Participant ID: _____

Domain: 3D modeling/design Slides Programming

Condition 1: A - Retrospective B - Concurrent

Condition 2: A - Retrospective B - Concurrent

Facilitator setup

- Turn off participant + facilitator video
- Make sure the recording has started (use Zoom)
    - I need to join the Zoom session first
- Stopwatch/timer
    - Time each chunk to take 15 min
- Giftcard

Participant setup

3D modeling/design (Fusion 360, Maya, etc)

- Participant must have this software set up on their machine when the session starts

Slides (PowerPoint, Google Slides, Keynote, etc)

- Participant can use whichever they're most comfortable with
- Facilitator should have a Google slides link ready just in case

Programming

- Participant can use whatever coding setup on their machine they're comfortable with (e.g., whichever IDE, editor, browser); they should have this set up when the session starts
- Facilitator should have a Codepen/JS Fiddle link ready just in case

Script

Thanks for coming to participate in this study today.

We'll first get set up with the necessary software for the task.

Let me log into Zoom first. Sending you an email with the link. Ok, now you open the Zoom link.

I'll send you a link now with a survey I'd like you to fill out.

Now I'll go sit in another room and we'll communicate using Zoom for the study.

Alright, today we'll be asking you to [insert task]. What [software/configuration] do you typically use for [insert task]? Can you please bring that up on your laptop now?

3D modeling/design

Today we'll be asking you to use 3D modeling or design software to create an item or items of your choice. Please choose from one of the following ideas:

- A set of furniture
- Car parts
- Parts in a plumbing system
- Videogame or movie character
- Some other model or design you're comfortable and familiar with

Please choose whichever task you are most comfortable with. Also, you don't need to learn any new features or workflows for this study; whatever knowledge you have already will be just fine :) But please feel free to search online for help if you need to, just as you would during your normal work day.

Slides

Today we'll be asking you to make a set of slides that you would present to students you're teaching, colleagues at work, or in a show-and-tell/about-yourself talk (e.g., at work, in an extracurricular club) on a topic of your choice. Please choose from one of the following ideas:

- An overview of a subject area, or a specific technique/tool/algorithm you know well
- Proposal for a new initiative at work
- A sport or game you enjoy playing/watching; historical subject of interest; overview of a book/movie; or any other personal interest

Please choose whichever task you are most comfortable with. Also, you don't need to learn any new software features for this study; whatever knowledge you have already will be just fine :) But please feel free to search online for help if you need to, just as you would during your normal work day.

Programming

Today we'll be asking you to write some code to create a program or UI of your choice. Please choose from one of the following ideas:

- UI programming
    - Create a gallery where you can browse through book covers, movie posters, or YouTube videos; you can also include widgets for sorting/filtering/searching them
    - Create tic-tac-toe
    - Create a digital or analog clock with hours/minutes/seconds
- Data/Algorithms
    - For an input text file, print out an alphabetized dictionary of words and the number of times each one occurs
    - Implement a sorting algorithm (e.g., insertion sort, selection sort, quicksort, merge sort, bubble sort, radix sort) or search algorithm (e.g., binary search)

Please use whatever programming language you'd like and choose whichever task you are most comfortable with. Also, you don't need to learn any new language constructs, technology, or algorithms for this study; whatever knowledge you have already will be just fine :) But please feel free to search online for help if you need to, just as you would during your normal work day.

For all tasks

Note that you will have about 30 minutes in total for your task. Work at a pace that you normally would for your task. Don't worry too much about whether you completely finish it in the 30 min; just try your best.

For 3D modeling/design and programming

Only requirement: start from scratch. You can look online or at prior projects for examples, but please start from a fresh model/codebase.

Universal "think-aloud" instructions

"Imagine that you or your teammates will be revisiting your [code/slides/model] at some future date… for example, to make edits to it, to build on it, to repurpose it for another use case, to use it as an example to learn from, or to review it for quality. Please speak out loud information that you think would be important for future-you or your teammates to know when revisiting the [code/slides/model]; imagine that the computer will capture your speech for you and your teammates to reference in the future. Say whatever you think would be useful to future-you and your teammates; you can talk as much or as little as you think would be useful."

Retrospective condition

- Instructions: “Please start working on the task now. There’s no need for you to explain to me what you’re doing; you can sit quietly and work. But after the 15 min work period, I’m going to give you this prompt: […]”
- Participant should work on task for 15 min
- Think-aloud instructions:

  “Imagine that you or your teammates will be revisiting your [code/slides/model] at some future date… for example, to make edits to it, to build on it, to repurpose it for another use case, to use it as an example to learn from, or to review it for quality. Please speak out loud information that you think would be important for future-you or your teammates to know when revisiting the [code/slides/model]; imagine that the computer will capture your speech for you and your teammates to reference in the future. Say whatever you think would be useful to future-you and your teammates; you can talk as much or as little as you think would be useful.”

Notes

- Survey questions (share form)

Concurrent condition

- Participant should work + think-aloud for 15 min
- Work + think-aloud instructions:
    - “Please start working on the task now. As you work, please speak out loud information that you think would be important for future-you or your teammates to know when revisiting the [code/slides/model]. Imagine that you or your teammates will be revisiting your [code/slides/model] at some future date… for example, to make edits to it, to build on it, to repurpose it for another use case, to use it as an example to learn from, or to review it for quality. Imagine that the computer will capture your speech for you and your teammates to reference in the future. Say whatever you think would be useful to future-you and your teammates; you can talk as much or as little as you think would be useful.”

Notes

- Survey questions (share form)

Interview

- What are your overall thoughts from this session?

- What did you think of the condition where you spoke about important information *after* the 15 min chunk of creation? What were positive things? What were negative things?
    - Follow-up questions: How much do you think you captured with this retrospective description? Do you think you missed anything that might have been relevant to the future consumer of your [model/slides/code]? What type of information do you think you missed?

- What did you think of the condition where you spoke aloud important information *during* the 15 min chunk of creation time? What were positive things? What were negative things?
    - Follow-up questions: Were there difficulties to speaking during the creation task? Did it slow you down or impact your thought or working process? Was it beneficial to speak during the task? Did it help you think through the task more clearly?

- For both conditions, when you spoke aloud important information, how did you decide what to say and what not to say? For "concurrent", if you did filter what you said, how much cognitive effort did that take?

Retrospective   Concurrent

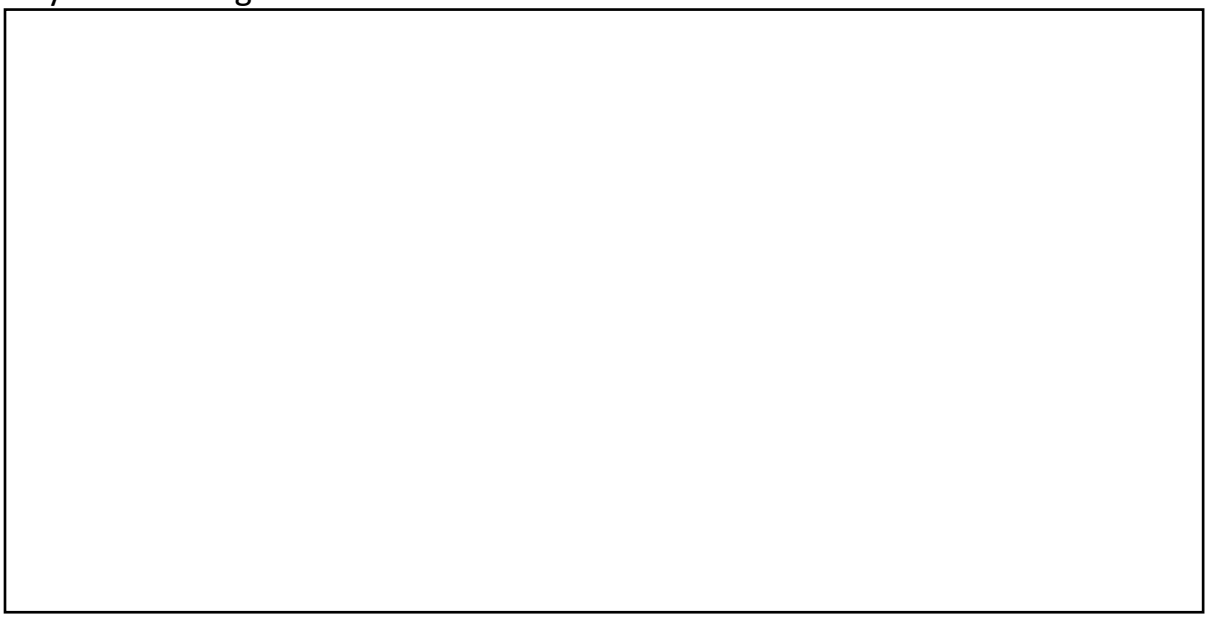
- For the “speak *during*” condition, how did you regulate how frequently you spoke?

- Who was the audience you were imagining for the information you were sharing? And what did you imagine their/your goals to be?

- Have you ever wished that you could have had this recorded information when looking at someone else's [model/slides/code], or your own [model/slides/code] many months after originally creating it?

- Do you think you would use this approach (recording yourself for future benefit) going forward? Would it integrate well with your work process, or was it awkward? Do you have any suggestions on ways to make it more natural?

- Any other thoughts?



Part 4 – debrief – 3 min

- We want to create a system that captures a creator's design intent and other important information in their minds in order to support better documentation and communication in various artifact creation tools (e.g., 3D modeling/design, programming, slides).
- In this formative study, we're specifically trying to learn what impact verbalizing this intent information has on the creation process, whether people can effectively verbalize this information retrospectively, and what kind of information they'll share.