Phase 2 Session Script/Talk Points

Hello! My name is _____ and I am currently conducting research in order to understand how expressiveness and scalability can be increased in and across program analysis tools and, if it can, how it affects developers' ability to create software. I would like to thank you in advance for taking the time out of your schedule to help us with this research. We have been having sit down sessions with software developers; during these sessions, we set up screen and audio recording software, as we have here, present you with some code being analyzed by a software tool and ask you to explain what is going on. Is this okay with you?

Before we begin, you can see on the right that there is a list of 18 tasks from 3 different tools. It has taken past participants approximately 1 hour to complete these tasks. I will be keeping track of time if you are pressed for time, however 1 hour is by no means the time limit so do not feel pressured or rushed.

You can use any form of communication you are comfortable with, including pointing, gestures, coding or drawing. If at any time you feel that you would like to go on to the next notification, let us know by saying the keyword 'perfection' and we will continue. We do not want you to feel pressured, as this is not a test of your ability as a developer but an attempt to understand how well program analysis tools are communicating with developers and learn what these tools can be doing to better communicate with you. [*remote sessions only*] We may at times need to intervene to ensure the connection is still maintained however we will attempt to wait until you have come to some sort of stopping point in your conversation or otherwise to do so.

Now, if you're ready, we can get started…

There are a list of Tasks in the Task view. Starting with the FB TODOs, let's go down the list …these are FindBugs errors that have been found in an open source project. Let's start with the bugs we see here in this class. Can you explain what these errors are trying to tell you? [*Go through all FB TODOs*]

FB Task 1

- How confident are you in your explanation?

FB Task 2

- How confident are you in your explanation?

FB Task 3

- How confident are you in your explanation?

FB Task 4

- How confident are you in your explanation?

FB Task 5

- How confident are you in your explanation?

Let's bring up the first task for Eclipse we're going to look at in the list of COMP TODOs. There are a number of compiler errors found by Eclipse. Can you explain what is going

on/why this class won't properly compile? [*Go through all COMP TODOs*]

COMP Task 1

- How confident are you in your explanation?

COMP Task 2

- How confident are you in your explanation?

COMP Task 3

- How confident are you in your explanation?

COMP Task 4

- How confident are you in your explanation?

COMP Task 5

- How confident are you in your explanation?

COMP Task 6

- How confident are you in your explanation?

Okay, now we're going to take a look at the coverage tool EclEmma using more open source projects. These tasks are labeled ECL TODOs. We have a couple of classes here with various levels of coverage. Let's start with the first one. What's going on there? [*Go through all ECL TODOs*]

ECL Class 1

- How confident are you in your explanation?

ECL Class 2

- How confident are you in your explanation?

ECL Class 3

- How confident are you in your explanation?

ECL Class 4

- How confident are you in your explanation?

ECL Class 5

- How confident are you in your explanation?

ECL Class 6

- How confident are you in your explanation?

ECL Class 7

- How confident are you in your explanation?

Talk Points

-   I'm not sure if I understand what you mean by that…can you explain a bit more?

- Did the notification/the way the tool explained the problem confirm or change what you understood about the problem?

-   Yeah, this one is a bit confusing...would you like to try fixing it to see if you what you think is the problem actually is the problem or would you like to continue to the next piece of code?

-   I don't know much about this subject…how would you explain this to me? Is there a better way to convey this problem than how it is explained here?

-   I can tell you know what the problem is, but you seem to be having a hard time explaining it in words…what do you think is the best way to explain a problem like this?

-   We've spent a lot of time on this notification and I want to make sure we stay on schedule so we should probably move on to the next one and then we can come back to this one if we have time.

And that was the last code segment. [*If any notifications were skipped and there's time, go back to them now*]

Do you have anything else you would like add or any questions you have for us?

[*If not*]
All right, then that's it. Again thank you for you time and participation!

Debriefing (keep recording)

So, now that we have complete the study, are there any questions you have for us?

Just to re-iterate, we were not observing your ability as a programmer; we were observing how you understand and react to tool notifications. That being said, I recall you saying that you wanted to know whether your explanation was correct [*give explanation of ones they were interested in*]

Questions/Talking Points for debfriefing:
- Were there any notifications that you felt were the least helpful/useful? Were there any that were not clear?

- Is there a better way to explain this in your opinion?

- Is there information that you would have expected to have been available that was not?

- What made this notification easy to understand / this notification difficult to understand?

- Did you find it distracting having notifications from other tools present when attempting to work with one tool? (*make note of if this actually occurs during the session*)

I will be creating a transcription of our session and using the data from screen capture and my transcriptions for my research. The data will be anonymized and only viewed by myself or my research advisors. If you have any concerns about confidentiality please let me know so we can address it accordingly.