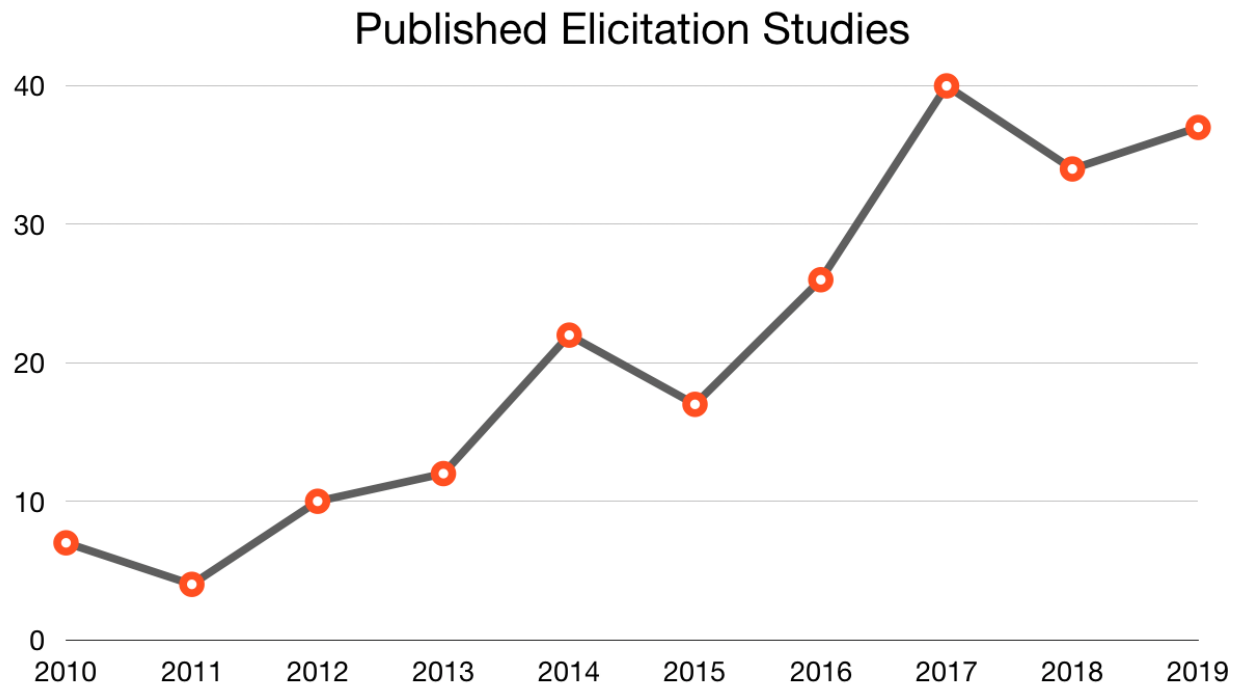
Photo by Joanna Kosinska on Unsplash

> Elicit / ih-lis-it/ to draw or bring out or forth; educe; evoke. — dictionary.com

Wait! Isn't the aim of any user-centered design study to draw out users' opinions and preferences? Well, yes; but, end-user elicitation studies is a particular design methodology in which the participants are prompted with a list of functions for a system and they dictate the input action they want to trigger each function. This method has become quite popular in the academic field of human-computer interaction over the last decade since

the publication of a paper by Wobbrock *et al.* There are more than 300 published academic papers—with an upward trend—using this method to design interactions with touch interfaces, drones, robots, in-vehicle interactions, etc.



A graph showing the number of papers using elicitation studies to design interactions over the last decade.

A Little Bit of History

Despite its recent popularity, the core method has been around since the early '80s. Good *et al.* published a paper in 1983 using this particular method to design user-driven key terms for a command line interface—YES! It's that old!

So why the recent uptake? In 2009, Wobbrock and colleagues published a paper formalizing the method around gestures for tabletop computing. This is the affordmentioned highly-cited

paper. Because of the ambiguity of gestural interactions—as opposed to, say, clicking on labeled buttons for input—this user-centered method proved to be very useful. The method can also be applied to input modalities other than gestures like voice commands, icon sketches, etc.

How do elicitation studies work?

Recently, I broke down the components of an interaction between a human and a technology in this post:

To re-iterate, an interaction is made of three components:

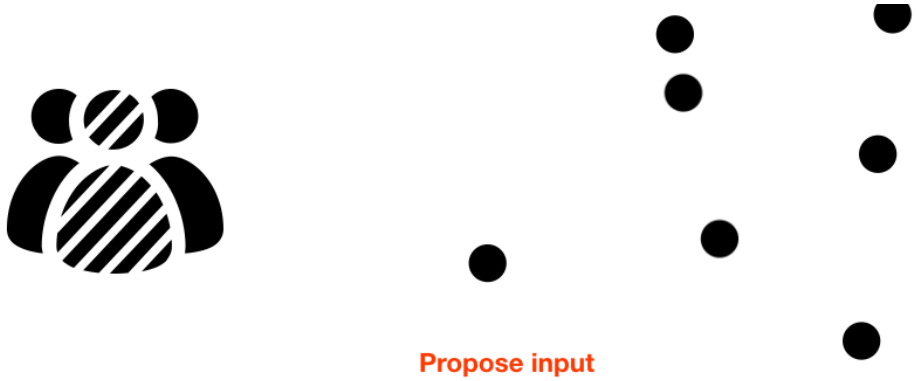
1. Human action
2. Technology function
3. Feedback

Running an Elicitation Study

You (the designer/ researcher) show participants in your elicitation study (ideally future users of the interactive system you're designing) a **prompt** of a technology function represented by whatever feedback your system would give. For example, a file disappearing, depicting the delete function.

Prompt of a technology function shown to participants

Your participants, in turn, would **propose** what action they would perform to make that function happen. So if you are designing a system that uses a touch screen and gestural inputs, the participant would perform the touch gesture they think would trigger the delete function.



Participants propose input actions

Over many users and many proposals themes start to emerge, and you can find the action with highest consensus to trigger a given function in your interactive system. I recently published a paper at the UIST 2018 conference detailing how to analyze elicitation studies.

In the end, you (the designer) get a better sense of what is most "natural" or intuitive to the majority of your future users.

When to use elicitation studies?

Emerging technologies, and novel interactions benefit the most from elicitation studies. Think, what on-skin gesture would a user make to rewind a song they're listening to on their smart watch 15 seconds?

Elicitation studies are used to inform the designers of their

potential end-users' abilities and preferences before committing to a build. **They sit between the wireframe and the code.** Once you have nailed down the functions of your technology—your new app, or device. It is time to show your prospective users what the technology can do and ask them how they want to make it happen.

Is it for me?

If your answer is yes to the next three questions, you should run an elicitation study on your next project.

1. **Are you designing an interactive technology?** In other words, are you making an artifact that will augment a user's ability to complete a function by responding to their action?
2. **Can you show the change in the state of your technology based on an input?** Meaning, does your technology provide feedback that it executed a function?
3. **Does your technology accept multiple input modalities to trigger a function?** Does your app, or device accept a voice command as well as a button-click to trigger a function? Or Multiple variations of the same modality. If it is a voice command, what is it? say you're designing a voice-operated web browser. What is the voice command to go to the last-viewed page? Is it "back," "go back," "take me back," or "show me the last the page?"

As designers we cannot think of all the possible scenarios, preferences and abilities of our users no matter how much we empathize with them. This is the core idea of participatory design studies. Think of elicitation studies as a great way to inform design teams of the preferences and abilities of users. Utilizing such studies leads to the creations of usable and accessible technologies from their inception.

My Ph.D. Thesis Distributed Interaction Design is built on top of elicitation studies. Feel free to reach out to me at abdullah@axali.me with any questions.

Design UX Research UX Research Ux Strategy