ Focus Groups and ➔ Interviews.

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When to use Surveys?

Likely, you will contemplate using a survey in the context of baseline studies, evaluations, or broader impact assessments. The decision whether a survey is an appropriate data collection method for the task at hand – either by itself or in conjunction with other methods – should be made in light of the research question and research objective. Consider the following key questions:

1. What is the purpose and scope of the study?
   If you need reliable, quantifiable data from which you can generalize findings, identify trends, and make some types of predictions, surveys may be the right option.

2. What kind of information do you need to answer the research question?
• **Perceptions/attitudes/opinions**
  If you are interested in more than a cursory overview, i.e., in-depth information, other methods are more appropriate. For example [Focus Groups](#) and [Interviews](#).

• **Behaviors**
  If you need information about behaviors that is more reliable than self-reports, consider using [Observation](#).

• **Knowledge**
  For testing knowledge, surveys are a very useful tool (although, depending on the scope of the study, you may [also](#) want to rely on [Interviews](#)).

• In practice, you will likely use a combination of methods to get different types of, and more reliable, data. Combining different methods will help you verify your data (“triangulation”), see [Mixed Methods](#).

3. **What information do you have already?**
   You may already have sufficient quantitative data available (other / former studies) to go on to explore causal relationships with other, qualitative methods.

4. **How much time, funds, and expertise are at your disposal?**

When thinking about whether to use a survey, also consider what *type of survey* to use. While self-administered surveys (online or mail) are good to reach a large number of potential respondents relatively cheaply, they have some disadvantages such as low response rates.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Face to face / phone</strong></td>
<td>- More costly and time-consuming (logistics!)</td>
</tr>
<tr>
<td>- Literacy not required</td>
<td>- Require well-trained interviewers</td>
</tr>
<tr>
<td>- Personal contact may stimulate higher response rates, with sensitive issues in particular</td>
<td>- Bias induced by interviewer presence: social desirability, visual and verbal cues</td>
</tr>
<tr>
<td>- Better for asking open questions</td>
<td></td>
</tr>
<tr>
<td>- Possible to probe, ask follow-up questions: more flexibility</td>
<td></td>
</tr>
<tr>
<td>- More complicated questions and skip patterns possible</td>
<td></td>
</tr>
<tr>
<td>- Longer questionnaires possible</td>
<td></td>
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<tr>
<td>- Easier to guarantee surveys are completed</td>
<td></td>
</tr>
<tr>
<td>- Higher response rates</td>
<td></td>
</tr>
<tr>
<td><strong>Phone</strong></td>
<td>- Requires respondents to have phones and publicly listed</td>
</tr>
<tr>
<td>- Literacy not required</td>
<td></td>
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<tr>
<td>- Personal contact may stimulate</td>
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<tr>
<td>Method</td>
<td>Advantages</td>
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<tr>
<td>-----------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mail / online</td>
<td>Higher response rates, with sensitive issues in particular</td>
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<td></td>
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<td>- Moderately high response rates</td>
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<tr>
<td></td>
<td><strong>Notes</strong>: numbers</td>
</tr>
<tr>
<td></td>
<td>- Intrusive</td>
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<tr>
<td></td>
<td>- Questions need to be simple</td>
</tr>
<tr>
<td></td>
<td>(respondents cannot read questions)</td>
</tr>
</tbody>
</table>

### Costs, Skills, and Time Required

Cost and time varies with the size of the task. Generally speaking, think of surveys as having overhead costs (planning, recruiting, sampling, designing, pre-testing, analyzing, report writing), variable cost (administering), and follow-up cost (further research inspired by results, utilizing results for (project) improvements).
<table>
<thead>
<tr>
<th>Cost / Time</th>
<th>Lower</th>
<th>Higher</th>
<th>Depends on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small samples</td>
<td>Large samples</td>
<td>Desired reliability of data (the research objective)</td>
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</tr>
<tr>
<td>Easy to access samples (e.g. cities)</td>
<td>Hard to access samples (e.g. remote places)</td>
<td>Context &amp; desired reliability of data (the research objective)</td>
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</tr>
<tr>
<td>Self-administered (mail, online)</td>
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<tr>
<td>Short questionnaires</td>
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<td>Research question</td>
<td></td>
</tr>
<tr>
<td>Low quality (mainly overhead: design, pre-testing, depth of analysis)</td>
<td>High quality</td>
<td>Desired reliability of data (research objective)</td>
<td></td>
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</tbody>
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Skills and knowledge required likewise depend on the task at hand. Generally, you will require:

- Sound analytical and technical skills (M&E, survey experience), and a well-developed common sense;
- Specific knowledge of the issue (e.g. project) and context under study.

- For a recent assessment on the impact of community radio on development and peacebuilding in Sierra Leone and Liberia, interns were hired to develop a methodology and conduct the study. These interns had little knowledge of the development process in either country. As a consequence, focus group discussion guides and interview questionnaires focused on gaining insights about the development process – information which could easily have been obtained beforehand through internet research, review of legal texts, and some informal interviews. Consequently, the study did not probe as deeply as it could have. This was compounded by the fact that interns were asked to strictly adhere to the methodology in order to maintain comparability across research sites.
In addition, depending on the extent to which you outsource remaining tasks, you will need:

- For designing survey documents:
  - Word processing software skills for survey design or experience with setting up online surveys, depending on how your survey will be administered;
  - Design skills in order to produce a non-cluttered, visually clear survey.
- For surveying:
  - Social skills, emotional intelligence, and cultural sensitivity;
  - Some analytical ability to understand instructions and questions.
- For data analysis:
  - Basic statistics knowledge at a minimum;
  - Experience with using appropriate software (MS Excel, SPSS, MS Access, etc.).
- For report writing:
  - Writing skills, analytical skills;
  - Computer skills – word processing, perhaps design skills if report writing includes producing graphs.

See also Appendix I for more information on budgeting.

### Clarifying Objectives

It is crucial that you remain focused on the overall goal of your research (e.g., baseline study, workshop evaluation, impact assessment) when developing a survey as part of a larger research methodology. (See the section When to Use a Survey to help you decide whether a survey is, by itself or in combination with other methods, an appropriate instrument.)
Prepare a clear statement of purpose that includes what you want to find out and why. If you are clear on study objectives, it will be easier to develop a useful and focused survey that provides the data you need.

**Key Elements for a Successful Survey**

1. Dedicated focus on the survey as a project management;
2. Adequate and proper resources assigned;
   In addition to the project manager, the team should include those affected by the surveying effort (they have a vital role in instrument design).
3. Sufficient budget;
4. Well-developed plan;
   Covers instrument design, survey administration, data analysis and the implementation of results.
5. Clear statement of purpose.
   *Why are you doing this?* Summarize in one paragraph. Amend it if necessary, but keep the focus on the essential, not on additional items of unrelated interest.

*Source: Adapted from http://www.greatbrook.com/survey_project_requirements.htm*

To specify your research goal, consider the following:

- If you are conducting an evaluation, for instance, you may want to consult the project’s [Logical Framework](#) and further documents and reports, such as a narrative of the project’s [Theory of Change](#);
- You can consult other DME modules as appropriate to assist you in specifying your research goal. In particular, consider the modules on [Conflict Assessment](#), [M&E Plan](#), [Baseline](#), [Monitoring](#), [Context Monitoring](#), [Designing an Evaluation](#), and [Ethics](#);
- You may further want to consult external information on substantive issues related to your research question, particularly if your study is not tied to a specific project. Consider documents by governments as well as (inter-)national non-governmental organizations, previous internal or external studies, academic literature, etc.
- You can, for instance, find a wealth of information on the use of information technology in relation to relevant issues like agriculture and health in several African countries on Intermedia’s AudienceScapes (www.audiencescapes.org). The site offers reports but
also lets you do your own analysis of their data. Other sources for similar information include Internews and the BBC World Service.

In particular, make sure you are clear on

- **Why you are conducting the research.**
  Do you intend to measure (quantitative) indicators as part of a project evaluation? Do you need reliable quantitative data that you can generalize in order to demonstrate project reach to a donor? Are you conducting a self-evaluation with the purpose of identifying project shortcomings and successes? Do you merely want to capture anecdotes to illustrate the value your work in communications with donors or the broader public?

- **What you want to find out.**
  Are you trying to assess causal relationships (e.g., project outcomes and impacts), gain information about the characteristics of a population (e.g., radio listenership), or research specific issues more in-depth?

- **What type of data you need.**
  You can distinguish between the following types of information. Information on (1) knowledge, (2) beliefs/attitudes (thoughts, feelings, judgments, opinions, ideas), (3) behavior, and (4) attributes (personal, demographic characteristics).

Once you have a concise and relatively precise answer – preliminary or definite – to these questions you can begin designing a methodology.

Please refer to Sections 2 through 4 of this document to determine whether and for what part of the research a survey would be appropriate in light of this research goal.

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**Sampling**

Sampling refers to the process of selecting a part of a target population that is representative of the whole. The aim is to be able to make relatively reliable generalizations without having to ask everybody. The term **target population** refers to that subset of the general population you would like to study.

Examples are: Citizens, inhabitants of a certain region (which you would have to define), school children aged 13 to 18, citizens living in rural towns with less than 10,000 inhabitants, or all project participants.

It is helpful to conceptually distinguish between target population and study population. Target population is the population your survey intends to study, such as “Liberian school children.” Study population is the population your survey actually
covers, i.e., that population which your sample actually represents, such as “Liberian school children attending school in urban areas”. Note that you cannot generalize from the survey population to the target population if they are not identical.

- Imagine that you are in Monrovia during the rainy season and decide you can only interview school children in the capital itself because transport to rural sites is impossible. In this case, your study population – “Liberian school children that attend school in Monrovia” – would differ substantially from your target population (“Liberian school children”). Having noted this difference, you would be careful to only make generalizations for school children in the capital itself.

In an ideal situation, you would possess a list of all the elements of a population, i.e., of the largest possible sample. This list is referred to as sample frame or frame.

An example would be a list of people who participated in a certain project that you are trying to evaluate.

The choice of both sampling strategy and sample size, which crucially affect the reliability (analysis power) and accuracy of your results, should be made in accordance with the purpose of the study, research question, available resources, and other constraints.

1 Note that some researchers use the term “sample frame” to refer to those individuals that constitute the actual sample for the survey. Here, “sample frame” refers to the list of a survey’s target population, and “sample” refers to those individuals that are chosen as respondents.
**Sampling Strategies**

There are two fundamental sampling strategies available – random (probability) and non-random (non-probability) sampling. Random sampling will provide you with more accurate and reliable data, as it helps to avoid sampling bias (see below on sampling bias), thus enabling you to make credible generalizations. It *requires*, however, that you have a sample frame available (often not the case) or that you are able to develop one (which may be costly).

**Random sampling**

The key principle of random sampling is that the sample composition (i.e., which units are included or excluded) is random. It insures the most representative sample.

Specific strategies include:

1. **Simple sampling**
   Each unit in the target population has an equal chance of being included in the sample.

2. **Systematic sampling**
   One unit is chosen randomly. Additional units are added at evenly spaced intervals.

3. **Stratified sampling**
   Use when sample frame is very heterogeneous and you need to accurately represent certain subgroups in order to compare them.

**Example**

1,000 project participants; desired sample size is 250. To calculate intervals, divide population by desired sample size to get step difference between units (1,000/250 = 4). Select one unit randomly (participant #34). Add units at evenly spaced intervals (add participants #38, #42, #46,..., #998, #2, #6, ..., #30 to the sample).
a. Divide the target population into relatively *homogeneous* segments according to the characteristics of interest to you (such as age, gender, education level, place of residence, etc.).
b. Use simple random, systematic, or cluster sampling for each stratum to get to your sample.
c. Strata should be mutually exclusive (any one member of your population falls into only one stratum) and collectively exhaustive (every member of your population is part of a stratum).

With respect to choosing sample sizes for your individual strata, you have two principal options:

a. **Proportional stratified sampling:** If a particular stratum represents 10% of your population, it should represent 10% of your sample. The advantage is that you can use aggregate data collected to immediately draw conclusions for the whole population (because your data mirrors population strata). You should not use proportional stratified sampling, however, if the resulting sample sizes for the individual strata are too small to be reliable (if, say, 10% of the sample is equivalent to only 30 individuals). In such cases you should either increase your total sample size or rely on disproportionate stratified sampling.
b. **Disproportionate stratified sampling:** Choose the relative proportions of strata samples so that respective sampling sizes are large enough to allow reliable generalizations for each stratum.

- If you want to survey a total of 300 individuals and make comparisons based on income levels, you may find that only 5% of the total population falls into the highest of the three income strata you have chosen to compare. As 15 people is too small a sample size for this task, you can choose to survey 100 (ideally more) individuals per income strata to get more accurate data.

Although this will allow you to make easy and reliable comparisons *between*, and generalizations for, individual strata, you need to keep in mind that in order to draw conclusions with respect to the *general* population, you need to adjust the relative weight of data from individual strata according to their population size.

### 4. Cluster sampling

Cluster sampling is a process you should use if you have no sample frame (i.e. list of population units) available. For large target populations, direct simple random or systematic random sampling are not practicable without a sample frame.

**Tip:** UNICEF offers a comprehensive guide on cluster sampling in development countries. See [www.childinfo.org/mics1.html](http://www.childinfo.org/mics1.html)
Cluster sampling involves dividing the target population into exhaustive and mutually exclusive clusters, selecting some (or all) of those clusters, and applying another sampling technique at the cluster level.

**Step 1:** Begin by identifying “natural” clusters for your target population – such as primary schools (with a target population of “primary school students”), radio stations (“radio station staff”), or even communities (e.g., for a target population “youth”).

**Step 2:** Obtain, or create, a list of all existing clusters for a given target population (e.g., all primary schools, all radio stations, all communities, etc.). Consult external sources such as census data (communities), media regulatory bodies (radio stations), or education departments (schools).

**Step 3:** Once you have identified the clusters, there are several options.

a. First, there is the question of whether you select all or only some of the clusters on your list. If you select only some, be sure to use some form of random sampling (simple or systematic).

b. Second, you need to decide whether you will simply interview every single member of the clusters you selected (called “one-stage cluster sampling”), or whether you will use another sampling technique to identify a subset of each clusters’ population to interview (called “two-stage cluster sampling”) – an example would be to pick one house in a community at random, interview a person there, and use systematic sampling to select additional houses in given intervals.

c. Note that there may be sample frames available at the cluster level – such as the names of students of a particular school, a list of radio station staff – which you can use for simple random or systematic sampling.

d. Your decision should be informed by desired sample size and feasibility.

- If there are only 10 radio stations in the country you are studying, and if those stations have a staff of around 15 each, it would probably be best to select all members of all clusters as your sample. If, on the other hand, your target population is “housewives in country X” and you have selected “communities” as clusters, it is clear that you will need to use additional techniques to choose a sample. You may, for instance, randomly select an appropriate number of communities (say, 30), and then employ some form of systematic random sampling to select 20 housewives in each community (for a sample size of 600). For one community that has 120 houses, you could divide that number by 20 (=6), randomly select one house, conduct an interview, and then proceed interviewing female heads of households in every 6th house.
The principal advantage of cluster sampling is that it may *reduce cost*, simplifies the interviewing process (as your sample will be concentrated in particular locations, e.g. a company), and saves time.

Nonetheless, there is an increased likelihood of sampling error, as one would expect less variation *within* clusters than among clusters (“design effect”) because members of a cluster are likely to influence each other and/or are similar in some respects. To minimize resulting sampling bias, you should use as many different clusters as possible and *increase* the sample size.

Depending on the magnitude of the expected design error, you generally need samples that are two to four times larger than other (simple or systematic) random samples to maintain a given margin of error and level of confidence (more on *sample size* below). Take this as a very rough guideline - in some instances, lower or higher factors (10, 15) are appropriate. Use your common sense to gauge whether there is consistent and strong intra-cluster homogeneity in relevant characteristics (such as socio-economic status, attitudes, etc.).

Find an example on cluster sampling combined with systematic sampling below in the section on PPS.

**POPULATION:** Radio station staff  
*No sampling frame available, but stations known. Stations have staff lists.*

- **Step 1:** Identify all clusters (stations)
- **Step 2:** Select all or randomly select a few
- **Step 3:** Obtain lists of population members (staff)
- **Step 4:** Select some (randomly) or interview all

---

**Station 1**  
*Has staff list*  
Manager A  
Producer A  
Producer B  
Editor A  
Presenter A

**Station 2**  
*Has staff list*  
Manager A  
Producer A  
Editor A  
Presenter A  
Presenter B

**Station n**  
*Has staff list*  
Presenter A  
Editor A  
Manager A  
Manager B

---

**Your Sample**
Non-probability sampling

Non-probability sampling is more convenient and less costly than probability sampling, particularly as you do not need a sampling frame. Because it entails sample selection by some form of judgment, not probability, the likelihood that any given member of the population under study is included in your sample is unknown and varies for each member. Hence, your sample will very likely be biased (see also section on Sampling Biases below). You should thus be careful with any generalizations, or at least explicate potential biases when reporting your conclusions. One can distinguish between the following strategies:

1. **Accidental (convenience) sampling**

   Accidental sampling involves surveying members of your population that are convenient to reach.

   - Aiming to interview market vendors, for instance, you may choose to go to several markets and survey the first ten vendors you encounter. Or you may use “intercept sampling,” where you provide surveyors with quotas of target groups (ex-combatants, youth, market women, etc.), send them to specific locations (central market, bus stop Y, main street of town X, etc.), and instruct them to interview people according to the quotas provided.

2. **Purposive sampling**

   There are several techniques of purposive sampling. They may include:

   - **Judgment sampling**: in which an expert, or a group of experts, makes informed judgments to select the sample. This is justified in particular if the study population is small enough to allow for informed judgments, and the sample size is small enough to expect judgment sampling to yield a better sample than probability sampling.
     - If you intend to survey five of twenty radio station managers that are heterogeneous in relevant dimensions – such as issues relevant to respective listenership, gender, literacy, reach of radio station, or governing mechanisms – a judgment sample providing a cross-section of these dimensions may yield better results than a probability sample.

   - **Quota sampling**: which involves dividing the population into mutually exclusive and exhaustive strata, just like in stratified sampling, but applying non-probabilistic means to select samples within those strata (convenience sampling, judgment sampling, etc.).

   - **Extreme or deviant case sampling**: to analyze unusual manifestations of a phenomenon of interest. You could, for instance, interview project participants whose behavior has
observably changed significantly in response to your intervention, and compare them against those where this has not occurred.

- **Snowball sampling**: in which you select the first member of your sample (likely in a non-random manner), and that member identifies further subjects you can survey (and so on). This technique is particularly useful for populations that are hard to access by other means (e.g., drug users, criminals, prostitutes, etc.).

**Mixed sampling strategies**

Mixed sampling combines different sampling strategies, both probabilistic and non-probabilistic. In many cases, practical constraints call for such an approach. An example would be to combine cluster sampling with judgment and convenience sampling.

- You may, for example, randomly select ten primary schools (clusters), divide pupils into strata (male/female, Muslim/Christian/other), choose to interview 20 of each of the four resulting categories at each school, and proceed by convenience sampling, such as asking teachers to point out students that match your criteria.

**Cluster/systematic sampling strategy: PPS**

If you use cluster sampling based on clusters that vary considerably in population size (such as districts or communities), both large and small clusters have an equal probability of being included in your sample, which is not desirable. Probability sampling proportional to size (PPS) can help remedy this. Consider the following example of selecting communities within a district. (UNICEF, 2001)

You need (1) a list of all communities, (2) estimates for population size of each (typically individuals or households, depending on your target population), (3) and the number of clusters you want to select in that district.

**Step 1**: Create a table with four columns:

<table>
<thead>
<tr>
<th>Community #</th>
<th>Population</th>
<th>Cumulative Population</th>
<th>Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(Sequentially number the communities in the district)</em></td>
<td><em>(List population for each community)</em></td>
<td><em>(Calculate cumulative population)</em></td>
<td><em>(Results from PPS, see below on process)</em></td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1,000</td>
<td>1,100</td>
<td>XXXX</td>
</tr>
</tbody>
</table>
Step 2: Calculate the sampling interval using the formula below. Using the example table above, and assuming 5 clusters are required, this would yield a sampling interval of 820.

\[
Sampling\ Interval = \frac{Cumulated\ total\ population}{Number\ of\ clusters\ required}
\]

Step 3: Select a random number that is equal to or lower than the sampling interval (in this case between 1 and 820). You can simply ask a co-worker to pick one. Suppose that the random number is 132.

Step 4: Find the first cluster by identifying that community for which the cumulative population first exceeds that random number. In the example above, the cluster would be located in community #2.

Step 5: Then add the sampling interval to that number (820 + 132 = 952) and find that community in which the next cluster will be located by identifying the community for which the cumulative population just exceeds this number. In the example above, this would also be community #2.

Steps 6+: Repeat step 5 until you have the desired number of clusters. In the example above, you would select two clusters from community #2, and one each from communities #4, #6, and #7.

**Sampling Biases**

You will likely be using surveys in order to make accurate quantitative statements about your target population. There are two principal sources of error that could undermine your results: sampling and non-sampling bias.

**Non-sampling bias** refers to bias that occurs as a result of the way the survey is designed and administered, or from characteristics of those surveyed (e.g., respondents give socially desirable answers). Such bias can be minimized by sensible questionnaire design and administration (more in this module’s sections on question design and survey administration).
**Sampling bias** refers to bias resulting from your choice of sampling size and strategy. You should be aware of:

- **Sampling error**
In theory, if you administer a specific survey multiple times but to different representative samples of the same population, you will likely encounter some **variability among results**. This variability, sampling error, can generally be reduced by increasing sample size.

  - If, for instance, you do a survey to estimate radio listenership three times with different but representative samples, you are likely to receive varying responses – such as 69%; 68.2%; 70.5%.

- **Selection bias**
If your sample is *not representative*, your results will be biased. One can distinguish between different kinds of selection bias:

  1. **Undercoverage.** Bias from undercoverage occurs if some members of the population are more likely to be included in the sample than others. It is thus a problem of sampling strategy. Potentially underrepresented groups include those who are illiterate, residents of inaccessible places, marginalized groups, elites, and seasonal migrants.

    - If, for instance, you conduct a survey to ascertain radio listenership in a developing country, and do so only in cities in order to minimize time and travel costs, the under-representation of rural dwellers may cause inaccurate results – at least if you intend to generalize your results to the country’s entire population.

  2. **Self-selection bias.** If the population you intend to study has any control over whether to be included in your sample or not, and if this willingness to participate correlates with behaviors, attitudes, or knowledge you want to measure, your results will be biased.

    - This may be the case, for instance, if you want to evaluate a large project by asking all participants to voluntarily participate in a survey. It is likely that those with a strong (positive or negative) opinion will be more motivated to respond, and thus overrepresented in your results.

  3. **Non-response bias.** Even if you have a representative sample, it may be the case that some members of that sample are more likely to respond than others. If this willingness or ability to respond correlates with meaningful characteristics of your sample, your results will be biased.
Suppose, for instance, you try to learn about attitudes on a particular TV show via a mail survey. If illiterate people (who are unlikely to respond) have attitudes that differ significantly from those of literate individuals (who are more likely to respond) you will have inaccurate results.

**Ideal Sample Size**

While being constrained by the resources at your disposal, the theoretically ideal size of your probability sample depends on the following factors:

1. **Margin of error** (or confidence interval) and **level of confidence**
   The margin of error reflects how much you can tolerate survey responses to deviate from the “true” answer (i.e. the results you would get if you surveyed every single member of the population). Typical level: 5%. Note that margin of error is equivalent to the sampling error discussed above.

   The level of confidence reflects how certain you can be that survey results do indeed only deviate from the “true answer” by your margin of error. Should you choose a sample based on a confidence level of 90%, for instance, you can (all else equal) be sure that nine in ten (i.e. 90%) responses will not deviate from the “true answer” (had you surveyed your entire population) by more than the margin of error. In other words, the level of confidence reflects how often the true percentage of a population who would pick a certain answer lies within the confidence interval (margin of error).

   Typical levels are: 90%, 95%, 99%.

   Suppose that you ask whether people listen to the radio at least once a week, and choose your (simple, random) sample size based on a margin of error of 5% and a confidence level of 90%.
   If you get 40 percent “yes” and 60 percent “no” responses, then you can claim that 40 +/- 5 percent (margin of error) do listen to the radio more than once a week and 60 +/- 5 percent do not. You can make this claim with 90% certainty – or, put differently, you know that this is (statistically speaking) not true for one in ten members of the total population (=90%).

   The lower the desired margin of error, and the higher the desired level of confidence, the larger your sample should be.
2. Response distribution
How do you expect respondents to answer? In principle, if you can reasonably expect a large majority to give one particular answer to one particular question (e.g. 90% say “yes” to a “yes/no” question), you may choose a smaller sample (for that question). Except if you know what you are doing, however, you should assume the worst-case scenario of a response distribution of 50% (half say yes, half say no). The sample size required (with given margin of error and level of confidence) is largest for an expected response distribution of 50%.

3. Population size
All else equal, larger populations require a larger sample size. For populations in excess of 20,000 members, the effect of population size on sample size is very small.
4. Nature of analysis
If gathering qualitative data is your main objective, then sample size is less important (although you may want to choose a different method to gather such data).

5. Desired degree of disaggregation
If making reliable generalizations for, and comparisons across, sub-groups (e.g., gender, age, profession/occupation, residence, ethnicity, etc.) in your dataset is an important objective, consider the likely margins of error and confidence levels for those individual sub-groups.

- Assuming a population size of 20,000, a response distribution of 50%, and a confidence level of 95%, suppose you interview 400 women and men categorized into youth and adults. Your approximate margin of error is 4.9% (see table). If you want to draw generalizations for, say, the 100 young women in the sample, and/or compare data to adult women, your margin of error will be much higher at 9.8%. (See stratified probability sampling.) For any generalizations for, or comparisons between, the 10 adult market women and the 10 female teachers included in your hypothetical dataset, you would have to tolerate a 31% margin of error.

6. Whether you use cluster sampling
If you use cluster sampling, you need to adjust sample size upwards to maintain accuracy. See above in section on cluster sampling.

Developing the Questionnaire

Developing good questions is crucial to gathering useful data. If this part of survey development is not done well, respondents may refuse to respond or, if they do, give biased answers – intentionally or not.

General Considerations

In general, consider the following principles of question design:

1. Try to minimize respondent burden, i.e. the time and effort required of respondents. High respondent burden will likely result in lower response rates and biased (i.e. possibly useless) answers. At the most basic level, questions should
   - Be clear, and interpreted similarly by all respondents;
   - Indicate what type of answer is desired (yes/no, rating, categories...);
   - Be answerable with the respondents’ knowledge; and
   - Should not threaten (privacy, sensitive issues) or overburden respondents.

   ➢ If questions are unclear, if they ask about sensitive information, if respondents are forced to answer although they think they can’t, or if they do not find appropriate answer categories, they may choose (or be forced) to answer untruthfully or inaccurately.

   • As a first test, you should evaluate each question from the perspective of respondents. Is the question reasonable? Would you be able and willing to answer it? Does it infringe on your privacy?

2. Keep your survey as short as possible. If you cannot justify why a particular question should be included in the survey, leave it out. This includes “nice-to-know” questions. Doing this reduces respondent burden and the time/resources needed to collect and process data.

3. Always consider which kind of data you want to get and how you want to disaggregate and interpret it. (See the figure below for analysis potential of different question/data types.)
If you evaluate a project that targets youth and adults differently, include an appropriate demographic question. If three age categories are sufficient for any generalizations you want to draw and comparisons you want to make, do not ask for six.

4. Note that the type of survey you use has an impact on the kind of questions you can ask – in self-administered surveys, for instance, respondents will always be able to read all possible answer options. If you want to test knowledge, the mere fact that (some) “right” answers are listed may bias your results because that listing helps respondents recall information they had forgotten.

<table>
<thead>
<tr>
<th>Typical question type</th>
<th>Data type</th>
<th>Example</th>
<th>Analysis Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open-ended, numerical [with natural zero]</td>
<td>Ratio</td>
<td>How old? ___ Years</td>
<td>X</td>
</tr>
<tr>
<td>Scales</td>
<td>Interval</td>
<td>How satisfied? (1) very; (2) not; …</td>
<td>X</td>
</tr>
<tr>
<td>Forced rank ordering</td>
<td>Ordinal</td>
<td>Rank these three development goals in order of importance.</td>
<td>X</td>
</tr>
<tr>
<td>Select all that apply</td>
<td>Nominal / Categorical</td>
<td>Do you like (a) egg; (b) tea; …</td>
<td>X</td>
</tr>
<tr>
<td>Open-ended comments</td>
<td>Text</td>
<td>What do you think about X?</td>
<td>X*</td>
</tr>
</tbody>
</table>

* If you categorize and code open-ended questions, you can analyze frequency distributions as well.

Source: based on [http://www.greatbook.com/survey_question.htm](http://www.greatbook.com/survey_question.htm)
**Question Types**

There are two fundamental types of survey questions – open and closed ones.

**Closed questions**

Closed questions provide exhaustive lists of answers of which respondents pick one or more.

If you are not sure whether a set of answers you come up with is indeed exhaustive, you can use partially closed questions that offer an “other” or “don’t know” option, often with the possibility for respondents to specify “other” answers in writing.

Answers to closed questions are designed to be either alternative (“check only one”) or cumulative (“check all that apply”).

Alternative answer options must of course be mutually exclusive for answers to be meaningful.

Possible and common formats for alternative answer sets include two-option (e.g., male/female; yes/no), one best answer, rating scale, paired comparisons, and ranking items in a series.

The primary advantage of closed questions is that they are easy to code and analyze and are appropriate even for inarticulate respondents. Their utility does, however, crucially depend on how well answer choices are designed. Closed questions can only solicit unknown information to a limited extent, and only if they are partially closed.

If questions and answers are not carefully designed, closed questions can create false opinions because they provide respondents with a set of (acceptable) answers and leave little room for qualification (except for partially closed questions).

It may be sensible to allow respondents to qualify each answer they give to a closed

**Examples: Closed Questions**

**Alternative Choice**

Does anybody in your household own a working radio set? *(Check only one)*

- Yes
- No

**Cumulative Choice, partially closed**

Which are the three favorite types of programs you like to listen to on the radio? *(Do not read answers out loud. Check three answers or less. If unclear about what to mark, check “other” and specify.)*

- Storytelling
- Music
- Sports
- Dramas / Series
- Local news
- National news
- International news
- Other (1) > Specify: ___________________
- Other (2) > Specify: ___________________
- Other (3) > Specify: ___________________

**Rating Scale**

I had a chance to hear the voice of my candidate on radio or public forum. Do you agree or disagree? *(Check only one)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Paired Comparison**

Local government helps with development in this community. What do you think is more important? *(Read as “Is it more important that local government [first option] or [second option]?” and check the response)*

- builds wells
- distributes medicine
- educates about illness
- distributes medicine
- hires more doctors
- distributes medicine
- build treatment facilities
- distributes medicine
question if they feel the need to do so. In practice, you would provide space for comment next to each closed question, and instruct surveyors accordingly.

**Open questions**

Open questions do not offer a predetermined set of responses.

In contrast to closed questions, open questions can capture unknown information, be that creative suggestions, constructive feedback, or answers that you were unable to anticipate when originally designing the question. Open questions allow respondents to qualify their answers, and do not prompt for opinions in the sense that they offer answer choices that are apparently acceptable to the researcher. On the downside, open questions take longer to answer and are hard (sometimes impossible) to code in a meaningful way, which makes generalization difficult. In addition, very general open questions on attitudes and behaviors may result in underreporting.

- If, for instance, you ask “what have you done today?” to see whether respondents report having listened to the local radio station on a given day without being prompted by answer categories, note that they may simply consider this behavior to be self-evident and not worth reporting.

Your choice of question type depends on what kind of information you need. Open questions may be better to solicit opinions, closed questions to assess the strength of an opinion, etc.

**Writing Questions**

Designing good questions that generate useful and reliable data is difficult. You can conceptualize the conditions under which a question does so in the following manner:

- **Question asks for information you need**
  - No → **Useless information**
  - Yes ↓

  *Example:* “Should national government reduce spending on X and increase on Y?” only gives you information on relative preferences.
<table>
<thead>
<tr>
<th>Respondents understand question and interpret it consistently</th>
<th>No</th>
<th>Example: “Do older people think the television show should not be discontinued?” is unspecified, not well worded, and confusing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respondents able to answer (truthfully)</th>
<th>No</th>
<th>Example: “Rank these 10 development priorities in order of importance” is simply too demanding.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respondents willing and able to give unbiased answers</th>
<th>No</th>
<th>Example: “People who do not vote are a threat to democracy and freedom. Did you vote in last year’s election?” will likely yield biased results.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Goal:** Useful, reliable data

Below are more specific guidelines to call your attention to the main problems surrounding survey question design:

**Asking the right questions**

- Consider the **value of the information** you are likely to get from a particular question.
  
  - Answers to a question asking “were you satisfied with this workshop,” for instance, will only tell you self-reported satisfaction levels. If you seek information you can act on, however, such self-reports do not tell you much. Unsatisfied respondents will have very different reasons for their answers. Either ask a different question altogether, or follow this one up with more specific ones. For example, ask for satisfaction with the trainers’ competence and behavior, location, workshop content, process, etc.
• **Ask one question at a time** (avoid “double-barreled” questions). The information you get from answers to double-barreled questions is not very useful. If you want to ask for relative preferences (e.g. development goals – building wells vs. providing medicine, providing seeds vs. fertilizer), use ranking questions or paired comparisons because they state your intent more clearly.

  ➢ Avoid questions like “Is this show entertaining and informative?,” “Should government reduce spending on X and increase on Y?” Instead, break such questions into two questions.

• **Provide meaningful scales**, i.e. offer not too many and not too few answer choices. Label each. Four to five is usually good. Larger scales are appropriate if you want to capture extreme opinions.
  - Consider whether you want to offer a neutral position, i.e. whether you provide an even or odd number of answer choices.
  - Use wording that minimizes the relative frequency of answers at the extreme ends of a scale, and generally try to achieve a good dispersion of answers. This is particularly important if you want to measure improvement over time, because this way you leave room for respondents to give better ratings in the future.
  - Do this through the adjectives with which you label your scale’s endpoints. Usually, “strongly agree” to “strongly disagree” is a good scale for opinion questions.
  - If you use large rating scales, e.g. from “(1) Very satisfied” through “(10) Very dissatisfied,” label points (2) through (9) as well. It is likely that respondents will otherwise interpret options to mean very different things.

• If you want to be particularly careful, you can offer respondents the option of explaining their choice of answer to a closed question by providing some space next to such questions, or by asking a follow-up, open-ended “please explain why you feel that way” question.

• For closed questions, those with alternative answer choices in particular, include all relevant alternatives as answer options. Even though it is very difficult to find out what exactly “relevant” alternatives are, well-crafted answer choices are essential to make sure you actually get the information you want. [See box]

• Note also that respondents use frequency scales and reference periods to interpret a question. Consider providing examples of the kind of attitudes or behaviors you are trying to learn about in order to avoid the need for respondents to interpret questions by looking at answer choices (though this may in turn suggest “appropriate” answers and result in biased responses).
If you ask “How often do you discuss what you see on TV with others?” and use a frequency scale suggesting that “discussion” is a rare event (never, once a year, once a month), it is likely that respondents interpret “discussion” to mean especially meaningful conversations, or substantial and heated arguments. If you provide a different frequency scale (once a day, several times a week, once a week, less than once a week), “discussion” will be construed differently. Similar differences in interpretation will occur if you ask “How often did you discuss what you heard on TV with others last year” as opposed to “last week.”

Impact of answer choices on answers

“Make sure you include all the relevant alternatives as answer choices. Leaving out a choice can give misleading results. For example, a number of recent polls that ask Americans if they support the death penalty "Yes" or "No" have found 70-75% of the respondents choosing “Yes.” Polls that offer the choice between the death penalty and life in prison without the possibility of parole show support for the death penalty at about 50-60%. Polls that offer the alternatives of the death penalty or life in prison without the possibility of parole, with the inmates working in prison to pay restitution to their victims’ families have found support for the death penalty closer to 30%. So what is the true level of support for the death penalty? The lowest figure is probably truest, since it represents the percentage that favors that option regardless of the alternative offered. The need to include all relevant alternatives is not limited to political polls. You can get misleading data anytime you leave out alternatives.”

Source: http://www.surveymonkey.com/sdesign.htm

Understandable and clear questions

Make sure respondents understand your questions, and minimize the degree to which different respondents understand the same question differently to get reliable data.

- **Language should be clear, simple, and brief.** Write for your audience. Consider respondents’ level of education and command of the language you use – especially if you intend to do an English/French/… survey with respondents that speak a local variant of English/French/….

- **Write clear and simple questions.** If a question can be misinterpreted, it will be. Respondents should be able to understand questions without further explanation. You can break down complicated questions into their component parts.
While this is a fundamental necessity for self-administered (written) surveys (mail, online), keep in mind that even for orally administered surveys, any additional explanations given by the survey administrator will influence answers, and hence reduce their consistency across respondents.

- Avoid ambiguous words and professional or program jargon. Use easily understandable words (e.g., “help” instead of “assist”), and consider possible mispronunciation by surveyors (e.g., “oppose” and “propose”).

  - Ambiguous words
    - Consider “often” or “regularly” (How often is that? Use “one out of three,” “twice last week,” etc.), “government” (Local? National?), “older people” (How old is that?).
    - You can provide definitions, but if you do these should not be given on an if-asked basis but provided to each respondent.

- Always provide relevant time referents – day, week, month, year?

- Avoid double negatives.
  - Rephrase “The radio program should not be ended” to “should be continued.”

- When structuring questions, begin questions with context, continue with the actual question, and end with answering options.
  - “You have participated in workshop X. Would you recommend your colleagues or friends to do the same? Definitely, probably, maybe, or certainly not?”

- Clearly communicate the kind of answer you expect and avoid multiple meanings.
  - The question “When did you move to this town?,” for example, can be answered with reference to a particular year, age, or event. Answers to “What is your income” would be very different depending on whether respondents understand it to be annually, monthly, or daily, before or after tax, disposable or not, etc. This requires that you communicate the pragmatic meaning of a question by telling respondents what you want to know.
  - Suppose you want to know about whether interaction between two conflicting groups speaking different languages would be possible. If you want to ascertain language proficiency and ask “do you speak language X,” however, people are likely to vary widely in their interpretations. There will be over-reporting (people that only speak some words answer yes) and under-reporting (people that have a conversational command of the language may think you want to know about
fluency). Hence, you should rephrase to something like “how well do you speak
language X – not at all, can hold a basic conversation, strong command, fluent.”

- **Keep answer order consistent.** If, for instance, the first yes/no question lists the
answer options in the order of “(1) Yes” and “(2) No,” do not switch the two for
the next yes/no question. The same applies to rating scales.

**Questions respondents are able to answer (truthfully)**

Ask questions that respondents can in fact answer (truthfully) in order to avoid getting
meaningless responses (or none at all).

- **Only ask questions that respondents are able to answer.** You should not ask
questions that require knowledge or information respondents are unlikely to
have, or ask for the causes of or solutions to complex real or hypothetical
scenarios – except if your stated goal is to test knowledge or learn about
people’s hypotheses about causal chains.

  - Examples of too demanding questions: “What is the local chief’s position on the
    community radio station?” “How likely is violence to resume during the next month,
    and why?” “Please rate these ten development goals in order of importance” or
    “How has the radio drama X changed life in the community.”

    - Answers to such questions will only give you a basic insight into respondents’
      understanding of the issues and usually add considerably to respondent burden (if
      you get an answer at all). This type of question is better suited for ➔ Interviews, or
      perhaps ➔ Focus Groups, as you have the opportunity to rephrase, clarify, qualify,
      and ask follow-up questions.

    - With regard to questions that presuppose a level of knowledge respondents are not
      likely to have, you can likewise use screening (filtering) or qualifying questions,
      though you should be restrictive with their use (they increase time required to
      complete the survey and make it more difficult to administer).

- **Consider placing memory aids** when appropriate. You can, for example, add an
introduction or a short summary if you are talking about a specific project that
people may not remember by its name. Similarly, you can for instance play the
theme song of a radio show to remind respondents of the show you are asking
about.

- **Do not ask too precise questions.** Often, answer categories are a good
alternative (such as income brackets). In some instances, however, respondents
can easily remember exact numbers (e.g., how many of your children go to
school at least three times a week). In these cases, keep in mind that you can still
create answer categories later. For instance, you can instruct interviewers ask for a respondent’s age, note it, and then tick the appropriate category.

➢ The question “How many times did you see THE TEAM on TV last month? Answer: ___ times” will not yield meaningful answers. Answer categories such as “between 1 and 5 times” are better.

• For closed questions, answer options should be exhaustive and mutually exclusive – particularly if you use alternative and not cumulative answer options. Specifically:
  o Categories should not overlap to make sure your data are accurate. If, for example, you use age categories 0-15, 15-30, 30-45 it is unclear which category to mark if somebody is 15 or 30.
  o Avoid unwarranted assumptions.

➢ If you want to know who watches or listens to a particular TV or radio show, it would be unwarranted to assume that everybody you ask has the will and opportunity to actually watch TV or listen to radio. If you ask “Have you seen The Team on TV?” the underlying reason for “No” answers may be that the respondent does not like to watch television, or does not have the opportunity to do so (e.g., owns no set). This question is fine if you want to assess how many of your respondents have seen “The Team,” but the figure you would probably be interested in is how many of regular TV viewers (short-term potential audience) have seen the show. Your question(s) should capture this distinction.

  o You can address some issues arising from unwarranted assumptions by asking screening / filtering questions (“Do you watch TV?”) before getting to your actual question.

➢ If you want to know the occupation of each survey respondent, it would be unwarranted to assume that people only have one occupation. A woman may, for instance, be a housewife, a farmer, and sell food on the streets. Therefore, any question that includes those answer options should be multiple choice, and not alternative choice.

  o Consider adding an “other - specify” category to the answer sets if you are not sure they are exhaustive. Make questions multiple choice (instead of alternative choice) if you cannot be sure answer options are mutually exclusive.

• It may be useful to include a “don’t know” option for knowledge questions and a “no opinion” option for opinion questions. This depends on research intent. If you only want answers from respondents with informed opinions, for instance, a fallback category (no opinion) may be useful.
• **Avoid patterned responses** (e.g. respondent consistently “agrees” on several consecutive rating scale questions) by alternating negatively and positively phrased questions.

• **Be aware of cognitive limits.** Of particular relevance in survey design is *hindsight bias*, the tendency that retrospective judgments are biased by outcome knowledge. This includes, for instance, assessments of the inevitability of certain events, justifications of past actions or decisions, and tests of the validity of certain beliefs or knowledge.

**Tip:** Read more on cognitive limits in a highly instructive article by Schwarz and Oyserman referenced below in the *further resources* section.

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**Subjective theories of stability and change**

“Ross and Conway (1986) had students participate in a study skills training that did not improve their skills on any objective measure (and was not expected to do so). Following the training, researchers asked participants to recall how skilled they were before the training.

Applying a plausible theory of change, namely that the training improved their skills, participants inferred that their prior skills must have been much worse than they were after training. Hence, they retrospectively reported having had poorer pre-training skills than they indicated before the training, apparently confirming the intervention’s success.

This result was obtained despite incentives to respondents to recall their earlier answers as accurately as possible. As Ross and Conway (1986) noted, you can always get what you want by revising what you had”

“To assess actual change, we need to rely on before-after, or treatment-control, comparisons, and if we have missed asking the right question before the intervention, little can be done after the fact to make up for the oversight.”

Avoiding bias

To avoid getting biased (or no) answers, take care only to ask questions that respondents are able and willing to answer in an unbiased way

- **Keep open-ended questions to a minimum.** Though useful in some instances, they are typically more burdensome to answer. If overused, they will decrease your response rate or the quality of answers.

- **Avoid leading questions,** i.e. those suggesting that a particular answer is “right” (and thereby inducing the respondent to answer in that manner).
  - This includes questions that reference opinions by authorities or the majority (“Most people think X. Do you think X?”, or questions that are introduced with phrases like “Don’t you believe that Y?”)
  - Be sure to provide balanced scales on rating questions. An example of an unbalanced one would be “outstanding – excellent – very good – poor” (it is skewed towards the positive).

- **Be careful with sensitive questions.** This includes questions that may be considered too personal (age, income, use of legal drugs (alcohol), etc.), questions that are incriminating (use of illegal drugs, possibly prostitution, etc.), or questions that are otherwise sensitive (e.g., “Did you vote in the last election?”). Besides being inappropriate, such questions increase respondent burden (this can prompt people to abort the survey), are unlikely to elicit honest responses, and may put respondents at risk. Some of these issues can be circumvented by asking such questions in a careful manner. Consider
  - Using categories, e.g. for income. Also provide an artificially low answer option to increase comfort;
  - Using intentionally *biased* questions to counterbalance bias arising from the sensitivity of the question – You can, for instance, legitimize an honest answer by referring to an authority (experts, leaders, etc.) or giving excuses for the socially undesirable response;
  - Example: “There are many reasons people do not get a chance to vote. Sometimes there is an emergency, sometimes they get ill, or they cannot get to the polls. Do you remember voting in the election last April?”
  - Asking indirectly. Instead of asking for age, for example, ask for year of birth (if you can assume people know their year of birth).
Designing the Questionnaire

Questionnaires should be designed in a way that makes reading questions and recording answers as easy as possible for respondents and surveyors.

Title and introductory information

Give the survey a clear and succinct title that reflects its content. Write an introduction that includes study purpose, describes how findings will be used, and provides a confidentiality statement as well as the approximate amount of time respondents will need to complete the survey. Keep it short.

Sampling instructions

(This concerns orally administered surveys only.) If you use purposive sampling (see section on sampling above) in which your surveyors are asked to interview specific numbers of respondents that fit particular characteristics (e.g., fifty women, of which 25 under the age of thirty, etc.), you may want to include sampling instructions on each survey to ensure that survey takers remain aware of these instructions.

Except if your enumerators are good at math, do not use percentages for such instructions (50% women, 50% men), but provide absolute numbers. Depending on the skill and experience of your interviewer, also provide a tally sheet that makes tracking progress easy.

You can use tallying sheets like one in the box, in which survey takers are asked to write survey IDs in boxes next to demographic quota to track their progress. The following, simple example, tracks a sample of 28, divided equally into men and women as well as those over and those under 35 years of age:

Interviewing instructions

Provide clear and comprehensive instructions on
- How to mark answers (circling, ticking, underlining);
- How to answer (check one, check all that apply, check a maximum of two, etc.);
- Whether all questions need to be answered, or which ones are optional;
Which questions to skip, and under what conditions;
For which questions answer options are supposed to be read out loud (or not).

It is better to repeat directions too often than not to.

**Highlight instructions** (consistently) through formatting (caps, italics, bold, position relative to question, color, etc.)

Be very clear with directions on screening/filtering questions – i.e. questions that determine whether respondents will be asked further questions on a subject or not ("Do you watch TV (Yes/No)? > If yes, go to question (4); if no, go to question (7)"). Ideally, you use visual aids like arrows, colors, indents, question numbering systems, etc. to clarify which question should be answered next. This is of particular relevance for written (self-administered) surveys (mail, online), or for surveys that are administered orally by inexperienced survey takers. If you are doing an online survey, consider using platforms that perform filtering automatically (i.e. survey-takers are presented only with those questions relevant to them).

Note that you can often **shorten your survey** considerably (i.e. reduce respondent burden) by **leaving out filtering questions** and replacing them with one (somewhat loaded) question.

- Assume you have a set of filtering questions like this:
  1. “Do you have children?” Y (go to 2) N (go to 4)
  2. “Do they attend school?” Y (go to 3) N (go to 4)
  3. “How much did you pay last month for school fees?”
  4. (next question)

  It is much shorter to ask “How much did you spend last month on school fees for your children?” and include “Don’t have children” and “Children don’t go to school” answer options. Nonetheless, the question makes two unwarranted assumptions: that the respondent has children and (some of) those children attend school. It may also be perceived as loaded in the sense that it suggests respondents should be spending on school fees. Depending on your research intent, you may be willing to accept these drawbacks in the interest of reducing respondent burden.

**Tracking information**

If you are using multiple survey administrators **note the identity of the surveyor** on each survey. When you analyze surveys after they have been administered and notice suspicious correlations or similarities between answers (that lead you to conclude a surveyor has asked leading questions, given example responses, or simply faked the answers) you can easily identify and throw out the data in question.
If you use a paper survey, also add a space where enumerators (or you) can put unique identification numbers on each survey. These are important for later analysis – if you find inconsistent data in a spreadsheet or database, you can use IDs to refer back to the original paper document to check whether data errors or inconsistencies were caused by data entry mistakes (you will be able to avoid discarding data).

Question order

Organize questions according to topic area and provide meaningful headers. Include short sentences that lead from one question group (topic section) into another. (“Now that we have talked about the workshop itself, I would like to ask you some questions on what you took away from it.”)

Order questions from easy and comfortable at the beginning (typically knowledge questions) to sensitive and challenging (typically behavior questions) at the end. People are more likely to answer difficult questions if they have already invested time in filling out a large share of the survey.

Be aware that question context imparts meaning.

- If, for instance, you survey former child soldiers and ask them whether they have gotten into a fight recently, they will construe “fight” differently if there is a preceding question that mentions or asks about violence.

Ask for demographic information at the end of the questionnaire (it can be sensitive – age, ethnicity, etc.) – except, of course, if certain demographics are used as criteria for exclusion from the survey (e.g., if it is only addressed to a certain age or occupational group).

Further options regarding question order are the following:
- From general to specific; (if specific questions are difficult / sensitive)
- From specific to general (if you want to help with recall);
- From most recent to past (if you want to help with recall);

Add at least one open-ended question at the end of the survey for comments on the survey or enumerator.

Numbering and coding questions

Number your questions and code your answers once you have a fairly definite version of the questionnaire (in most cases, you should test the survey first). This allows survey takers to begin entering results into spreadsheets or databases during the period of survey administration (should they have time to spare).
For more on coding, see the section on data analysis below.

Formatting

Formatting should be clean and straightforward.
- Leave sufficient white space;
- Avoid clutter;
- Use easily readable typeface in easily readable size;
- Mark smart use of highlighting and contrasting options such as capitalization, text styles (bold, underline, italicized), indents, and white space. (If you overuse these, contrast is lost.)

Do not break questions between pages. Keep questions that are conditionally linked (if answer A -> go to question #3, otherwise #2) on the same page, even if this results in more white space. This way, enumerators do not have to flip back and forth to see how respondents answered on previous questions.

Align response categories vertically (not horizontally) to avoid confusion about where to mark responses (the box to the left or to the right?). Scales and paired comparisons are exceptions, but make it visually unambiguous how answers are to be marked.

Leave sufficient space for open-ended questions. Note that the amount of space you provide indicates how long an answer you desire.

Mail and online surveys

Consider the following for written, self-administered surveys:

Keeping the survey short is paramount. Self-administered surveys are easiest to abort. Always ask yourself whether you (as a hypothetical member of your population) would be willing to complete it.

Make the questionnaire easy and comprehensible. Avoid clutter, leave white space to make it look easier (StatPac, nd.).

Aim for a visually appealing design and format to make your survey stand out.
- Mail surveys: Consider ink colors, paper color, paper quality for mail surveys.
- Online surveys: If you have (access to) some web-development knowledge (basic CSS and HTML), use LimeSurvey. It is free, very customizable and much better than SurveyMonkey (http://www.limesurvey.org).
Make the survey **consistently interesting**. Vary answer types – do not, for example, ask rating scale question after rating scale question, respondents will likely get bored and fall into response sets (same answer to each question). At the same time, try to preserve a smooth question flow.

Have realistic expectations – put the **most important questions in the first half** of the questionnaire, as respondents often send back questionnaires that are only half completed.

**Translating**

If you need to translate your survey, you should use translators who
- have experience with surveys and are thus aware of the peculiarities of question design;
- are fluent in both relevant languages.

This is **crucial** to maintain the quality of your questionnaire (and hence the reliability and usefulness of answers).

Give translators a detailed briefing on survey objectives and questions. Explain each question and the kind of information you hope to elicit.

If you have the time and resources, use a different translator to translate the survey back to English (the original language) in order to check for possible errors.

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**Lesson Learned: Translation**

In one recent study a great deal of time and effort was taken to carefully translate a questionnaire from English into the local language. It was discovered during the training that most of the enumerators knew how to speak the local language but *did not know how to read it*. Enumerators conducted the surveys in the local language but did the translation from English mentally during the interviews.

*Source: Search for Common Ground, internal document on lessons learned.*
**Testing the Survey**

It is crucial that you test your survey instrument before administering it. The general rationale is to assess whether your survey, in its current format, actually generates reliable and useful data.

**Issues to look for**

Mirroring the considerations you should apply in question design (and questionnaire formatting), check for the following issues. (This list is not exhaustive, and only highlights some issues. Refer to the section on question design for a more specific list of problems you should look for.)

- **Useless / duplicate information** (your questions ask for data you do not need)
  - Variability in responses: Is there any question that people consistently answer the same way (including rating scales)? If this is not intentional, the question may be pointless in the first place (“Are you alive?”) or in need of rephrasing or other changes.
    - If you get consistent “Yes” answers to “Are you satisfied with X,” change the question to “How satisfied are you with X” and introduce a rating scale.
  - Redundant information: If you get the same information twice – which is easy to notice with open-ended questions – you may want to eliminate or rephrase one question.
    - In a survey in Sierra Leone, for instance, most respondents understood the question “What programs do you like to hear on the radio?” to mean the same as “What type of topics and issues would you like to hear about on the radio?” – it may have been more appropriate to rephrase the second question along the lines of “What should the radio talk about in the future that it is not talking about already?”
  - You may consider converting open-ended questions that yield responses you can reasonably and exhaustively classify to closed alternative or cumulative choice questions to facilitate later analysis.
    - If, say, you ask testing subjects a question on how they have benefited from the local community radio station, you may find that respondents give a relatively consistent set of answers. Having realized this in testing, you may choose to make this a multiple choice question with the answer options “It reduced crime,” “It provides entertainment,” “I know what is happening in my community,” and “I can hear programs in my own language.” In this case, you would still like to add an “Other – Specify” answer option, since you know that these answer choices are not exhaustive.
- Do the questions provide the information you seek? Try answering your research question(s) with the data you gather during testing. You may find that you need additional information, can omit certain questions, and should rephrase others.

- **Low response rates** (respondents unwilling to begin or complete the survey)
  Check for anything that unduly increases respondent burden (bad introduction, bad formatting/instructions, inconveniences in self-administered surveys, sensitive questions, survey length, etc.).

- **Unreliable information** (respondents do not understand questions or interpret them differently)
  - Clarity of language: Do respondents need additional explanations to understand the questions or particular words, or give feedback to that effect?
  - Response sets: Are there respondents who tend to always agree or disagree? If so, consider varying question phrasing between positive and negative.

- **Meaningless information** (respondents unable to answer)
  - Difficult questions: Are respondents able to answer the questions? Do questions assume knowledge that respondents do not have?
  - Exhaustiveness: Check whether each answer to a closed question can be appropriately marked in the list of choices you prepared. If you offer an “Other – specify” option, this may yield additional items you would like to include in your list.
  - Do many respondents try to qualify their answers? This may indicate that your answer choices do not accurately reflect what respondents want to say.

- **Biased information** (respondents unable or unwilling to answer truthfully)
  - Bias is very difficult to detect. You will mainly need to rely on your common sense. Consider that bias can result from both your questions and the circumstances of survey administration (more on this below).
  - Depending on the resources at your disposal, you can, however:
    - Compare responses to existing records;
    - Compare responses given in distinct circumstances you suspect to be relevant (e.g. morning/evening; different survey administrators (e.g. male/female or local/expatriate); presence of others/alone);
    - Compare data from alternatively worded questions asked of comparable respondents. An example would be to ask one set of respondents “Local government knows about your development needs. Do you agree/disagree?” another “Local government does not know about your needs. Do you agree/disagree” and yet
another “Does local government know about your needs? Yes/No.”

- **Clarity of instructions/formatting**
  - Are survey administrators (or, with self-administered surveys, respondents themselves) comfortable with instructions? Do they know where to mark answers, how to mark answers, and correctly follow filtering instructions?
  - Is there enough space for open-ended responses?

Through testing, you will also learn how long it takes to complete the survey. Include this information in the introduction. In addition, testing will allow you to attempt coding and analysis to make sure the data can be analyzed in the way you intended.

**Testing Process**

**Key to testing** is that you *simulate actual data collection procedures as closely as possible*. This includes characteristics of respondents (culture, ethnicity, language, education, place of residence, occupation, etc) and mode of administration (e.g., ethnicity, dress, behavior, and education of survey administrator).

- If you plan to survey rural dwellers, try not to test your survey in a city, as a city’s population will differ in, for instance, education and literacy levels;
- If you are going to conduct a mail survey, do not give any additional verbal explanations to your test audience;
- If you intend to employ local enumerators in administering a face to face survey, consider doing the same for testing.

Do not test your survey on your chosen sample but select a different test group (e.g. in a different location) to avoid surveying respondents twice.

Depending on the resources at your disposal – and your skill in survey design – you should do extensive testing to the extent that you are genuinely interested in gathering useful and reliable data. The following outlines a possible three-step testing process. You should, however, adjust it to your needs and resources:

- **Step 1**: Feedback from co-workers and/or acquaintances not familiar with development jargon and project context
  - Discuss/review survey questions and questionnaire design with colleagues – preferably those that have experience with survey design. You can also administer some surveys to colleagues with whom you have not yet discussed the survey.
  - Review questions and survey design based on the feedback you get, but do take it with a grain of salt if colleagues differ from your sample in relevant dimensions (level of education, language, trust towards you, etc.).
• **Step 2: Small-scale pre-testing**
  - Administer the survey to a few individuals from your target population to get in-depth, qualitative feedback. As this is likely to be fairly time-consuming, only discuss some questions, not the whole survey, with each interviewee.
  - If you have the time and resources, consider testing different variations of one particular question with different people.
  - Ask them question along the lines of: Whether they understand questions, how they interpret them, why they are unwilling to answer to some, whether and why they think particular questions are difficult, why they are not willing to complete the survey, why they seem to always agree (if they do), etc.
  - Review questions and survey design. If you change the survey substantially as a result, consider repeating this step.

• **Step 3: Testing**
  - Administer the *complete* questionnaire to a set of respondents. Ask for comments at the end and separately capture respondents’ reactions to the survey (e.g., “respondent was visibly uncomfortable with question X” or “needed to explain question to respondent”).
  - Review questions and survey design. If you change the survey substantially as a result, consider repeating parts (or all) of the testing process.
  - If you plan to use enumerators for survey administration, use them in testing. Use more than one, as different enumerators will uncover different problems.

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**Administering the Survey**

When administering a survey, make sure that each is assigned a unique identifier number (ID) as soon as possible. (This is not an issue for online surveys.) Survey IDs will later enable you to check whether inconsistent data can be traced to errors in data entry.

**Guarantee confidentiality.** Tell respondents how you will attribute information they give you – will you use respondents’ names, summarize (e.g., male school children), or make no attributions? Despite surveys typically being anonymous, be sure to guarantee confidentiality in settings where some opinions can put respondents in danger. Individuals can in some cases be identified even if you do not use their names (a female teacher older than 50 interviewed in village N is likely to stand out when there is only one school, and most teachers are male). This includes not only stating your intent, but taking further measures – e.g. anonymizing data, and taking storage precautions.
Orally Administered Surveys

For orally administered surveys (face to face, phone), be aware of the following:

- **Introductions are important**, and most refusals occur at this point. You need to establish legitimacy quickly. This includes informing the potential respondent of
  - Identity of the survey administrator and organization;
  - Survey topic;
  - Approximate survey duration;
  - Why the respondent should cooperate (you can, for instance, illustrate how the purpose of the survey will benefit the respondent).

- **Thank respondents** for their participation.

- **Minimize bias.** Sources of bias include:
  - **Induced bias**
    - Make sure that questions are consistently administered and communicated by survey takers. They should not provide additional information, instructions, or examples.
  - **Respondent effect**
    - Generally, respondents are likely to give answers intended to impress the surveyor. Include verification questions (i.e. check for consistency) and/or use other data collection methods to corroborate survey results (See ➔ Mixed Methods Module).
  - **Perceived study purpose**
    - Respondents will give different answers depending on the perceived study purpose. Clarify it to the extent necessary (e.g. avoid people perceiving your survey as a government study), but remain vague (so respondents do not give answers that they think you want). Asking very specific questions also reduces this type of bias.
  - **Interviewer’s effect / contextual and cultural issues**
    - Attributes of the surveyor induce people to give biased answers. A formally educated surveyor of different ethnicity using special terminology, wearing clean and uncommon clothing, and being paid is, in poorer settings, likely to be perceived as an authority figure. This perception will influence responses.
    - Norms (regarding, e.g., the role of women or youth as opposed to men or elders) influence not only the bias of responses, but can in some cases expose respondents to physical danger. In such sensitive circumstances, you should conduct surveys in private – which can be
very difficult, especially in rural contexts. Also guarantee and ensure anonymity – particularly if you ask sensitive questions.

- Generic remedies to these issues – given your questions are good – are to use experienced surveyors or at least to train interviewers well (see also below), and to verify information either within the survey (verification questions) or by using other research methods (See ➔ Mixed Methods Module).

- To remedy bias, and out of simple respect for respondents, survey takers should (Kumar, 2006)
  - Dress simply and appropriately, respect local norms of dress and behavior;
  - Conduct interviews at a time appropriate for respondents, which means making appointments with people that are likely to have scheduling conflicts;
  - Honestly answer questions that respondents may have;
  - Avoid giving the impression that the survey is a quiz;
  - Refrain from signaling their approval or disapproval of answers, particularly if respondents give wrong answers to knowledge questions;
  - Show respect and appreciation for respondents’ views and opinions;
  - Read questions slowly (if interviewers hurry, respondents are likely to do the same);
  - Reassure respondents where necessary – for instance putting respondents from marginalized groups at ease by telling them that no answer is right or wrong, and that the point is just to elicit respondents’ views;
  - Follow the question sequence.

- If responses are not forthcoming, survey takers can (Kumar, 2006)
  - Repeat questions in response to obvious misinterpretation, to give respondents more time, and to prevent them from straying from the subject;
  - Note that enumerators should avoid reformulating questions – ideally, you discovered comprehension difficulties during testing, and will only rarely be confronted with respondents that do not understand your questions. If reformulation / explanation is indeed rarely necessary, and if survey takers are trained well, you may choose to let them reformulate if they deem it appropriate.
  - Pause for answers;
  - Convey that a more comprehensive response is expected by pausing and using gestures (nodding, looking);
  - Repeat respondents’ replies to encourage them to say more;
  - Use neutral comments or questions (“Is there anything else?” “Do you have any other reasons?” “Could you tell me more about this?” “Why do you feel this way?” “When did this happen?” “What do you mean?” “In what way?”).
- Gently ask for clarification of inconsistent, ambiguous, or contradictory responses, and take the blame (“I am not sure if I got the point.” “I want to make sure I understood you correctly”).

- When recording answers, survey takers should (Kumar, 2006)
  - Use the respondents’ language – including phrases, grammar, peculiarities of speech, emphases – and avoid distorting respondents’ true intent;
  - Note nonverbal cues where appropriate – such as skeptical expressions;
  - Repeat answers while taking notes to demonstrate active listening, give them time to write, and give respondents time to reflect;
  - Interpret answers to rating scale questions by identifying the answer option with the closest fit - a definite “yes” uttered with vehemence, for instance, may best correspond to “strongly agree;.”
  - Edit any notes immediately (same day) after the interview.

**Be aware of the practical necessities** of administering a survey, particularly with face to face surveys – make sure, for example, to bring enough survey copies to places where you are unlikely to find photocopying facilities and factor in any survey copies you intend to use for training purposes.

**Self-Administered Surveys**

For **self-administered surveys** (mail, online), consider the following:

- Carefully craft **good cover letters** as those increase the response rate. A good cover letter (Creative Research Systems, n.d.)
  - Asks recipients to take the survey, and explains how this will improve some aspect of the recipient’s life – appeal to altruism;
  - Includes a short introduction – who are you (organization), why are you doing the survey?
  - Provides instructions on how to complete the survey;
  - Indicates the timeframe in which the survey should be completed;
  - Assures confidentiality;
  - Provides a direct link if it is an online survey;
  - Includes contact information for questions;

- Make surveys **convenient**.
  - Mail surveys: Include a self-addressed, postage-paid envelope. Postage stamped envelopes get better response rates than business reply envelopes (though they are more costly) (StatPac, nd.)
- Online surveys: Make sure that respondents get a link they can click (via email), do not have to register, and have a status bar that shows their progress.

- Consider providing incentives (StatPac, n.d.)
  - At the same time, be careful with incentives that are conditional upon the completion of the survey (such as raffles) – if the primary intent is to get a reward, respondents may be tempted to provide answers that in no way correspond to the truth.
  - In addition, avoid insulting potential respondents with rewards they do not want.

**Using (Local) Surveyors**

If your survey is to be administered by individuals without prior experience, be sure to train them properly. Keep cultural considerations in mind when selecting surveyors.

If you use non-probabilistic sampling, also keep in mind that local surveyors will likely interview people they know and are familiar with. A male student, for instance, will likely interview fellow students, teachers, men, and youth in disproportionate numbers. In such instances, it makes sense to give specific instructions to each survey taker – for example not to interview more than a certain number of teachers, students, and youth – even if these demographics are not part of your initial sampling strategy. Survey takers should be paid per survey to encourage higher productivity and conscientious work. Consider the total number of surveys enumerators can reasonably complete in one day (allow for survey duration, travel time, meals, etc.) and base your per-survey rate on an adequate daily rate. Consider limiting the number of surveys enumerators are allowed to complete on any given day to discourage hasty and sloppy survey administration.

Regarding training, consider that
- You should bring additional copies of surveys for training if photocopying facilities are not available on location;
- Local surveyors may not have formal education and may need extensive instruction;
- If enumerators are literate, consider providing a supplementary explanatory sheet that gives more detailed instructions, such as:

<table>
<thead>
<tr>
<th>Question</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Do not read response categories out loud. Wait for respondent to answer, mark appropriate categories. Probe for additional answers by asking “What else did you do?” but do not help the respondent with answers.</td>
</tr>
<tr>
<td>9</td>
<td>If possible, try to write down the <strong>titles</strong> of the radio programs the</td>
</tr>
</tbody>
</table>
respondent likes (e.g., “Comedy Hour,” “Request Hour”). If the respondent answers “entertainment,” for example, ask for the name of the entertainment program, but do not give examples or help respondents with the answers.

Crucial elements to training are the following:

- While you can give general instructions — such as on the survey purpose, how to ask questions, not to give explanations, how to behave, sampling strategy — to a group of surveyors you want to employ, actual training should be one-on-one.
- First, talk the trainee through the survey, explain the purpose of each question, highlight how it should be answered and marked, emphasize that instructions should be followed, and that surveys need to be complete.
- Then, administer one or two surveys yourself to demonstrate how they are supposed to be administered.
- After, let the trainee administer surveys in your presence until you are satisfied with his or her performance. Usually, you should plan to do at least five surveys like this, ideally more, and give feedback after each one (this can take several hours, so make sure to plan appropriately). Be sure the trainee:
  - Asks the questions as they are;
  - Asks questions in the right order;
  - Marks answers correctly;
  - Does not offer explanations, interpretations, or examples of answers (to avoid bias) — if you have not tested the survey instrument properly, you may experience significant difficulties at this point;
  - Introduces the survey and him/herself appropriately, and gives neutral feedback, behaves appropriately (see also above on avoiding bias);
  - Delivers complete surveys (i.e. all questions answered);
  - Understands and follows the instructions;
  - Writes legibly;
  - Does not distort respondents’ intent.
- As soon as you think the trainee is ready, begin by handing out surveys to be administered in small packages. Start with a small number (e.g., 10 on the first day) and increase subsequently. Have the trainee return completed surveys each evening. Check whether the survey is being administered correctly. This includes (apart from the above list)
  - Making sure that the trained enumerator follows sampling instructions, and tracks his or her progress;
  - Checking if the answers are likely to be biased or made up. If your surveyor is faking responses, asking leading questions, or not appropriately recording responses, you will likely find similarities across surveys. Compare different
answers to one particular question and check for similarities such as the order of responses to open questions, phrases/words used, unexpectedly sophisticated or unlikely answers, and suspiciously extensive answers.

- Generally, avoid paying upfront. Exceptions may be where you have to pay surveyors for local transport, or more extensive travel, as well as lodging.

## Analyzing Data

Data entry is an area that causes a lot of problems, which result from:

- Poorly set up data templates;
- Different data entry clerks using different templates;
- Data entry errors;
- Missing data (e.g., “Other” is selected, but respondents’ specification is omitted).

Before you analyze data, you need to transfer survey responses into a format in which you can analyze them with data-processing software. In practice, this means developing a table into which you can enter your data (data entry template), and translating this data into numbers to facilitate analysis. This section assumes that you are using MS Excel for data analysis. Note that other software (MS Access, SPSS) is available.

If you conduct an online survey, coding is typically done automatically. Make sure, however, to pick a service that allows you to export data into relevant formats – some allow you to export directly into MS Excel, but any service that offers you to export into “Comma Separated Values” (CSV) is fine. You can import such files into standard software, including MS Excel. Note that you can bypass the coding/data entry process by re-creating your (paper) survey online and converting your data into an electronic format by simply “completing” as many online surveys as you have on paper. If you are experienced with MS Access, you can set up similar data entry forms. This is, however, likely to take longer than the coding process outlined here.

Note that if data entry is performed by individuals that are not familiar with the survey and the data template, you should train those individuals. Let them enter several surveys into the data template, check for entry errors, and give feedback.

Generally, be sure to verify data before performing analysis. (See Validating Data below on how to support this process using Excel’s data validation functionality). In particular,

- Check whether you have the correct number of surveys entered in your data template. Identify duplicate entries via the unique survey ID.
- Check for missing data, i.e. whether all questions that were (or should have been) answered are indeed entered into your data template. Also check whether questions
that should not have been answered are indeed blank (or filled with zeroes, depending on your coding scheme).

- Check whether data is plausible.

**Coding Responses**

The purpose of coding is to translate questions and answers into a format suitable for analysis with data-processing software. In effect, you will translate a survey into a table in which each column corresponds to one answer, and each row corresponds to one completed survey [See Table (2) for example]. Do not forget to include one column that identifies the hardcopy survey that each row refers to via the unique survey ID you (should have) assigned to each returned and completed survey.

First, number your questions (if you have not yet done so). Then, assign unique numbers to each answer option. [See the Example Box].

<table>
<thead>
<tr>
<th>Sample Survey Questions for Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
|   |   Other(s) - - - - - - - > Specify all: Music

| 3 | The radio gives you important information about what is happening in the village. Do strongly agree, agree, disagree, or strongly disagree? |
|   |   Strongly agree |
|   |   Agree |
|   |   Disagree |
|   |   Strongly disagree |

*Note: These questions are arbitrary and only intended to demonstrate coding principles. Question numbers in **bold** in the left column. Numbers are arbitrary.*

Based on the numbers you have assigned, begin by creating columns for each answer. Specifically,
- Use one column for questions with alternative answer options. (Questions 1 and 3 in the example.)
- When you enter actual responses into your table, you can conclusively identify which answer was checked by entering the corresponding answer number into the cell.
- Note that this is a shortcut. You could, of course, use one cell per answer option, and indicate in your data table whether that option was checked (“1”) or not (“0”). Because you know that closed questions with alternative answers (should) have only one answer, however, you can use a single cell to accommodate all possible answers.
- For Question 3 in the example above, you would code “strongly agree” as “1”, “agree” as “2”, and so on.
  - Use multiple columns for questions with cumulative answer options. (Question 2 in the example.)
    - When you enter actual responses into your table, you need one column for each answer option because it is difficult (though not impossible) to assign one number that uniquely identifies the myriad of answer combinations any individual may choose.
    - Use “0” for not checked, and “1” for checked.
    - You need one column for each answer option. (Depending on your experience with data processing software, you may want to split “Other – Specify” type questions into two columns – one indicating whether “Other” was checked, and one containing whatever was written next to “Specify.” This makes analysis easier.)
  - Use one column for any open-ended questions.
  - See the Sample Data Table.

### Sample Data Table

<table>
<thead>
<tr>
<th>ID</th>
<th>Q1</th>
<th>Q2.1</th>
<th>Q2.2</th>
<th>Q2.3</th>
<th>Q2.4</th>
<th>Q2.4-S</th>
<th>Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>Music</td>
<td>3</td>
</tr>
<tr>
<td>002</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>003</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>Music</td>
<td>2</td>
</tr>
<tr>
<td>004</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>Requests</td>
<td>3</td>
</tr>
</tbody>
</table>

**Note:** This data is entirely fictional, but based upon the previous coding sample survey. Refer to the text for explanations. Column names (“Q1,” “Q2.4-S”) are completely arbitrary – just make sure they are clear to you and anybody who may want to use the data later. Note that each survey is identified by its unique ID.
You can, of course, add additional columns to quantify answers to open-ended questions if you discover patterns in those answers. (Ideally, however, you would have recognized such patterns during testing, and replaced the open-ended with a closed question.) In the sample data table above, for instance, you would add columns to quantify data in Q2.4-S – in this instance a column each for “Music” and “Requests” – and denote whether a respondent mentioned either of those by putting a “1” or a “0” in the respective cells of a given row.

Consider also adding columns to denote invalid or biased data. Suppose, for instance, that you are doing a radio listenership survey in which you also ask respondents to rate seven particular programs using rating scales. If you strongly suspect that some respondents have fallen into response sets (e.g., checked the highest rating available on all rating scale questions, but not because this reflects their opinion), or if data are incomplete, you can add a column “Ratings Biased” or “Ratings Incomplete” to facilitate the exclusion of respective values in future analysis. Instead of deleting the entire survey from your dataset, you can perform analyses with answers you think likely to be correct (such as gender, whether a person listens to the radio, etc.), while dynamically excluding answers you believe are biased (more on that later).

**Preventing Data Entry Errors**

You should – obviously – make sure that data is copied correctly from paper to data table. MS Excel offers some tools to do this. (The instructions below are tailored to Excel 2007. Consult the “Help” section of earlier Excel versions if you do not have Office 2007.)

- **Fix your table headers in place**
  - You should fix your headers in place, so that they will always be in the top row even when you scroll down.
  - To do this, make sure you have selected the relevant spreadsheet, go to the “View” tab, click “Freeze Panes” (in the “Window” group), and click “Freeze Top Row.” If you want to freeze more than one row, simply select all rows you want to freeze, and click “Freeze Panes” instead of “Freeze Top Row.”

- **Use data validation**
  - You can prevent users entering values that are obviously incorrect. Suppose, for instance, you have coded “male” as “0” and “female” as “1.” Using Excel’s data validation feature, you can make sure that data entry clerks receive a warning box if they enter a value that is clearly wrong, such as “2” or “male.”
To do this, given that you have your headers in place and a coding scheme developed, select an entire column by left-clicking its header number or letter. Keeping the selection, go to the “Data” tab, locate the “Data Tools” group, and click on “Data Validation.”

A dialogue box opens. Under “Allow:” you can specify the correct values for this column.

- For age, for instance, you would use “whole number,” select “between” under “Data:” and enter a relevant minimum and maximum value (for instance 7 and 99). Data entry clerks will be alerted if, for example, they enter 159 instead of 15 by accident.
- You can also specify lists of accepted values. Choose “list” under “Allow:” and enter accepted values in the “Source:” field, separated by commas. For the rating question in the above example, you would enter “1,2,3,4”
- In the same dialogue box, note that there are two more tabs. Under “Input Message,” you can make a small box appear whenever a particular cell is selected. You can specify a “title”, like “Gender” (for a gender column), and specify an “input message,” which gets displayed as well. For instance, write “Male=0, Female=1” so that data entry clerks are reminded of the coding each time they select a cell in the “Gender” column.
- Under the “Error Alert” tab, you can specify the title and content of the message box that gets displayed when a user enters wrong values.

The Basics of Data Analysis using MS Excel

Keep your data organized using multiple spread sheets within a given workbook. Use one spread sheet for raw data, one in which you perform any edits of your raw data, one for basic figures (number of people surveyed, disaggregated by gender, age, etc.), and further sheets for advanced calculations.

Generally, do consult the web for any help using Excel – there is a wealth of tutorials with good illustrations and explanations available, official and other. The rest is trial and error.

Pivot Tables

Pivot tables are useful to give you a quick overview of your data and trends. They can, however, be a bit cumbersome and inflexible.
Create a new worksheet, navigate to the “Insert” tab, and click “Insert Pivot Table” in the “Tables” group. A dialog box appears and prompts you for a data source. Press “F3” on the keyboard to paste the data range you previously defined as **Data_ALL** into the “Table/Range” field. Confirm with “OK.”

The pivot table has three main areas – column fields, row fields, and data items. Actual operations (counts, sums, averages, etc.) are performed on data items. For count operations (how many X say Z?), use the “ID” field as the data items: Locate “ID” in the sidebar to the right, and drag it to where it says “Drop Data Items Here.” If you wanted to do age averages by demographics, you would use your “Age” field as a data item – provided you actually have numerical age data available (i.e. not just categories). You can play around with different operations by double-clicking in the top-left corner of the Pivot Table, where it should now say “Sum of ID” or “Count of ID.” As in this example, we intend to do a demographic breakdown similar to the one above, be sure to switch to “Count of ID” by double clicking in the top left corner and choosing “Count” in the “Summarize by” tab in the dialogue box that opens. Confirm by clicking OK.

You should now see a table like this:

<table>
<thead>
<tr>
<th>Count of ID</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

By dragging and dropping fields listed in the sidebar to the right onto this table, or into the boxes below the field list on the sidebar, you can differentiate the ID count. Drag the “Gender” field down to the box in the sidebar that says “Row Labels.” Your table should now look like this:

<table>
<thead>
<tr>
<th>Count of ID</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Total</td>
</tr>
<tr>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Grand Total</td>
<td>28</td>
</tr>
</tbody>
</table>

Excel counts the number of rows that have any value in the “ID” column broken down for different values (0 and 1) of the “Gender” column. Instead of absolute values, you can also display percentages: To do so, double click where it says “Count of ID” (or find “Count of ID” in the box on the sidebar labeled “Values,” left-click, and select “Value field settings…”). In the dialogue box, switch to the tab labeled “Show values as” and chose “% of total” from the drop-down list. Confirm by clicking OK.

To differentiate your data further, drag the “Age” field into the “Column labels” box in the sidebar to the right, and drag the “Town” field to the “Row labels” box, placing it
before the “Gender” field that should already be there. Your table should now look like this:

<table>
<thead>
<tr>
<th>Count of ID</th>
<th>Age</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town</td>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>7.14%</td>
<td>14.29%</td>
<td>10.71%</td>
<td>32.14%</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>7.14%</td>
<td>3.57%</td>
<td>10.71%</td>
<td>21.43%</td>
</tr>
<tr>
<td>0 Total</td>
<td></td>
<td>14.29%</td>
<td>17.86%</td>
<td>21.43%</td>
<td>53.57%</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>3.57%</td>
<td>7.14%</td>
<td>7.14%</td>
<td>17.86%</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>10.71%</td>
<td>14.29%</td>
<td>3.57%</td>
<td>28.57%</td>
</tr>
<tr>
<td>1 Total</td>
<td></td>
<td>14.29%</td>
<td>21.43%</td>
<td>10.71%</td>
<td>46.43%</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td>28.57%</td>
<td>39.29%</td>
<td>32.14%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

You now have an overview of the demographics of your survey. Note that you can filter those results. In Excel, you should see buttons with downward arrows next to the fields “Town,” “Gender,” and “Age.” If you click those, you have the option of un-checking certain values. Should you only want to see data for respondents in the highest age group (“2”), click the arrow next to “Age” and un-check the values “0” and “1.”

Experiment with pivot tables to learn how they work. Excel also offers you to do “Pivot Charts” based on a pivot table. (Find this option under the “Pivot Table Tools” tabs in the ribbon, which appears once you select a pivot table.)
Note: What follows are general suggestions on which factors you may need to take into account when budgeting for a survey. The emphasis rests on face-to-face surveys.

Survey Design and Testing

Consider wages (staff salaries or cost of external consultants), supplies (paper, notebooks, pens), transport to testing sites.

Survey Administration

To establish the cost of survey administration, consider including the following in your calculations:

1. Survey supervisor wages
2. Survey supervisor transport, accommodation, meals
3. Enumerator wages

1. Determine how long it will take to complete a survey (if you did not establish this during testing, conduct a survey with a colleague or give your best estimate);
2. Based on this figure, determine how many surveys can reasonably be completed within one day.
   - Take into account time needed for enumerators to travel between respondents, security situation (e.g., is it safe for enumerators in the evening?), at what time you can reasonably expect respondents to be able and willing to answer (e.g., are they working during the day?), and similar factors.
   - Be sure to account for contingencies, particularly in a developing country context. For instance, travel may simply not be feasible (particularly in the rainy season), cars or motorbikes may break down, and very rarely are people “on time” for appointments (respondents, drivers, etc.).
3. Calculate man-days needed for the survey by dividing sample size by the number of surveys that can be completed in any given day;
4. Decide on what to pay enumerators (per hour / per survey / per diem), and calculate or estimate per diem;
5. Multiply man-days by per diem to get an estimate of the expected cost for enumerators.

(4) Enumerator travel/accommodation

6. Decide how many enumerators you want to use. You may have a fixed time-frame in which the research must be completed – in this case, divide target time in days by the number of surveys that can reasonably be completed in a given day to get an estimate of how many enumerators you will need.

7. Estimate transport cost, both fixed and variable, per enumerator. This may include:
   a. Travel to and from a research site and/or travel between areas (e.g., towns) in a given research site;
   b. (Daily) travel from enumerator’s home to your office to collect survey forms in the morning and deliver completed surveys in the evening;
   c. Travel cost associated with getting from one to the next respondent.

8. Also estimate cost for accommodation and meals per enumerator, if applicable.

9. Based on these figures, calculate additional cost for enumerators due to travel/accommodation expenses.

(5) Supplies

10. Calculate cost for copying paper questionnaires, take into account number of pages per questionnaire, sample size, additional questionnaires for training and contingencies;

11. Also allow for pens, envelopes, notebooks, and other necessary equipment.

Recruiting and Training Enumerators

Take into account cost of recruiting. Estimate training cost based on number and salaries of trainers, expected duration of training, transport to training sites, etc.

Data Analysis / Report Writing

Data entry clerks, data analysis in-house or external, report writing internal/external, cost for design.
Resources Consulted


http://www.greatbrook.com

http://stattrek.com
Additional Resources

A list of further (web) resources on writing survey questions, sampling, and other related topics.

(A very practical and useful guide. Though focused on mini-surveys, most of it is applicable to more extensive surveys as well).

http://www.socialresearchmethods.net/kb/index.php
Research Methods Knowledge Base – a comprehensive guide on surveys with a more scientific approach. Good visualizations.

Highly insightful article on the relevance of cognitive bias when asking questions about behaviors and attitudes.

Online survey hosting. Free, flexible, complete functionality: http://www.sissurvey.net; http://www.limesurvey.org, or free with limited functionality: http://www.surveymonkey.com