Towards a typology of questions for requirements elicitation interviews

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Outline

1. Motivation
   ◦ why do we need to talk about interview questions?
   ◦ why do we need to introduce categories of interview questions?

2. Typology
   ◦ A glimpse of the categories developed so far.

3. Applications
   ◦ Examples of how we can use typology to qualitatively analyze interviews.
Interviews

Useful and widely used in RE

- For gathering initial background information for a project
- For understanding and resolving political issues [Hickey and Davis]
Interviews

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Typical Interview
◦ Interviewer asks questions
◦ Interviewee responds as they wish

Answer quality depends (also) on question quality

Who are the actors involved in this process and what do they do?

Glad that you asked! Because how else would I know what you need to learn? So the actors are...
Motivation

What are good questions to ask?

◦ What to ask? [Content]
◦ When to ask it? [Ordering]
◦ How to ask it? [Style]

Forget good questions: how do we even just talk about questions?

◦ We need a vocabulary.
Our work

An ongoing effort for developing such a set of interview question categories.

Based on a review of the literature in various domains where interviewing is relevant

Goal: develop a classification scheme (a typology) of interview questions.
  ◦ Why: assist empirical scientists with qualitatively analyzing interview data using a standard coding language.

Advantage of using a common scheme:
  ◦ Application of common reliability measures, such as inter-rater reliability.
  ◦ Straightforward reproducibility by other researchers.
Methodology

A broad literature review:
- Areas include: software engineering, psychology, sociology, knowledge management, library science, journalism, health care, and judicial and criminal investigation.
- Sources: IEEE, Proquest, Pubmed, and Factiva have been used.
- Queries:
  - “library science” and “reference interview”;
  - “sociology” and “interview question*”
  - “psychology” and “interview question*”.
- Snowballing
So far: groups of categories

Content
Time
Form
Style and probing style
Objective
Also: Ordering
Content

Concerned with what the interviewer is interested in finding out about when asking a question.

Object of inquiry and questions about it \[Derr\]

- Existence, identity, properties, relations etc.

Focus on identifying objects, processes and relationships thereof \[Wood\]

Theory informed, e.g.:

- activity theory \[Fuentes-Fernández et al.\]
- sociotechnical systems \[Wahbeh et al.\]
- viewpoints \[Sommerville et al.\]
- Modelling approach, e.g.:
  - goal oriented, object oriented, process oriented.
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What goal are you trying to achieve through this new service? Why?

What are some use cases you envision and what actors are involved?

Can you describe me the process for getting this done in your department?
Content

- Users/stakeholders
- Needs
- Processes
- Object or data in the domain
- Required functions
- Technology
- Project pragmatics

... and there might be more categories there to be identified.
How was the current process for [...] approved?

How do you currently go about [...]?

How do you envision the improved process to be?
<table>
<thead>
<tr>
<th>Style</th>
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<tbody>
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Can you tell me about ...?
Could you step me through this process?

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*Where is the data centre located? What time do you open?*
Style

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How do you cancel an order?
Style

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What do you actually do when you have such unusual case?
Style

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That didn’t work, did it? [Invites confirmation]
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Who are the members of that committee? [requires short, factual answers]
Can you tell me about the situation in department X? How is it the same or different from what happens in your department?
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Are there any issues not addressed in this discussion that you think I should know about?
Probing Style

Informational probe
Reason seeking probe
Consistency probes
Interpreting
Restatement
Check-reflect
Echo probing
Probing Style

Informational probe
Reason seeking probe
Consistency probes
Interpreting
Restatement
Check-reflect
Echo probing

Could you tell me more about that?
Probing Style

Informational probe
Reason seeking probe
Consistency probes
Interpreting
Restatement
Check-reflect
Echo probing

Why are you saying that___?
Probing Style

Informational probe
Reason seeking probe
Consistency probes
Interpreting
Restatement
Check-reflect
Echo probing

You said that ___ but now you have told me ___. How do you explain that?
Probing Style

Informational probe
Reason seeking probe
Consistency probes

Interpreting
Restatement
Check-reflect
Echo probing

Is it correct that ___?
Does this imply that ___?
Probing Style

Informational probe
Reason seeking probe
Consistency probes
Interpreting
Restatement
Check-reflect
Echo probing

So if I understand you, you’re saying that __?
Probing Style

- Informational probe
- Reason seeking probe
- Consistency probes
- Interpreting
- Restatement
- Check-reflect
- Echo probing

So it takes a lot of effort to query the information, is that what you say?
Probing Style

Informational probe
Reason seeking probe
Consistency probes
Interpreting
Restatement
Check-reflect
Echo probing

So, you copy the information from the application form to the screen and then what do you do?
Object

Content maneuvering:

- Strategic question phrasing so that a preferred response is elicited.

Forced choice questions

Leading questions

Direct vs Indirect questions
Object

Content maneuvering:
  ◦ Strategic question phrasing so that a preferred response is elicited.

**Forced choice questions**

Leading questions

Direct vs Indirect questions

Do you need the tabulation or also the visualization feature?
Object

Content maneuvering:
- Strategic question phrasing so that a preferred response is elicited.

Forced choice questions

Leading questions

Direct vs Indirect questions

Given your clear need to do away with this approval process, how do you think this could be done?
Object

Content maneuvering:
◦ Strategic question phrasing so that a preferred response is elicited.

Forced choice questions

Leading questions

Direct vs Indirect questions

Direct: “Have you personally made such data entry mistake?”
[centered on the interviewer]
Indirect: “Do you believe many colleagues make such data entry mistakes?”
## Evaluating the Typology

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- **Probing:**
  - Informational probe
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- **Object:**
  - Forced choice questions
  - Leading questions
  - Direct vs Indirect questions
"So if I understand you, you're saying that you want to eliminate cheating?"
“So if I understand you, you’re saying that you want to eliminate cheating?”

Data Language:
- Open
- Bipolar
- Multiple Choice
- ...
- Needs
- ...
- Interpreting
- Check-Reflect
- Restatement
- Echo
- ...

Bipolar, Needs and Check-Reflect

Bipolar and Restatement

Bipolar and Restatement

Bipolar, Needs and Restatement

Needs and Echo
So what do you want to achieve with the new system?

But why, why do you want to adopt blockchain for this service?

So if I understand, you're saying that you want to eliminate cheating among participants?
Thank you!

(questions?)