

Appendix 3-A

APS Structured Interview Protocol Example

**ACADEMIC PATHWAYS STUDY
INTERVIEW PROTOCOL (EXAMPLE)
TECHNICAL PUBLIC INSTITUTION/URBAN PRIVATE
UNIVERSITY/ SUBURBAN PRIVATE UNIVERSITY/
LARGE PUBLIC UNIVERSITY**

PART I.

INSTRUCTIONS

Good morning (afternoon). My name is _____. Thank you for coming. This interview involves two parts. The first part is a survey, in which I will ask you about your experiences as a student at this university. The purpose is to get your perceptions of your experiences inside and outside of the classroom. There are no right or wrong or desirable or undesirable answers. I would like you to feel comfortable with saying what you really think and how you really feel. The second part is a short pencil-and-paper task, and I will give you specific instructions for completing that task once we have finished with the survey.

TAPE RECORDER INSTRUCTIONS

If it is okay with you, I will be tape-recording our conversation. The purpose of this is so that I can get all the details but at the same time be able to carry on an attentive conversation with you. I assure you that all your comments will remain confidential. I will be compiling a report which will contain all students' comments without any reference to individuals.

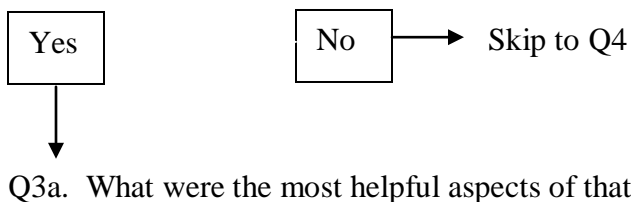
PREAMBLE/CONSENT FORM INSTRUCTIONS

Before we get started, please take a few minutes to read this preamble (read and sign this consent form). (Hand R consent form/preamble.) (After R returns preamble/consent form, turn tape recorder on.)

Q1. What is your major?

Q2. What year did you graduate from high school?

Q3. Did you participate in a Freshman Summer Bridge Program the summer after you graduated from high school?



Q4. Are you a member of any engineering student organizations on campus?

Yes

No

Skip to Q5



Q4a. What are those organizations?

Q4b. What are the most helpful aspects of that/those organization(s)?

Q5. In your own words, would you please define engineering?

Q6. Are there particular skills that you would say are important for an engineer to have?

Yes

No

Skip to Q7

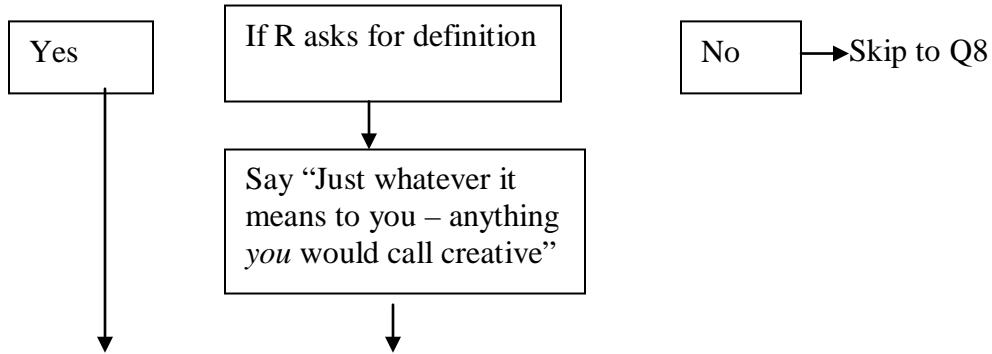


Q6a. (IF NOT ALREADY ANSWERED) What are those skills?

Q6b. Of the skills that you mentioned, which ones do you possess?

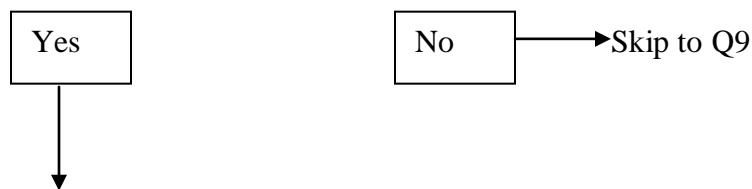
Q6c. Please tell me about how you developed your skill(s)?

Q7. Have you had any experiences inside or outside of your classes that have enabled you to be creative?



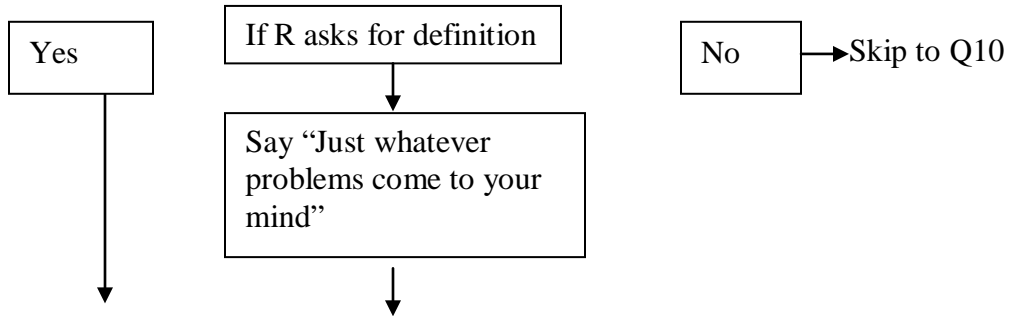
Q7a. (IF NOT ALREADY ANSWERED) Please describe those experiences.

Q8. Have you had any experiences inside or outside of your classes that have prevented you from being creative?



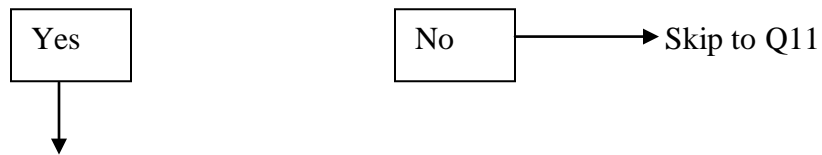
Q8a. (IF NOT ALREADY ANSWERED) Please describe those experiences.

Q9. Have you had any experiences inside or outside of your classes that have enabled you to solve problems?



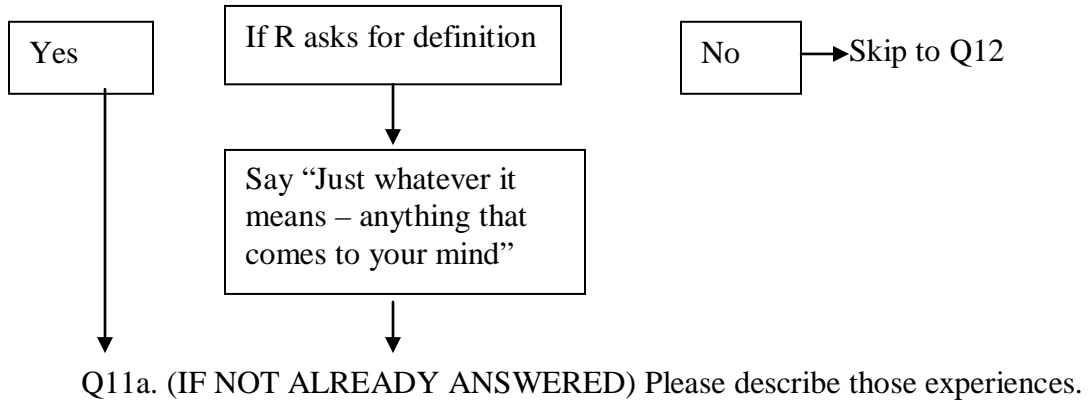
Q9a. (IF NOT ALREADY ANSWERED) Please describe those experiences.

Q10. Have you had any experiences inside or outside of your classes that have prevented you from solving problems?

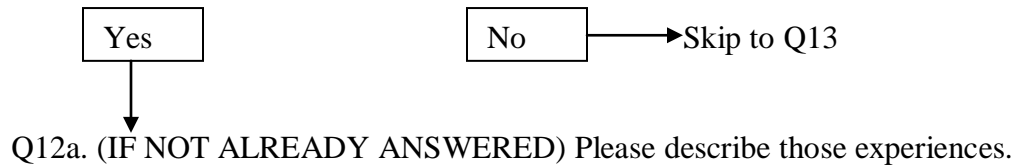


Q10a. (IF NOT ALREADY ANSWERED) Please describe those experiences.

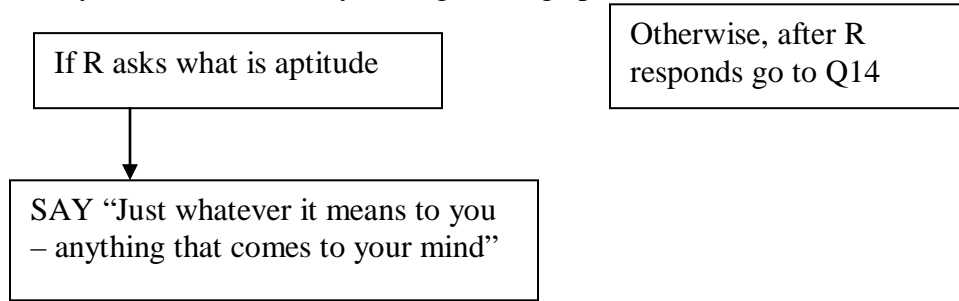
Q11. Have you had any experiences inside or outside of your classes that have enabled you to develop general engineering knowledge?



Q12. Have you had any experiences inside or outside of your classes that have prevented you from developing general engineering knowledge?



Q13. Where do you see evidence of your engineering aptitude?



Q14. On a scale from 0 – 10, (where 0 = not confident at all and 10 = extremely confident), how confident are you in your math ability? _____

Q14a. Describe the experiences that led you to rate yourself in this way.
(REMINDE THEM OF SCORE IF THEY ASK.)

Q15. On a scale from 0 – 10, (where 0 = not confident at all and 10 = extremely confident), how confident are you in your science ability? _____

Q15a. Describe the experiences that led you to rate yourself in this way.
(REMINDE THEM OF SCORE IF THEY ASK.)

Q16. On a scale from 0 – 10, (where 0 = not confident at all and 10 = extremely confident), how confident are you in your design ability? _____

Q16a. Describe the experiences that led you to rate yourself in this way.
(REMINDE THEM OF SCORE IF THEY ASK.)

Q17. Are there any aspects of engineering that you particularly like?

Yes

No

→ Skip to Q18

↓
Q17a. (IF NOT ALREADY ANSWERED) What are some of those?

Q18. Are there any aspects of engineering that you particularly dislike?

Yes

No

→ Skip to Q19

↓
Q18a. (IF NOT ALREADY ANSWERED) What are some of those?

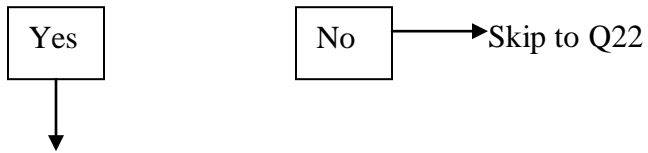
Q19. In general, how do you feel about engineers?

Q19a. (IF NOT ALREADY ANSWERED) And why?

Q20. How do you believe members of other professions feel toward engineers?

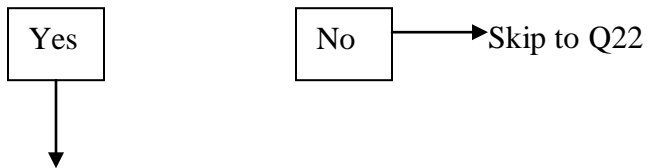
Q20a. (IF NOT ALREADY ANSWERED) And why?

Q21. Are any of your family members or close acquaintances working engineers?



Q21a. (IF NOT ALREADY ANSWERED) Who?

Q21b. Did their experiences influence your decision to become an engineer?



Q21c. (IF NOT ALREADY ANSWERED) How?

Q22. How important is being an engineering student to how you feel about yourself?

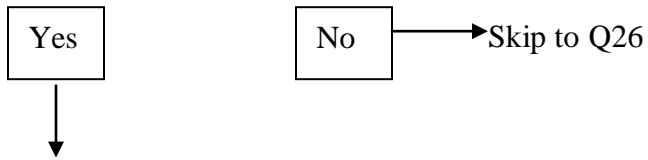
Q22a. (IF NOT ALREADY ANSWERED) And why?

Q23. How committed are you to pursuing an engineering major?

Q23a. (IF NOT ALREADY ANSWERED) And why?

Q24. What do you see yourself doing after graduation?

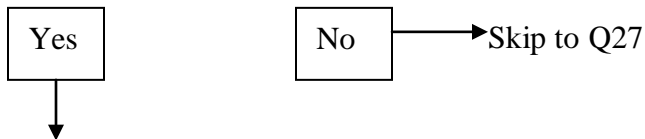
Q25. Are there any aspects of your education at this institution that you find particularly difficult in achieving your academic goals?



Q25a. (IF NOT ALREADY ANSWERED) Please tell me about those difficulties.

Q25b. How do you deal with those difficulties?

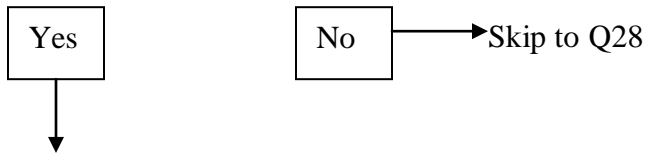
Q26. Are there any aspects about being an engineering major at this institution that you find particularly difficult in achieving your academic goals?



Q26a. (IF NOT ALREADY ANSWERED) Please tell me about those difficulties.

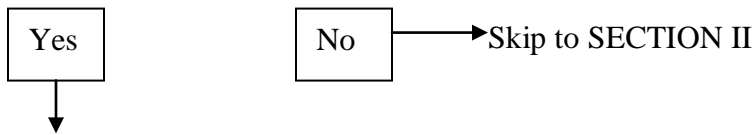
Q26b. How do you deal with those difficulties?

Q27. Are there any aspects of your education at this institution that you find particularly helpful in achieving your academic goals?



Q27a. (IF NOT ALREADY ANSWERED) Please tell me about those helpful aspects.

Q28. Are there any aspects of being an engineering major at this institution that you find particularly helpful in achieving your academic goals?



Q28a. (IF NOT ALREADY ANSWERED) Please tell me about those helpful aspects.

SECTION II.
PERFORMANCE TASK (USED IN YEARS 1 AND 3)

INSTRUCTIONS:

At this time, I'd like to ask you to work on a short activity. While I hope that it is a fun activity for you, I would also like you to give it your best effort. You have up to ten minutes to work on it. Please let me know if you are done before that. Do you have any questions? OK, here is the activity—I'm going to read it with you, out loud (CHECK START TIME ON AUDIO RECORDER AND INDICATE IT IN THE BOX BELOW. THEN HAND R THE PERFORMANCE TASK FORM.).

Start time:

RECORD TIME HERE

PTQ1: (NEXT READ THE FOLLOWING ALOUD TO R) Over the summer the Midwest experienced massive flooding of the Mississippi River. What factors would you take into account in designing a retaining wall system for the Mississippi?

TRANSITION:

(CHECK END TIME ON AUDIO RECORDER, AND IF NECESSARY): *Okay, it's been 10 minutes now, please stop.*

End time:

RECORD TIME HERE

PTQ2: What questions came to your mind as you were brainstorming your list?

(THE QUESTIONS NEED TO BE FULLY FORMULATED. IF R OFFERS A FRAGMENT AS A QUESTION, INSTRUCT HIM/HER TO CLARIFY HOW HE/SHE USED IT IN A QUESTION AND TO STATE THE FULL QUESTION. IT IS OKAY FOR R TO BROWSE THROUGH THE LIST OF FACTORS HE/SHE HAS WRITTEN, BUT THERE IS NO NEED TO SUGGEST THIS IN YOUR INSTRUCTIONS. R SHOULD BE ABLE TO PROVIDE 5-10 QUESTIONS IN 2-3 MINUTES.)

TRANSITION:

(COLLECT PAPER) *Great! Thank you. We hope that you've enjoyed this activity and we want to make sure that you know that there are many right answers. We've used it to collect information from engineering students across the nation to understand the types of things students think about.*

Over the summer the Midwest experienced massive flooding of the Mississippi River. What factors would you take into account in designing a retaining wall system for the Mississippi?

SECTION II.
PERFORMANCE TASK (USED IN YEARS 2 AND 4)

INSTRUCTIONS:

At this time, I'd like to ask you to work on a short activity. This is the kind of activity that has many different kinds of answers. We would like you to give it your best effort. You have up to fifteen minutes to work on it. I will let you know when there is five minutes left, so you have an idea about how much time has passed. Please let me know if you are done before the fifteen minutes is up. Do you have any questions? OK, here is the activity. (CHECK START TIME ON AUDIO RECORDER AND INDICATE IT IN THE BOX BELOW. THEN HAND R THE PERFORMANCE TASK FORM.).

Start time:

RECORD TIME HERE

PTQ1. (ALLOW THE STUDENT TO READ AND SOLVE THE PROBLEM ON THEIR OWN)

TRANSITION:

(CHECK END TIME ON AUDIO RECORDER, AND IF NECESSARY):

Okay, it's been 10 minutes now; you have 5 more minutes to solve the problem.

Okay, it's been 15 minutes now, please stop.

End time:

RECORD TIME HERE

PTQ2. What questions came to your mind as you were solving the problem? Please voice your thoughts in the form of questions as if you are playing Jeopardy.

(THE QUESTIONS **MUST** BE FULLY FORMULATED. IF **R** OFFERS A FRAGMENT AS A QUESTION, REMIND **R** TO SPEAK AS IF HE/SHE IS PLAYING JEOPARDY, AND ASK **R** TO CLARIFY HOW HE/SHE USED THE FRAGMENT IN A QUESTION. IF **R** IS NOT FAMILIAR WITH JEOPARDY, TELL **R** THAT IT IS OKAY, AND THAT ALL HE/SHE NEEDS TO DO IS TO RESPOND IN QUESTIONS ONLY. IT IS OKAY FOR **R** TO BROWSE THROUGH THE LIST OF SOLUTIONS HE/SHE HAS WRITTEN, BUT THERE IS NO NEED TO SUGGEST THIS IN YOUR INSTRUCTIONS. IF **R** OFFERS 2 QUESTIONS OR LESS, PROMPT HIM/HER AGAIN. **R** SHOULD BE ABLE TO PROVIDE 5-10 QUESTIONS IN 2-3 MINUTES.)

PTQ3. To what extent do you feel this is an engineering problem?

PTQ3a. (IF NOT ALREADY ANSWERED) And why?

PTQ4. What knowledge and skills helped you solve the problem?

PTQ5. Where did you develop your knowledge and skills to solve the problem?

PTQ5a. (IF NOT ALREADY ANSWERED) Please describe those experiences in more detail.

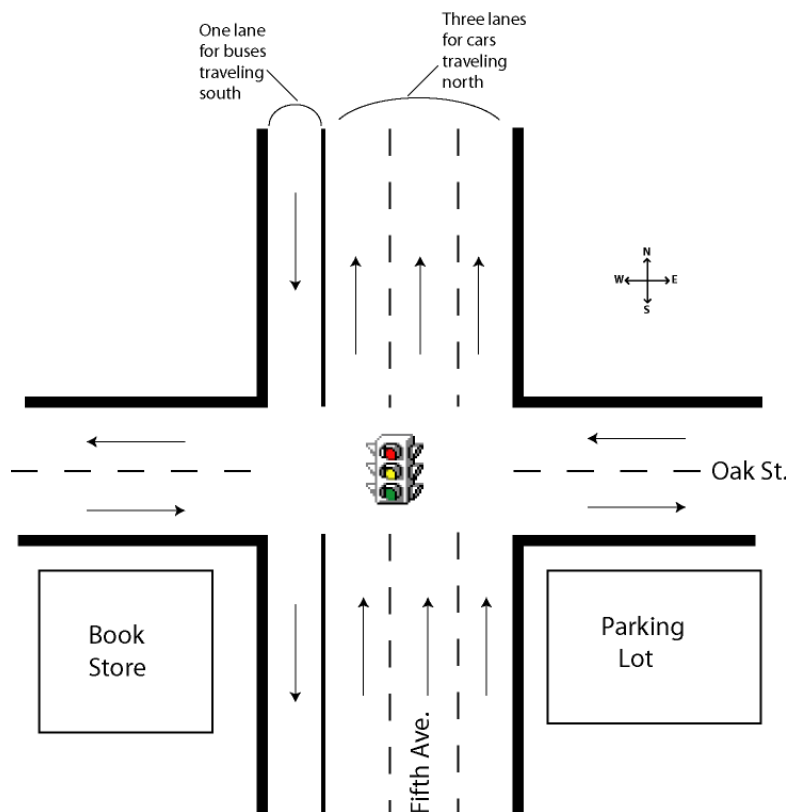
TRANSITION:

(COLLECT PAPER) *Great! Thank you. We hope that you've enjoyed this activity and we want to make sure that you know that there are many right answers. We've used it to collect information from engineering students across the nation to understand the types of things students think about.*

Respondent ID: _____

As an engineer, you have been asked to solve a problem on the State University campus. Just like campuses across the country, the State University campus is often overcrowded with pedestrians crossing the streets.

One busy intersection on campus is the crossing of Fifth Ave. in front of the bookstore. Dangers at this intersection include heavy traffic and busses which run against the general traffic flow (see diagram below). The University would like to design a cost effective method for students to cross Fifth Ave. which would reduce the possibility of accidents at this intersection. You have been assigned to design a solution to this problem for presentation to the University Traffic Committee.



In the process of designing your solution you have been asked to respond to the set of questions on the following pages. The interviewer has more paper if you need it.

1 – What is the problem as you see it?

2 – List potential solution(s) for this problem.

3 – From your list in Question 2, choose the potential solution you think is best and provide a detailed evaluation of your solution.

4 – What kinds of additional information would help you solve this problem?

SECTION IV.
DEBRIEFING

(READ ALL OF THE FOLLOWING ALOUD TO R.)

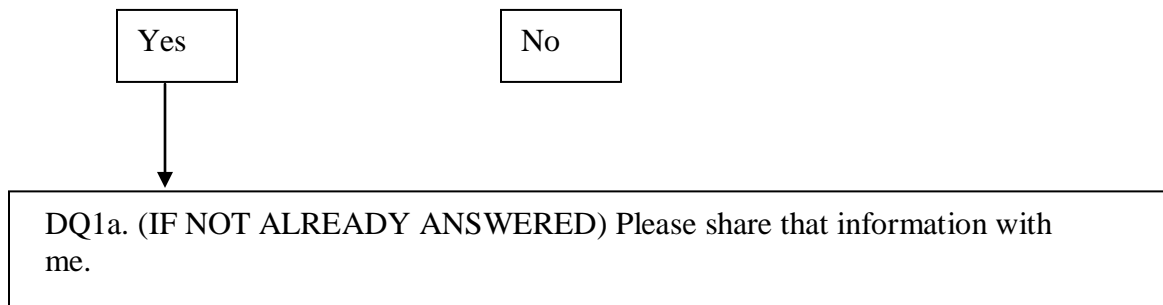
Thank you very much for coming this morning (afternoon). Your time is very much appreciated and your comments have been very helpful.

The purpose of this interview is to better understand students' perceptions of their experiences inside and outside of the classroom. We are interested in your opinions and your reactions. In no way is this interview designed to individually evaluate a person's abilities. The task is not diagnostic, nor can it provide a measure of the "quality" of your performance. Your only requirement was to do the best job that you could.

The results of this research will provide useful information to engineering educators, in helping them to structure educational programs that students consider to be most effective and ideal in helping them through college.

You will be kept anonymous during all phases of this study including any experimental writings, published or not. Procedures for maintaining confidentiality are as follows: (1) individual participants' results will be pooled with group results; and (2) participants should not place any identifying information on data collection instruments. (Such identifiers include name, social security number, student identification number, specific birth data, telephone number, address, etc.)

DQ1. Is there any other information regarding your experience that you think would be useful for me to know?



Again, thank you for participating. (TURN TAPE-RECORDER OFF.)

**SECTION V.
INTERVIEWER REFLECTION**

INSTRUCTIONS:

After the respondent leaves the room, please take a couple of minutes to indicate your reactions and observations about the interview. An electronic copy of this form has been provided. Feel free to use this hard copy for your own notes, but please submit the electronic copy for official use.

| | |
|---------------------------------|--|
| Your name (the interviewer): | |
| Your race: | |
| Your gender: | |
| Your age: | |

| | |
|---|--|
| Respondent ID No.: | |
| Date of Interview: | |
| Please describe the respondent's attitude toward you and the interview: | |
| Please describe any unusual circumstances and/or events that had any bearing on the interview such as interruptions, language difficulty, etc.: | |
| Please describe anything else that happened during the interview that has any bearings on the study's objectives: | |
| Additional comments: | |

SECTION VI.
PROBES FOR FORMAL INTERVIEW

Interviewer's Probe

Repeat Question.....
Anything else?.....
Any others?.....
How do you mean?.....
Could you tell me more about your
thinking on that?.....
Would you tell me what you have
in mind?.....
What do you mean?.....
Why do you feel that way?.....
Which would be closer to the way
you fell?.....

Abbreviation

RQ
AE or Else?
AO?
How mean?

Tell more

What in mind?
What mean?
Why?

Which closer?

SECTION VII.

POTENTIAL QUESTIONS R MAY ASK (AND APPROPRIATE ANSWERS):

1. What is a factor?
You just need to “ List the things that you would take into account in designing a retaining wall system for the Mississippi.”
2. What is a retaining wall system?
A system that keeps water inside the river.
3. What is massive flooding?
When a lot of water does not stay inside the river.
4. Is a wall necessary? / Does it need to be a wall? / Why a retaining wall?
You can interpret the question however you like.
5. Who asked to have the wall built?
I don't have any information on that.
6. Midwest of what?
The Midwest of the United States.
7. The whole Mississippi, or just part of it?
You can do what you like.
8. List vs. pictures
You can do what you like.
9. Quantity vs. quality of responses.
You can do what you like.
10. What do they use now to control the flooding?
I don't have any information on that.
11. Does this mean a retaining wall like on the sides of the river?
Yes, it is a system that keeps water inside the river.
12. Is that what you want(ed)?
That's great! Thanks!