On effective prototype sessions for the e-book of the future

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1 Introduction

In this document we define our theory on prototyping (for e-books of the future). First we define aspects can make a session typically bad or good. Then we provide two experiment setup to test these theories.

2 Theory

In this section multiple subjects are stated that will likely negatively impact a prototype session. These subjects are based on the theory from kahneman, *Thinking fast and slow.*

2.1 Bad Target Group

The participants in the prototyping session are of vital importance. Their backgrounds will determine the kind of feedback there will come out of the session. Two categories of participants will most likely not give usefull feedback. These are:

- Insiders. Participants that already have a stake in the product
- Fanboys/girls. Participants that already like the product, because of the company or any other particulair reason.

The insiders are bad participants because they are biased. They can only observe the inside view. Kahneman states the exact problem on the inside view:

He's taking an inside view. He should forget about his own case and look for what happened in other cases.

In a prototype session all the cases of the inside view are probably already

covered by the prototype however the outside view will render cases that give usefull feedback. Having only insiders in the prototype session will thus hurt your feedback results.

The second group of participants is fanboys/fangirls. These participants will most likely fall for a different kind of fallacy, namely answering the easier question. Instead of looking at the product from an unbiased perspective they will like already like product. This is because, they replace the question *How much do I like this prototype?* with an easier question: *How much do I like the company or their earlier products?*. This based perspective will negatively influence their ability to find new cases or flaws in the prototype.

2.2 Cognitive Ease & Affect

"When you are in a state of cognitive ease, you are probably in a good mood, like what you see, believe what you hear, trust your intuitions, and feel that the current situation is comfortably familiar."

"The affect heuristic is an instance of substitution, in which the answer to an easy question (How do I feel about it?) serves as an answer to a much harder question (What do I think about it?)."

Setting an environment in which the subjects experience cognitive ease may lead them to be more receptive of the prototype. To accomplish that, the environment of the experiment will be comfortable and the subjects may be offered food or listen to music or even smile throughout the experiment. According to the first quote of this section, they will not be critical towards the prototype, they will accept what is suggested by the experiment and the prototype will seem familiar. Moreover, they will feel more comfortable using it than they would have. Finally, if they have to answer the questionnaire in the end of the experiment, they will have associated the memory of using the prototype with their good mood so they will be even more positive towards the prototype assuming they use the affect heuristic.

2.3 Deplete System 2

Ego depletion: *"if you have to force yourself to do something, you are less willing or less able to exert self-control when the next challenge comes around"* .

Ego depletion might be a way to let the subjects easier accept the prototype as a good one. First let the subjects do something that takes a lot of effort, watch a movie, try not to focus on something distracting etc. Then the prototype will be shown. If the only parts shown of the system are the parts that are good (as explained in 1.6) the subjects will be easier to accept the system as good in overall and do not criticize it.

2.4 Anchoring

A bad prototype session would be to bias participants to like the prototype. One way this can be achieved is the /emphAnchoring as priming effect. Before starting

the prototype session the participants are shown fake results from a hypothetical prior prototype session. These results show that a seperate group really like the prototype and on average gave very positive feedback on it. Although the new participants should not be affected by these results, the anchoring effect suggests that they are more likely to give more positive feedback as well. In the worst case the new participants will exactly match the fake results resulting in a completely useless prototype session.

2.5 Availability

"The availability heuristic, like other heuristics of judgment, substitutes one question for another: you wish to estimate the size of a category or the frequency of an event, but you report an impression of the ease with which instances come to mind."

Availability can be used to influence the results of the prototype session in a way that is desirable. For instance, the answer of a subject to the question whether she would use the prototype in her everyday life can be manipulated; if different situations that the subject could use an eTextbook, such as while traveling on a train, or when moving to a summer house, are mentioned before the question, the answer would be more positive. Similarly, if situations that she could not use an eTextbook are mentioned before the question, the answer would be more negative. This would happen because the references before the question change the ease that examples of using eTextbooks in everyday life come to the mind of the subject.

2.6 Priming / Framing on the good features / WYSIATI

Only the good parts will be shown, the features that works the best and the easiest. This is based on the WYSIATI principle. The only parts of the prototype that are shown are the parts that work well or are really good. The parts of the prototype that do not work well or are forgotten will be completely ignored. Therefore the subjects will not notice the faults and limits of the system and will believe the software works perfectly.

3 Good prototyping

We believe a good prototype session has the following:

- Prototype session closely related to reality
- Intervene / let them experiment
- Priming creativity

3.1 Outcome

A good prototype session will provide you with usefull information. The subject will experiment with the software / object, in the best case integrate it in their daily life for a little while. While experimenting and using the device they will find out what works well, what does not work, what they miss and what parts are not used at all. This way they can provide better feedback and critique. Also, a succesfull prototype will uncover the non-functional requirements. For example: the subjects like the system but you dind out that they will not buy it. Now work can be done to find out why people won't buy the system so you can make sure the system will be a success.

4 Experiment - Anchoring

In this expirement for the prototype session we will try to affect the results of the session by anchoring the participants. As described in the theory section anchoring (/refanchor) the participants are required to fill out a form which states how much they like each of the new features (on a scale 1 to 10) that were mentioned in the requirements documents along which some more general questions on reading. On these question sheets the averages of a 'hypothetical' prior expirement will be stated as well.

To measure the anchoring effect we will hand out two different questionaires. The questions will remain the same however the averages we put after the questions will differ. One questionaire contains a high anchor 'average' and the other one a low anchor 'average'. Then after the experiment we will measure the difference between the high and the low one to see if the anchoring had any effect on our participants.

If anchoring effect is real and other factors such as small experiment group don't affect the results to much than the difference between the high anchor average and the low anchor average should be positive and we should be able to observe this for a number of questions in our questionaire.

5 Experiment - System 2 Depletion

As stated before: *"If you have to force yourself to do something, you are less willing or less able to exert self-control when the next challenge comes around"* . This experiment will focus on this idea and attempt to influence the results.

Set-up For this experiment, 2 questionnaires will be created and 2 goups will each answer one of those. One of the questionnaires contains a large amount of boring and obvious questions before the questions we actually care about. The other questionnaire contains only the questions we want answers on. The idea behind this is that the group that has to answer a great amount of

boring questions get annoyed and start to force themselves to go on with the questionnaire in such a way that they get it over with as soon as possible. In contrast, the other group has just the core questions and has therefore no need to force themselves through a long and boring questionnaire.

Possible Outcomes We expect the group that had to force themselves to finish the questionnaire to do it in a manner to get it done as fast as possible. Therefore we expect that they are more likely to answer for the first possible option. In contrast we expect the group that did not have to force themselves to finish the questionnaire tool think more deeply about the questions.