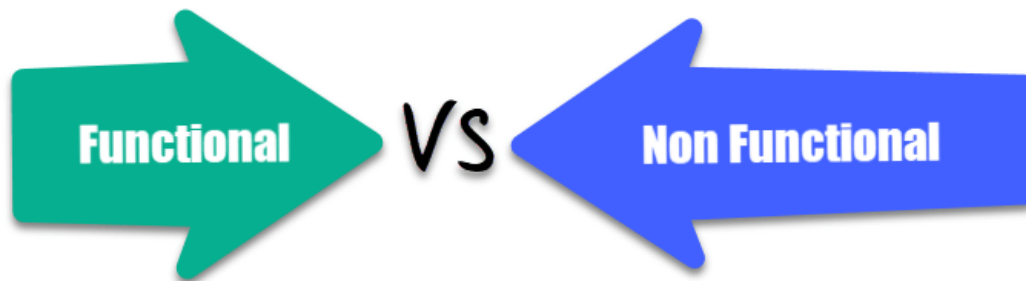


Requirements Definition



87

Functional Requirement

- The activity that the system must perform.
- It related directly to a process a system must perform or information it need to contain.
- Functional requirements flow directly into the creation of functional, structural and behavioral models.



A functional requirement for a milk carton would be "ability to contain fluid without leaking"

88

88

Non-functional requirement

- The definition for a non-functional requirement is that it essentially specifies how the system should behave and that it is a constraint upon the systems behavior.
- One could also think of non-functional requirements as quality attributes for of a system.
- Simply put, the difference is that non-functional requirements describe how the system works, while functional requirements describe what the system should do.



A non-functional requirement for a hard hat might be "must not break under pressure of less than 10,000 PSI"

89

89

Requirements gathering techniques

- Requirements capture techniques:
 - Observation
 - Interview
 - Questionnaires
 - Scenario Walkthroughs
 - Focus groups
 - Prototypes.

90

90



91

Interviews

- Interviews help you dig through your users' knowledge base, so you can understand what they understand and think.
- One writer notes, "Interviews provide an efficient way to collect large amounts of in-depth data quickly,"
- **Benefit: By exploring someone's knowledge and needs in-depth, one-on-one, you ensure you understand the real, not just the perceived, need.**
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92



Planning the Interview

- Five steps in planning the interview are
 - Reading background material
 - Establishing interview objectives
 - Deciding whom to interview
 - Preparing the interviewee
 - Deciding on question types and structure

93

93



Open-Ended Questions

- Open-ended interview questions allow interviewees to respond how they wish, and to what length they wish
- Open-ended questions are appropriate when the analyst is interested in breadth and depth of reply
- Example:
 - What's your opinion of the present computer system?
 - How do you view the goals of this department?
 - What are some of common errors made in data entry in department?
 - Describe.....

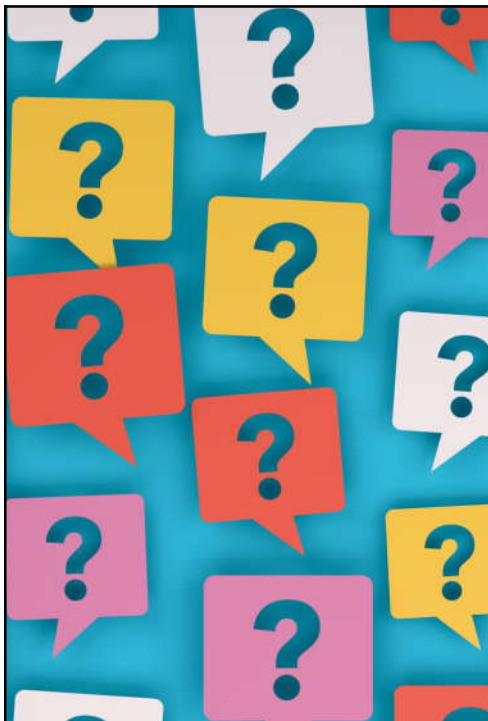
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Advantages of Open-Ended Questions

- Putting the interviewee at ease
- Allowing the interviewer to pick up on the interviewee's vocabulary
 - Reflect education, values, attitudes, and beliefs
- Providing richness of detail
- Revealing avenues of further questioning that may have gone untapped
- More interesting for the interviewee
- Allows more spontaneity
- Makes phrasing easier for the interviewer
- Useful if the interviewer is unprepared

95



Disadvantages of Open-Ended Questions

- May result in too much irrelevant detail
- Possibly losing control of the interview
- May take too much time for useful information gained
- Potentially seeming that the interviewer is unprepared

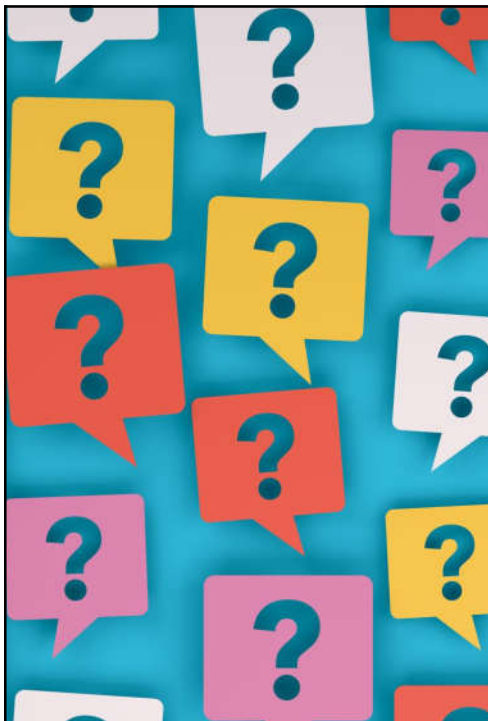
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Closed Interview Questions

- Closed interview questions limit the number of possible responses
- Closed interview questions are appropriate for generating precise, reliable data which is easy to analyze
- The methodology is efficient, and it requires little skill for interviewers to administer
- Example:
 - How many report do you generate in month?
 - List your top two priorities for the marketing department?
 - Who receives this output?

97



Advantages of Closed Interview Questions

- Saving interview time
- Easily comparing interviews
- Getting to the point
- Keeping control of the interview
- Covering a large area quickly
- Getting to relevant data

98



Disadvantages of Closed Interview Questions

- Boring for the interviewee
- Failure to obtain rich detail
- Missing main ideas
- Failing to build rapport between interviewer and interviewee

99



Bipolar Questions

- Bipolar questions are those that may be answered with a 'yes' or 'no' or 'agree' or 'disagree'
- Bipolar questions should be used sparingly
- Example:
 - Do you agree or disagree that commerce on the web lacks security?
 - Do you want to receive a printout of your account status every month?
 - Is this form complete?

100



Probing Questions

- Probing questions elicit more detail about previous questions
- The purpose of probing questions is
 - To get more meaning
 - To clarify
 - To draw out and expand on the interviewee's point
- Example:
 - Why?
 - Give example of your decision-making process.
 - Tell me what happens step by step to the form the patient fills out.

101



Question Pitfalls

- Avoid leading questions, those that imply an answer
- Leading questions tend to guide interviewees into responses apparently desired by the interviewer
- These questions should be avoided to reduce bias and improve reliability and validity
- Avoid double-barreled questions, asking two questions at once
- These questions should be avoided because interviewees may answer only one question, leading to difficulties in interpretation

102

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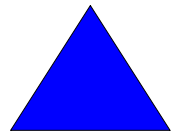
Question Sequencing

- There are three basic ways of structuring interviews:
 - Pyramid
 - Starting with closed questions and working toward open-ended questions
 - Funnel
 - Starting with open-ended questions and working toward closed questions
 - Diamond
 - Starting with closed, moving toward open-ended, and ending with closed questions

103



Pyramid Structure

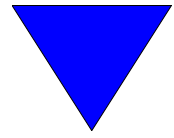


- Begins with very detailed, often closed questions
- Expands by allowing open-ended questions and more generalized responses
- Is useful if interviewees need to be warmed up to the topic or seem reluctant to address the topic

104

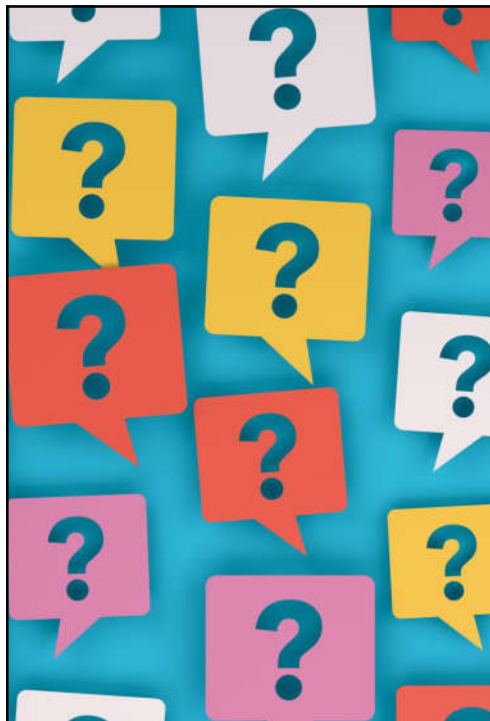


Funnel Structure

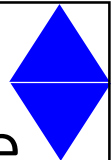


- Begins with generalized, open-ended questions
- Concludes by narrowing the possible responses using closed questions
- Provides an easy, nonthreatening way to begin an interview
- Is useful when the interviewee feels emotionally about the topic

105



Diamond Structure



- A diamond-shaped structure begins in a very specific way
- Then more general issues are examined
- Concludes with specific questions
- Is useful in keeping the interviewee's interest and attention through a variety of questions

106

Interviews

For your interview to be effective, you must decide how structured or unstructured you want your interview to be.

- **Structured Interviews:**

- These are interviews that strictly adhere to the use of an interview protocol to guide the researcher.
- It is a more rigid interview style, in that only the questions on the interview protocol are asked.
- As a result, there are not a lot of opportunities to probe and further explore topics that participants bring up when answering the interview questions.
- **This method can be advantageous when researchers have a comprehensive list of interview questions**

107

Interviews (contd.)

- **Semi structured interviews:**

- These are interviews that use an interview protocol to help guide the researcher through the interview process.
- It does maintain some structure (hence the name semi structured),
- But it also provides the researcher with the ability to probe the participant for additional details.
- If you decide to choose this interview method, understand that it offers a great deal of flexibility for you as a researcher.
- You do not have to worry about needing to conduct several rounds of interviews **because your interview protocol will keep you focused on gathering all the information** that you need to answer your research question.

108

Interviews (contd.)

- **Unstructured interviews:**

- These are interviews that take place with few, if any, interview questions.
- They often progress in the manner a normal conversation would, however it concerns the research topic under review.
- It is a relatively formless interview style that researchers use to establish rapport and comfort with the participant and is extremely helpful when researchers are discussing sensitive topics.
- If you select this interview style, just keep in mind that you **may have to conduct several rounds of interviews** with your participants in order to gather all the information you need.
- Since you do not use a standard interview protocol, sometimes participant's narratives maneuver the conversation away from other aspects of the research topic you want to explore;

109



Recording the Interview

- Interviews can be recorded with tape recorders or notes
- Audio recording should be done with permission and understanding

110

110



Advantages of Audio Recording the Interview

- Providing a completely accurate record of what each person said
- Freeing the interviewer to listen and respond more rapidly
- Allowing better eye contact and better rapport
- Allowing replay of the interview for other team members

111

111



Disadvantages of Audio Recording the Interview

- Possibly making the interviewee nervous and less apt to respond freely
- Possibly making the interviewer less apt to listen since it is all being recorded
- Difficulty in locating important passages on a long tape
- Increasing costs of data gathering

112

112



Advantages of Note Taking During Interviews

- Keeping the interviewer alert
- Aiding recall of important questions
- Helping recall of important interview trends
- Showing interviewer interest in the interview
- Demonstrating the interviewer's preparedness

113



Disadvantages of Note Taking During Interviews

- Losing vital eye contact
- Losing the train of conversation
- Making the interviewee hesitant to speak when notes are being made
- Causing excessive attention to facts and too little attention to feelings and opinions

114

Before the Interview

- Contact the interviewee and confirm the interview
- Dress appropriately
- Arrive a little early
- Affirm that you are present and ready to begin the interview

115

115

During the Interview



The interview should not exceed 45 minutes to one hour



Make sure that you are understanding what the interviewee is telling you



Ask for definitions if needed



Use probing questions

116

116



Closing the Interview

- Always ask “Is there anything else that you would like to add?”
- Summarize and provide feedback on your impressions
- Ask whom you should talk with next
- Set up any future appointments
- Thank them for their time and shake hands

117

117



Interview Report

- Write as soon as possible after the interview
- Provide an initial summary, then more detail
- Review the report with the respondent

118

118