1 Purpose of Questionnaire

- Gather demographic information
  - It includes questions such as "How old are you?", "Male/Female?", "How times have you been to a National Park before?".
  - It is all about getting to know the participant.

- Gather responses about preferences
  - Surveys allow to quantify our observed data for research purposes. Minimizes social bias/desirability. Say for example in a group leaning towards a left wing politics, the participant with inclination to right wing than the rest of participants might choose to lie, in order to avoid embarrassment or be a part of the group. Survey allows the participants to be more true to their responses although it does not guarantee that.

2 How to Design a questionnaire?

We will study the various practical concerns while designing a questionnaire.

2.1 Format of questionnaire

Basically we have two formats for making the questionnaire available to participants and record their responses on. They are as follows:

- Online
  - Higher legibility than paper, as the response is recorded online instead of participant’s own handwriting.
  - Ease of data collection: Data collection and analysis afterwards is much easier much as all the data is readily available on computer.
  - Reachability: Online can reach to a lot of people in very short time, but is also limited where there is lack of Internet/computers.
• Paper
  – Ease of data collection: For very short questionnaires, paper option might be easier for the user to respond to in much quicker time.
  – Reliability of data collection: Data collection on paper, where the participant is infront of you and filling up the questionnaire is not likely to fill bogus information, which is the other way round in case of online format.
  – Reachability: Reaching to a larger population group might be difficult but is the only choice where there is no access to computers (electronic devices).

Both online and paper format have their own advantages and disadvantages and there is no clear winner in general.

2.2 Page Layout
• Visual aids can increase the reliability of the response.
• How you ask people to mark their response
• Sample example: Problems with design below

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

  – Lack of space might not separate "agree" equally from "Strongly agree" and "undecided".
  – Adequate spaces should be given so as to avoid error.
  – Font should be legible and uniform across all the options
  – Undecided is a bad option. Should be avoided and replaced with neutral or neither agree or disagree.

2.3 Ordering of questions
Ordering of questions is very important as wrongly ordered ones can create a negative effect and participant might not answer ideally as they would have otherwise.
For example consider the question "What is your income?". The disadvantage of having this question at the beginning of the questionnaire might lead to following problems.
• Participants with extremes will tend not to answer these type of questions.
• Participants might lie about these questions
• It puts participant on defensive mode, so other questions will be answered with negative bias.
2.4 Open vs Closed ended questions

- Open ended: This question allows the participant to answer the question with his/her own words.
  - They ask the participant to think and reflect.
  - They will give you opinions and feelings.
  - They hand control of the responses to the participant
  - Example: "How do you keep focused on your work?", "What's keeping you awake these days?"

- Close ended:
  - They give you facts.
  - They are easy to answer.
  - They are quick to answer.
  - They keep control of the responses with the questioner.
  - Example: "Where do you live?", "Are you happy with your current supplier?"

2.5 Ratings vs Rankings

- Ranking
  - Rank in order, For example: "how much you like this vegetable?"
  - Ranking is more precise/reliable
  - For example:
    Please rank the following cities you like from most to least.
    (1) Newyork City (2) Las Vegas (3) Gainesville (4) Miami

- Rating is kind of unreliable.

- Scale in Rating There are two kinds of scales used in rating such as:
  - Unipolar scale:
    * This scale captures either positive/negative or presence/absence of an attribute.
    * Normally a 5pt Likert scale is used.
    * For example: not at all satisfied, slightly satisfied, moderately satisfied, very satisfied, and completely satisfied.
  - Bipolar scale:
    * Here attitudes can fall on one side or the other of a midpoint that is neutral.
    * Normally a 7pt Likert scale is used.
    * It is much more easier to answer.
    * For example: completely dissatisfied, mostly dissatisfied, somewhat dissatisfied, neither satisfied nor dissatisfied, somewhat satisfied, mostly satisfied, and completely satisfied.

- Labeling Scale points: Make sure you explain the numerical labels with simple English to communicate with participant.
2.6 Repeat the concept

- Avoid ambiguous questions.
- For the questions, where people are reluctant to answer; use multiple questions to clear it. Use flip questions to find the correct response.

2.7 Group your topics

- Grouping your topics on the questionnaire makes it easier for the participant to enter the response and also makes it easy for analysis.
2.8 Example [Class Exercise]

To build a questionnaire for "Stress in Graduate school"

- 7 questions
- 1 open ended question
- 6 closed questions

1. Please select the option that best describes how you feel about each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being in graduate school is not particularly stressful</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I feel like I'm never going to graduate</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I experience more stress than I did before graduate school</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I feel like I get enough sleep</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I feel like I have control over my life as a graduate student</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

2. In a typical week, how often do you feel stressed?

- Always
- Most of the time
- About half of the time
- Once in a while
- Never

3. What about being in graduate school contributes to feeling stressed?