Applied Design Thinking Part 2

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The Affinity Method in action.

The starting point of any new thing is the “blank page!” However, beginning with a clean sheet of paper is simultaneously daunting and exhilarating. Therefore, in this part of my multi-article Design Thinking series I’ll look at tackling the “blank page” by crowd sourcing hypotheses that can be tested. My usage of the term “hypothesis” is intentional to signify that, as much as possible, we’re trying to be inspired by the Scientific Method. I say as much as possible because in the case of the early design phases getting to empirically testable hypotheses is unlikely. Instead, by referring to the Scientific Method, I’m focusing on the generation of hypotheses that are falsifiable, or said more plainly through “tests” with your target audiences these generated hypotheses could be proved partially or fully wrong. Being wrong and failing at an early stage is important because it is cheaper than

finding out later. (At least 60% of the cost of a program happens after release; therefore, creating hypotheses quickly and keeping only the sturdiest ones means you're not incurring unnecessary costs later.) This also means practically we all need to be passionate about solving user problems and not get trapped into a specific idea too early. Another benefit from crafting ideas into qualitatively testable hypotheses are robust meaningful dialogues with customers. In fact, if you don't have specific discussion guides (i.e. hypotheses) interactions with users may be poor. Actually, a common result from unguided open ended customer chats are shortcomings to current things, requests for "dream machines," and resolutions to "world hunger."

Well, given all of that let's get on with it, but (there's always a but, but this is good) like with Einstein we're here to stand on the shoulders of giants. As a result, I'll not reinvent a process or methodology when one exists that can be reused. As the heading of this section implies we'll be using what is sometimes called the Affinity Method to actively crowd source and create our hypotheses to fill in the clean sheet of paper. (Testing our various hypotheses, along with other steps, will be left for future articles in this series.) Given that there are great resources on the Affinity Method, and because I don't want to reinvent the wheel, I'll merely cite one article at the Interaction Design Foundation called "Affinity Diagrams — Learn How to Cluster and Bundle Ideas and Facts." This article is straight to the point and because of that I've pulled in some snippets which outline the physical process.

Wrapping structure and conditions

For this exercise there is an assumption that an individual team is no bigger than 10 people and includes a facilitator. If the number of people is larger than 10 it is suggested that two smaller teams be formed, two facilitators be assigned and the problem be broken into separable parts. It is the facilitator's job to keep track of time, answer questions and ensure that the

team stays on mission. For the team everyone is assumed to be an equal contributor, meaning other than the facilitator, there aren't any leadership roles — of course if possible, the facilitator can also contribute. Finally, the facilitator will be responsible for capturing the collateral, likely as high quality digital photos, and helping organize the generation of associated digital collateral. Session duration is generally expected to take 3–4 hours, but depending on the amount of work, longer sessions are possible.

Summary

- Session Length: Usually 3–4 hours
- Team size: No more than 10, but if there are more than 10 split in more teams
- Number of facilitators per team: 1
- General areas/questions to ideate on: Define your target (extreme) users, and given a set of kernel ideas build up hypotheses to test.

Affinity Method

Just like in any ideation activity the intention is to think of many many ideas. This is the practice of quantity not quality; therefore, even seemingly silly ideas are ideas and who knows that silly idea might be the next market maker! With that in mind the basic rationale and steps below are to be followed. However, the facilitator may have some background information, scenarios, source detail, etc. to provide the team as a starting point.

Why (taken from the Interaction Design Foundation)

The Affinity Diagram is a method which can help you gather large amounts of data and organise them into groups or themes based on their relationships. The affinity process is great for grouping data gathered during

research or ideas generated during Brainstorms.

The method is also called “Space Saturate and Group”. The term “saturate” relates to the method in which everyone covers or saturates the “space” with images and notes, in order to create a wall of information, to inform, and start “grouping” the following problem-defining process. You then draw connectionsbetween these individual elements to join the dots and develop new and deeper insights. They will help define the problem(s) and develop potential ideas for solutions. In other words, you go from analysis to synthesis.

Best Practices (taken from the Interaction Design Foundation)

1. Put pieces of data, small documented facts, drawings, ideas, and observations onto post-it notes, cards, or pieces of paper and put them up on wall charts, white boards or chalk boards. This is where the associated imagery of walls filled with post-it notes comes from. The sticky notes allow the design team to easily stick up and move pieces of data around in order to create clusters of similar themes, groups and patterns.
2. Take one post-it and make it the first post-it in the first group.
3. Take the next post-it and ask, “Is this similar to the first one or is it different?”. Then, you will place it in the first group or into its own group.
4. You continue post-it by post-it as you place similar ideas together and create new groups when ideas do not fit into an existing cluster.
5. You should now have 3–10 groups, so it’s time to talk about the best elements of those clusters.
6. Name the clusters to help you create an information structure and discover themes.
7. Rank the most important clusters over less important clusters. Be aware which values, motives, and priorities you use as foundation ideas before

you start ranking: Is this your user's priorities, your company's, the market's, the stakeholder's, or your own? Which ones should you put most emphasis on?

8. Sometimes it make sense to create connections with other clusters using lines or other devices between individual bits of data or clusters of data.
9. Describe what you have synthesised, for example, insights, user needs, pain points, or look for gaps you haven't addressed yet.
10. Focus on translating what you've organised and understood into practice, rather than just identifying similar ideas.

Putting it together

While the steps outlined above can be used to tackle nearly any problem, we're intent on building up a set of ideas that you can test with a target audience. Therefore, once the ideation session is completed it is up to the facilitator to capture and organize the raw output and assign homework, to specific people, to build up the following items:

1. Presentation material — an idea should be no more than one slide — in NDA and non-NDA format because it is likely you will be talking to both types of users.
2. Interview guiding questions need to be produced which will be used to run the interview.

As you could imagine I cannot post examples of either a presentation or questionnaire from Hitachi. However, my Master's project entitled "Exploration Techniques for Stranded Customer Intelligence" includes a sample questionnaire, old customer interview notes (the company we interviewed long ago went out of business), and describes techniques to create a system for the better handling of customer interview results. So, perhaps this will further the understanding of how to create a questionnaire to be used in an interview. As to a wrapping presentation, generally my

experience is that a single slide per testable idea with both verbal and pictorial representations is sufficient at this early stage. Scheduling the interviews, conducting them, taking notes and shaping up the design are issues I'll tackle in later articles. Until then, let me end with a story which dovetails with some of the efforts that Jeff Maaks and I undertook in Oil and Gas.

Even stories have affinity

Hitachi began efforts several years ago to look at how we could make a difference in the Oil and Gas industry. Specifically, we pursued a novel MEMS sensor that has applications in seismic Exploration and Production scenarios. (You can read about our sensing technology in our announcement this January, or if you attended the 31st annual IEEE conference on MEMS you may have seen Hitachi's paper presented as a part of the program.) During our developments we quickly realized that to continue our progress we needed to move beyond sensing. Specifically, we needed to move into the nebulous world of "software." This left the team with key questions like:

1. Which category of problem and are there really problems to solve?
2. What users actually have these problems?
3. What are the actual use cases that result from these surfaced problems?

As it turns out the only real way to answer these and other questions isn't through self direction, but via lite documentation and discussions/validations with candidate users. (Since I don't want to steal Jeff's thunder on outcome(s) I'll merely relate the first part on documentation.)

To get into the problem space everyone on the team did piles of reading, one-on-one discussions, analysis (including intel from the likes of Navigant and Visiongain plus spunky companies like Agile Scientific), active whiteboard discussions, early customer interactions, talks with experts (like

Doug Gibson and Matt Hall) and so on. Our chief challenge was we had not been able to synthesize our information into clear concepts that could be tested with users, and we had upcoming visits scheduled for the summer of 2016. Therefore, in the spring of 2016 our team of about 10 met in Shinagawa with a group who facilitates design thinking sessions. On that day our consummate facilitator(s) showed up excited, ready and with the most well organized kit of sticky notes I've ever seen — I really wish I had taken a picture. Our mutual motivation was to have kernel hypotheses identified and homework assigned by the end of a half-day's efforts. Our facilitators explained their local methodology and encouraged us to generate lots and lots of ideas throughout the day. After the brief explanation, and a little methodology/rule bending, we were off to document thoughts. The half day was basically organized like this:

1. Communicate the category area (Who will need our innovation?, What problems need to be solved?, etc.),
2. Set the timer,
3. Write as many ideas on sticky notes as possible in the prescribed time,
4. Place the sticky notes on the wall, and
5. Evaluate an organize what was on the wall.

So on we went with 10s of minutes passing by and 20, 30, 40 or more ideas on sticky notes produced per category. Ultimately, at the end of the half-day session, we had used a lot of little pastel papers, produced about 10–15 quality concepts and assigned homework to generate collateral for 4 of these ideas. Which meant our mission was accomplished, and honestly without this Affinity based design session we would not have been prepared for our summer adventure. (An experience I've had many times in my career.) Fast forward about a week and we had our core collateral built (both in NDA and non-NDA formats), assigned roles for each section, and were ready for our sultry summer adventure in Houston, Texas!