

Usability Engineering
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Module - 04
Lecture - 15
Requirement Analysis - I


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Interview & Questionnaire study

Important Points to remember

- 1. Anonymity of data:** The survey researcher should not be able to not identify the participants. Data collected in surveys in which the respondents are de-identified and all possible identifying characteristics are separated from the publicly available data.

- 2. Confidentiality:** While collecting sensitive information, researcher need to ensure that identifiable research data will remain confidential and assure respondents that this is the case.

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So, now, we will discuss some important aspects of Interview and Questionnaire study. Now, the most important aspect; before you start conducting this type of user studies are about anonymity of data and its confidentiality. Now, it is very important that while you go ahead and collect information or data from your respondents you make sure that any identifying information be their name, their email ids through which a person's responses for typical questions can be identified are removed.

So, in a sense that the responses that your participants are giving should not get identifiable with the name and other important characteristics. Specifically, it is important if you are putting that data into the public space and it is available for use. Second important aspect is about confidentiality of data.

So, while collecting sensitive information you need to ensure that the identifiable research data there maybe some critical questions that you can ask all this information are kept confidential and you must assure your participants that in under no circumstances this sensitive information would be revealed in public domain.


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Interview & Questionnaire study

Important Points to remember

3. Debriefing : Qualitative feedback is sought from the interviewers and/or respondents about interviews conducted and surrounding Survey processes.

It also is used to refer to the process whereby "justified" deception has been used by the researchers.

 Dr. Debanshu Dhar
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The other important aspects before you start conducting the studies are debriefing session. So, qualitative feedback is sought from the interviews and or respondents about the interviews conducted and surrounding the survey process. It is also used to refer to the process whereby justified deception has been used by researchers. Now, understand this there is a session when you start your interview or questionnaire to apprise your respondents about this the kind of activities that you are going to perform during the session.

And after the after you conduct your interviews or survey you can get feedback from your respondents based on the nature of the session and their inputs where they can highlight the areas which they liked, the areas which they felt uncomfortable about. This would help you to rework on your questionnaire, rework on your interview questions and correct it possibly. Now, you must understand that the actual objective of your study is never revealed.

So, while you debrief your participants you always explain the situation in a way that a justified deception is presented. So, it is a; it is a deception you use words in a way that the real motive that the actual motive is not being explained in extreme details though you explain your objectives in a way that provides somewhat understanding of your study by the respondents.

So, that is something which is very critical for you. Because, if too much information is released or sensitive information are released to them or provided to them that might also make them biased regarding their responses.

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Interview & Questionnaire study

- **Structured Interviews:**
A verbal questionnaire, in which the interaction is limited by a script and a fixed set of Questions.

When to use it?

1. Obtaining general information like demographics, behaviors and relationships.
2. Assessing Knowledge about a subject.
3. Gathering information about stakeholders and their attitude towards a product and process.
4. Comparing results across different group of users on a fixed set of responses.
5. Asking specific questions after comprehending the broad issues of a particular domain or product.

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Now, in case of structured interviews; structured interviews are a verbal questionnaire in which the interaction is limited by a script and a fixed set of questions, right. Now, there are various formats of interviews one of the format is the structured interview. And when do we use it? We use it to obtain general information like demographics, behaviors and relationships. These are the specific situations when we go for a structured interview session.

Assessing knowledge about a subject and gathering information about stakeholders and their attitude towards the product and process, comparing results across different group of users on a fixed set of responses and asking specific questions after comprehending the broad issues of a particular domain or as of a product domain or a product. These are the situations during which we go for a structured interview session.

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Interview & Questionnaire study

Planning the Structured Interview

1. Determine the goals of your structured interview study: Why are you conducting this structured interview?
2. Determine whether you will depend on intrinsic motivation to get people to accept your request for an interview or use some type of extrinsic incentive such as money, software, or gift certificates to increase response rates.
3. List the general questions or hypotheses that you want answered from the interviews.

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Now, while planning the structured interview we keep in mind that the following aspects are focused on. First, we define the goals of the structured interview study; for example, why are you conducting the structured interview, what kind of information do you want to gather, what are the objectives of your study, what information you know.

And you want to see whether the same information of the same issues exist among your respondents or not. You would also like to determine whether you will depend on intrinsic motivation to get people to accept your request for an interview or use some type of extrinsic incentive such as money, software or gift certificates to increase the response rates for your interviews. You list the general questions or hypotheses that you want answered from the interview's session.

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The slide is titled "Interview & Questionnaire study". Underneath, it has a sub-heading "Planning the Structured Interview" in red. The main text reads: "4. Create a pool of questions that address the general questions or hypotheses without defining the particular format of the question". A handwritten red arrow points from the word "defining" to the word "Objective" written above it. Below this, it says: "For example, for the question 'How do people prioritize the work that they perform daily?' you might need to know the following:". A list of four bullet points follows: "• What is the work that you do?", "• How often do you do this work?", "• What are the consequences of the work?", and "• Who assigns the work to you?". A handwritten red circle highlights the first three bullet points. At the bottom right, there is a small logo and the text "Dr. Sahayam Dhar, Department of Design".

You create a pool of questions that address the general questions or hypothesis without defining the particular format of the question. Now, for example, “How do people prioritize the work that they perform daily?” Now, you might know in order to understand this objective you might list down some of the questions which is listed in the slide and these are; what are the work that you do? How often do you do this work? What are the consequences of the work? Who assigns the work to you?

Now, what you realize is that all these four specific questions answer these specific objectives right. So, therefore, these becomes the goal or say the objective of your user study or interview session structured interview and these are the questions that you specifically ask during the interview session.

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Interview & Questionnaire study

Planning the Structured Interview

5. Choose your interview questions from the question pool.
6. Select the appropriate question and response formats for each question.

| Type of Questions |
|---|
| Fill in the blank |
| Open-ended |
| Binary (or limited) choices for factual information |
| Rating Scale |
| Ranking |
| Choose from a list of unordered questions |

Dr. Debprasad Das
Department of Design

Choose your interview questions from a question pool. So, you need to create a question pool before you go for an interview session for a structured interview and you do that by defining the goal or an objective of your study. Select the appropriate question and response format for each question; for example, you can go for a fill in the blank question, you can go for an open-ended question, you can go for a binary choice of factual information; yes or no something like that.

You can go for a rating scale, you can ask for ranking of particular products and services, you can also choose from a list of unordered questions you know you can ask questions and then probably you can ask them which question they would like to answer and you can throw some questions to your respondents and then based on their preference you can also ask they can also start answering those questions.

So, these are some of the ways through which questions different types of questions can be asked during your interviews.

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Interview & Questionnaire study

Planning the Structured Interview

7. Determine the best order of questions - Use a funnel approach where you start with broad general questions and then proceed to more specific questions.

- Avoid difficult, threatening, or emotionally laden questions at the beginning of the interview.
- Organize questions by topic and indicate the topic when you start a new set of questions.

8. Use common “spoken” language for face-to-face and phone interviews.



Now, you need to determine the best order of questions; order of questions are very important because you need to make sure that your user or the respondent for your session they get into the mode of giving you responses and that is that can only happen if there is a narrative experience that your respondent feel about. And for that you need to use a funnel approach where you start with broad general questions and then you proceed to more specific questions.

You avoid difficult, threatening or emotionally laden questions at the beginning of the interview. You organize questions by topic and indicate the topic when you start a new set of questions. Most importantly, you use spoken language for face to face and phone interviews.

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Interview & Questionnaire study


Planning the Structured Interview

9. Make questions as specific as possible.

10. Avoid abstractions that might be simple for you, but complex for your participants.

11. Consider whether you need to provide a frame of reference for particular terms.

12. Pilot test the entire interview process.



Now, make questions as specific as possible do not use abstractions; avoid abstractions because that those abstractions might be very very complex and difficult for your users or participants or respondents to provide to understand the situation and provide you with the response. Consider whether you need to provide a frame of reference for your particular items.

Now, this is one of the most distinctive aspect of an interviewer. You must ensure that the frame of reference is clearly communicated to your respondent. Majority of the time what happens when you go for a qualitative question or even for a quantitative question the frame of reference is different.

For example, if I am asking a question like this to what extent do you like this movie or how good is this person. Now, the definition of goodness can vary from person to person and therefore, the frame of reference is not fixed. In order to understand the frame of reference and so, that each person has the same frame of reference while they are providing you an answer with, you must use some examples or some important aspects based on which your respondents will be able to relate and then provide you with a response right.

Consider, so, therefore, you need to consider whether providing a frame of reference would be important or would be required or not. And most importantly, once you have all those set of questions, the pool of questions you go for a pilot testing of the entire interview process.

Now, pilot testing means you identify few people go and have the session with them, have a debriefing session after your interview they will provide you with their insights based on what they understood, which questions were difficult, which they think redundant, which they could not relate to, which they think absolutely fascinating, all these responses all of their feedbacks would help you in redesigning the questions more specifically with the points that we have just discussed about.

Once you clear the pilot testing process you can then now move into the next stage where you conduct extensive interviews or questionnaire studies.

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Interview & Questionnaire study

Semi Structured Interview

The general goal of the semi-structured interview is to gather systematic information about a set of central topics, while also allowing some exploration when new issues or topics emerge.

Objective + Varied topics

This type of interview involves the use of both open-ended and closed-ended questions and can provide both quantitative and qualitative data.

Dr. Debansu Das
Department of Design

Now, the next type of interview that generally we carry out is the semi structured interview. Now, the general goal of a semi structured interview is to gather systematic information about a set of central topics. Now, while also allowing some exploration when new issues or topic emerge so; that means, a fixed objective is there plus varied topics are being.

So, this asking or divulging into different topics is possible in case of a semi structured interview; it has a set of objectives which need to be fulfilled and the interviewer if once or based on the discussion they can start some exploration on new issues or topics, right. So, this type of interview involves the use of both open ended and closed ended questions and can provide both quantitative and qualitative data.

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Interview & Questionnaire study

When to Use Semi Structured Interview ?

- Gather facts, attitudes, and opinions.
- Gather data on topics where the interviewer is relatively certain that the relevant issues have been identified, but still provide users with provide users with the opportunity to raise new issues that are important to them through open-ended questions.

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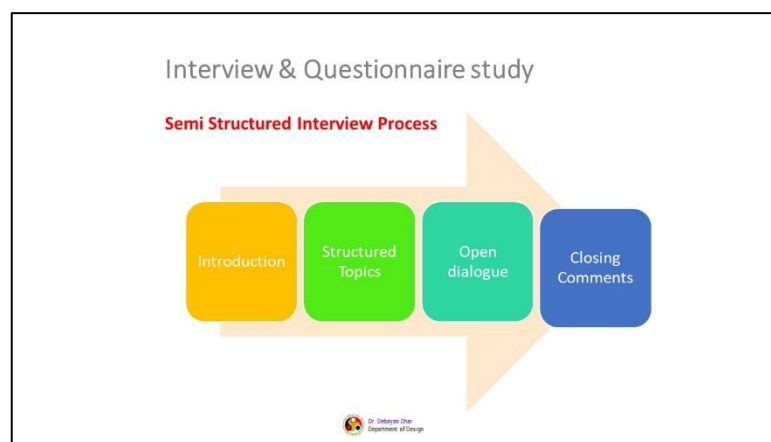
Now, when do we use a semi structured interview? Again, we use semi structured interview when we want to gather facts, attitudes and opinions. You need to understand

here that opinions though are not a very useful type of questions to ask for but when you mix them with the questions that asks facts and attitudes you generally opinion related questions provide you with a glimpse of what the existing scenario or the frame of reference of that person of the interview is.

And therefore, when mixed out with other questions that ask facts and attitude it do provide you a lot of insightful information. Now, gather data on topics where the interviewer is relatively certain that the relevant issues have been identified, but still provide users with the opportunity to raise new issues that are important to them through open ended questions.

So, open ended questions provide the interviewer with an opportunity to raise new issues which can be something that are different to the central idea or the central topics that have been decided, but it provides a glimpse into the new issues and the areas that are not central aspects of the interview.

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Now, this is the overall process of the semi structured interview process. You start with introducing yourself, you start with a structured set of questions that define the structured topics the central themes or the central topics are structured. And then you start an open dialogue, you ask questions you use a funnel approach where you ask generic questions, you ask questions related to the central theme of the interview.


And then you also ask open ended questions that are not close to the central theme of the interview, but ask for additional topics or topics related to additional themes and thereafter you go for the closing comments.

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Interview & Questionnaire study

Un Structured Interview
Unstructured interviews are conversations with users and other stakeholders where there is a general topic and agenda, but no predetermined interview format or specific questions.

Goal: gather rich, in-depth data about the users or other stakeholders' experiences without imposing restrictions on what they can express.

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Now, in an Unstructured Interviews generally conversations you know these are the third different types of interviews, these are something that we are more comfortable with these are general conversations with users and stakeholders that the design team has.

And there is a general topic. So, the topic is general and there is a general agenda, but there is no predetermined interview format or specific questions. So, therefore, you do not have a central theme while you do have a general topic and agenda on which the discussion ideally should revolve around. Now, the goal here for an unstructured interview is to gather rich, in depth data about users or other stakeholder's experiences without imposing restrictions on what they can express.

So, in an unstructured interview the respondents have absolute authority to provide you with sufficient amount of data, sufficient amount of details because it is unstructured because there is just no central theme on focus just a topic is there any kind of discussions that relates to the topic are encouraged and information can be extracted from the respondents.

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Interview & Questionnaire study

When to Un Structured Interview?

Gather data on general themes rather than specific questions.

- Develop new insights about the user's interactions with technology.
- Investigate a new product and get a sense of first impressions and features that catch the eye of the user. → exposed + first impressions
- Explore a new domain where you are not certain of the major issues facing users and other stakeholders. → Exploratory issues

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So, when to go for a structured interview? Now, you go for a unstructured interview when you want to develop new insights about the user's interaction with technology. Now, this is very important. When you want to develop new insights about user's interaction with technology then only you go for a unstructured interview session.

When you want to investigate a new product and get a sense of first impressions and features that catch the eye of the user, see the situation it is a new product that is developed and you just want to get the product exposed to the user, to get his first impressions and it is highly unstructured in nature, right.

Explore a new domain where you are not certain of the major issues facing users and other stakeholder; that means, this is a kind of exploratory study; that means, you are not very sure of the issues that are currently there or plaguing this context or the scenario and therefore, you just have a central topic, you have a central topic general topic on which you would like to encourage discussions on. Specifically, in these situations you go for a unstructured interview session.

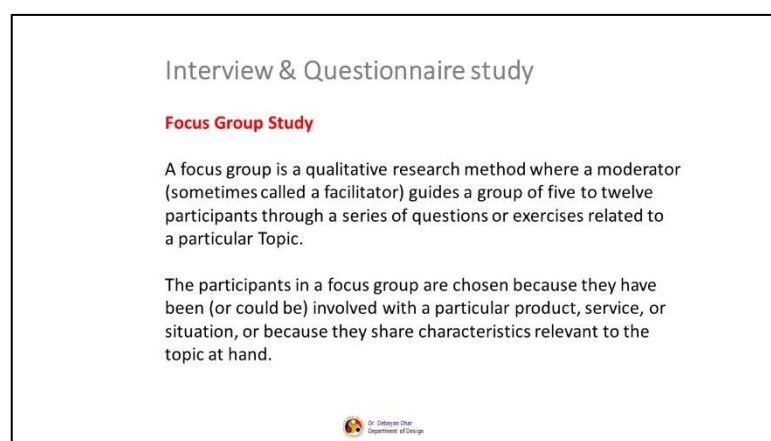
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Now, this is the overall process of an unstructured interview process. You introduce yourself, you understand the work environment, you extract information about the background of the participant and then provide some of the few starting points or questions for you to start discussing with the participant regarding the general topic.

Situations that are of concerned to the participant are being discussed and then finally, you have the debriefing session and the final checklist that provides the inputs, the anecdotes of the respondent's response in terms of the issues that are of prime concern regarding the general topic of the interviewing.

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The other type of study that we would be discussing about is the focus group study. Now, focus group study is one of the most extensible extensive type of study that are been used in user experience design projects or usability projects. Now, a focus group is a qualitative

research method where a moderator who is often called as a facilitator guides a group of five to twelve that is a random number generally we use seven to eight people participants through a series of questions or exercises related to a particular topic.


Now, the participants in a focus group are chosen because they have been or could be involved with a particular product they are exposed to or they might be our future users' particular product, service or situation or because they share characteristics relevant to the topic at hand.

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Interview & Questionnaire study

Focus Group Study

Focus groups are generally held away from the participants' home or work sites and last from one to three hours. A focus group study is rarely based on a single event; usually, there is a series of three or more sessions to determine if there are any common and divergent patterns or themes.




Now, focus groups are generally held away from the participants home or work sites and last from one to three hours. A focus group study is rarely based on a single event; usually, there is a series of three or more sessions to determine if there are any common and divergent patterns or themes.

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Interview & Questionnaire study

Types of Focus Group Study

1. **Exploratory focus groups** are used when the goal is to elicit and understand general attitudes toward or perceptions of a product or service.
2. **Feature prioritization focus groups** are used when you want to examine what features appeal to your users and customers.



And we also have different types of focus group, ideally, we have these focus groups like the exploratory focus groups which are used when the goal is to elicit, define and understand general attitudes toward or perceptions of a product. The focus is on general attitudes. Then we have the feature prioritization focus groups which are often used to examine the features appeal. So, it is a way to understand which features persuade our respondents or our participants based on the usage of the product.

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Interview & Questionnaire study

Types of Focus Group Study

- 3. Competitive analysis focus groups** are used when you want to understand what value people see in competitive products or even different approaches to a particular design.
- 4. Trend explanation focus groups** are used when you try to understand what is driving a trend in user or consumer behavior.

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And then, we have the competitive analysis focus groups which are used when you want to understand what value people see in competitive products. So, it is more about value in competitive products or even different approaches to a particular design. A trend explanation focus groups which are used when you try to understand what is driving a trend in user or a consumer behavior right. These are some of the different types of focus group study.

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Interview & Questionnaire study

When to Use Focus Group Study

- Attitudes, preferences, and opinions on a topic.
- to understand something about terminology and motivation.
- Information to help you understand confusing results from a quantitative study that you have already conducted.
- Reactions to product concepts.
- Feedback on competitors.
- General problems with a product or service.
- Descriptions of events that last over a period of time.
- Issues with current products or work environments

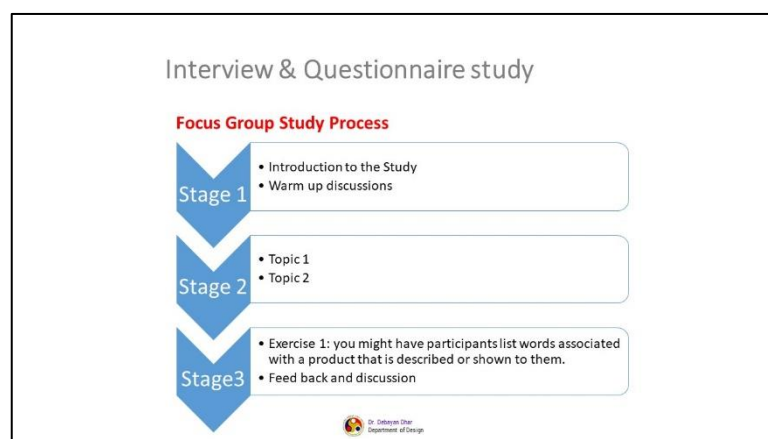
Dr. Debayan Dhar
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Now, when to use a focus group study. We generally use a focus group to identify the attitudes, preferences and opinions on a topic, to understand something about terminology and the motivation among our customers or users. Information to help you understand confusing results from a quantitative study that you have already conducted.

So, you have a quantitative study and there are overarching results that does not provide you deep insight about the experiential or the qualitative aspects of the customer and therefore, you go for a focus group study in order to understand the experiential aspects, the decision makers, the influences that influences your customer's.

Reactions to product concepts, feedbacks on competitors, general problems with a product or service, descriptions of events that last over a period of time and issues with current products or work environments. These are the situations when you choose to use a focus group study.

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Now, the focus group study process is very similar to how interviews are conducted. First you introduce the study or the session that is being planned, you start a warm up discussion then the topics are being introduced it can be wide number of topics or questions that you would like them to discuss.


And then an exercise is given to your participants where you might have participants list words associated with the product that is described or shown to them in that way you understand how they refer or on what qualities they refer to each product and then you finally, take the feedback and discussions forward by triggering a particular objective or line of argument.

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Questionnaire study

Steps to design a questionnaire

1. Write out the primary and secondary aims of your study.
2. Write out concepts/information to be collected that relates to these aims.
3. Review the current literature to identify already validated questionnaires that measure your specific area of interest.
4. Compose a draft of your questionnaire.
5. Revise the draft.
6. Assemble the final questionnaire.



Now, this was about focus group studies. We will now discuss about a questionnaire study. Many a time what happens, conducting interviews or contextual inquiry or having participants and conducting a focus group study is very difficult in terms of resources also and getting participants. In those cases when these situations are not are difficult and we cannot get participants directly interacting with us we go for a questionnaire study.

And the steps to design a questionnaire are this; you write out the primary and secondary aims of your study, write out concepts or information that needs to be collected that relates to these aims, review the current literature to identify already validated questionnaires that measure your specific area of interest, compose a draft of your questionnaire, revise the draft, assemble the final questionnaire.

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Questionnaire study

Steps to design a questionnaire

- Write a detailed list of the information to be collected and the concepts to be measured in the study. Identify what exactly are you trying to identify:

Attitudes
Needs
Behavior
Demographics
Some combination of these concepts

Handwritten notes: A bracket groups Attitudes, Needs, Behavior, and Demographics, with an arrow pointing to the handwritten text "Focus parameters Q/S".



Now, you need to write a detailed list of the information that needs to be collected and the concepts to be measured in the study. Identify what exactly are you trying to diagnose and investigate and this can be and the parameters of interest can be attitudes, needs, behavior, demographics, some combination of this concepts; attitudes or needs or attitude or demographics this can be the focus parameters for your questionnaire study, right.

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Questionnaire study

Types of Questions

- **Aided Recall:** Respondents are provided with number of cues to facilitate their memory of particular Responses.
- **Aided Recognition:** A form of Aided recall wherein a respondent is asked if he/she was aware of something prior to being asked about it.
- **Attitude measurement:** Multi-item scales

| QUESTIONS / STATEMENTS | ITEM | RATING SCALES (ANCHORS ARE THE LABELS) |
|---|------|---|
| 1. My manager considers my feelings. | 1 | Strongly disagree Disagree Neutral Agree Strongly agree |
| 2. My manager is a priority for me manager. | 2 | Strongly disagree Disagree Neutral Agree Strongly agree |
| 3. My manager defends me from unfair criticism. | 3 | Strongly disagree Disagree Neutral Agree Strongly agree |
| | | RESPONSE POINTS |

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Now, what are the different types of questions that you can put in a questionnaire? There are many types of questions that can be used in a questionnaire study some of them are aided recall. So, questions in which respondents are provided with the number of cues right with the number of cues support to facilitate their memory.

So, cues are given to facilitate their memory for particular responses, to trigger those responses are called as aided recall. We then have aided recognition a form of aided recall wherein a respondent is asked if he or she was aware of something prior to being asked about it; those are called aided recognition.

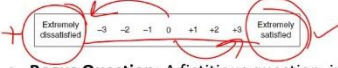
Then attitude measurement these are multi item scales you can see a example here where some statements are being made and then there are some ratings based on some parameters that are given here and the respondents mark them they can either agree strongly with the statement or they can strongly disagree with the statement or they can have a neutral response and these are multi item scales that are being used and this provide us with the nature of the attitude of the respondent.

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Questionnaire study

Types of Questions

- **Balanced Question:** A question that presents the respondent with both sides of an issue.
- **Bipolar Scale:** A type of rating scale characterized by a continuum between two opposite end points.
- **Bogus Question:** A fictitious question, included in the questionnaire to help the researcher estimate (respondent related measurement error) the extent to which respondents are providing ostensibly substantive answers to questions they cannot know anything about, because it does not exist.



Dr. Gokulnagar
Department of Design

We then have balanced question. A question that presents the respondent with both sides of the issue and we ask the respondent to take a stand on that situation are called balanced questions. Bipolar scales a type of rating scale characterized by continuum between two opposite points. For example, you have the scale where both the points have been are in opposite ends.

So, two extreme situations are given here and the responses has to take a side whether this side or that side based on the situation that he or she has experienced. Now, how do you catch a respondent of your questionnaire who is not serious who is not giving you correct and justified answer. You need to use the concept of bogus question.

Now, it is a fictitious question included in the questionnaire to help the researcher estimate. Estimate what? Respondent related measurement error, now if your respondent is not serious if he or she is not participating accurately or not providing you accurate data or information you can have a bogus question and ensure and see the extent of respondent related measurement error that your questionnaire has.


So, it is the extent to which respondents are providing you with answers that they do not know anything about because the questions does not exist. You ask a series of questions suddenly you ask a question that at all does not exist if you ask him ok for example, there is a name of the state or there is a name of a place that does not exist and this place is famous for this kind of stuff do you agree with the situation or not. Now, if he makes a point here then you know that the respondent is giving you false or cooked up responses for your questions.

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Questionnaire study

Types of Questions

- **Branching:** A skip pattern technique that ensures that respondents are asked only to those questions that apply to them.
- **Double barreled Question:** Questions that ask more than one construct in a single survey question. Ex- Do you agree or disagree with the following statement: Managers in my organization are helpful, but the lack of diversity in the organization is disappointing.
- **Likert Scale:** A multiple item scale where each item uses a set of symmetrically balanced bipolar response categories indicating varying levels of agreement or disagreement.
(e.g., *Strongly Agree, Agree, Disagree, Strongly Disagree*).

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Then we have branching questions, it is a skip pattern technique that ensures that respondents are asked only to those questions that apply to them. You have then double-barreled questions; questions that ask more than one construct in a single survey, question example do you agree or disagree with the following statement: managers in my organization are helpful, but the lack of diversity in the organization is disappointing.

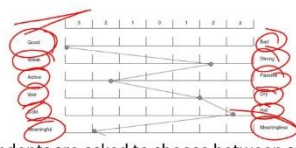
So, you see in a particular statement you have the both the aspects of the situation you have a positive aspect as well as the negative aspect. These kinds of questions are called double barreled question.

Then you have the Likert scale it is a multiple item scale where each item uses a set of symmetrically balanced bipolar response categories indicating varying levels of agreement or disagreement and the scales will have statements like strongly agree the one that we have seen just two slides back agree, disagree, strongly agree these are the scales that we call as a Likert scale.

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Questionnaire study

Types of Questions



- **Paired Comparisons:** Respondents are asked to choose between a set of items using a binary scale that indicates which of the two choices are most preferred, most pleasant, most attractive or any other judgment. → *issues have*
- **Ranking & Rating Questions**
- **Semantic Differential Techniques:** A type of rating scale for measuring attitudes designed to identify the connotative meaning objects, words and concepts.

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Then we have paired comparisons; these are responses. Respondents are asked to choose between a set of items using a binary scale that indicates which of the two choices are most preferred, most pleasant, most attractive or any other judgment. For example, if you see there is a statement and then you ask if you see this scale. Then you ask you have these two extreme parameters in both the ends a good or bad, qualitative parameter weak and strong, you know active and passive, dry and wet, cold and hot, meaningless and meaningful and then you ask the respondent to take a stand based on that.

Now, based on the nature of their stand it indicates the preferred, most pleasant and most attractive or other judgmental issues that your respondents have, right. Then you have ranking and rating questions where you ask you can ask the responses to rank particular items and finally, you have the semantic differential techniques. It is a type of technique for measuring attitudes designed to identify the connotative meaning objects, words and concepts of a situation.

And based on the responses of the respondent you understand, how do they relate with a particular situation, what kind of meaning do they relate with a particular object and you would also realize their preferences about a particular situation. These are the various type of questions; that you can ask in your questionnaire study.