

AXE

Anticipated eXperience Evaluation

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Executive Summary

AXE is a qualitative user research method that gives an initial impression on the user experience for a product or a service. It is an associative method that involves individual users in an interview setting. The method uses visual stimuli to make participants imagine a use situation and to reveal their attitudes, use practices and valuations. AXE is both an evaluative method and a method for collecting inspirations for improvement. The results connect perceived product attributes with different dimensions of user experience. The method does not make any presuppositions of what is important but lets users freely define their valuations and points of interest.

The execution of AXE does not require specific training or interviewing skills due to the design of the method, allowing software developers, designers or other relevant stakeholders to facilitate an evaluation session. The preparation of materials, execution of the evaluation and subsequent analysis of the results typically takes 2 person weeks. With more experience, the evaluation can be done within 1-person week.

As parents to our brainchild, we believe that the best option for a new method is not to limit options but to encourage use and adaptation. We have chosen to make the method and the material package freely available for everyone on www.axe-hub.com

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AXE Handbook

Table of Contents

<i>Executive Summary</i>	2	6. AXE session	18
<i>Preface</i>	5	<i>Interview guide</i>	18
1. Background	6	<i>Introducing the method to participants</i>	18
2. Materials used in AXE	8	<i>Getting the participant to talk</i>	19
<i>Guidelines for selecting pictures</i>	8	<i>Important issues</i>	20
<i>Creating picture pairs</i>	9	<i>Hints for the facilitator</i>	20
3. Evaluation prerequisites	11	<i>After the session</i>	21
<i>Identification of design targets</i>	11	7. Analysis	22
<i>Creation of a concept descriptions and representative use scenarios</i>	11	<i>Transcription</i>	22
<i>Design of a low-fidelity prototype</i>	12	<i>Selecting segments</i>	22
<i>Recruiting participants</i>	13	<i>Categories, dimensions and valuation</i>	23
4. Test setup	14	<i>Categories for concept's present state</i>	24
<i>Choosing an appropriate setting for the evaluation session</i>	14	<i>Categories for improving the concept</i>	25
<i>Equipment</i>	14	<i>Categories for associated attributes</i>	25
<i>Personnel</i>	15	<i>Categories for anticipated consequences</i>	26
5. Once the participant arrives	16	<i>Documenting results</i>	27
<i>Explaining the setup</i>	16	8. Interpreting results	28
<i>Describing the purpose of the evaluation</i>	16	<i>Comparison of design targets and perceived value</i>	28
<i>Explaining the session outline</i>	16	<i>Identifying critical aspects</i>	28
<i>Presenting the concept</i>	16	<i>Dissecting suggestions</i>	28
<i>Answering questions</i>	17	<i>Dangers in numbers</i>	29

Preface

This document is a stand-alone description for conducting Anticipated Experience Evaluation (AXE), a method that has been created for evaluating products in very early phases of product or service development. The description is meant to be extensive and usable by evaluators with very little experience. Therefore, parts of the document carry fundamentals that may be bypassed by more experienced evaluators. For the sake of readability the document excludes most of the scientific backgrounds for choices made for the different phases of the method. For further information on the development of AXE please refer to the original paper:

For What it is Worth: Anticipated eXperience Evaluation. Gegner, L., & Runonen, M. (2012). In J. Brassat, P. Hekkert, G. Ludden, M. Malpass, & J. McDonnell (Eds.), 8th International Conference on Design and Emotion. London, UK: Central Saint Martins University of the Arts London with the Design and Emotion Society.

This is an ongoing research project, therefore we are interested in collecting further data about your experience using AXE. Please drop us a line either to lutz.gegner@aalto.fi or mikael.runonen@aalto.fi or fill our [survey](#).

AXE has been developed within the UX Tools research project (2010 - 2012), a joint research project between Aalto University, Department of Design, Department of Computer Science, and Nokia Research Center Helsinki.

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1. Background

In the area of User eXperience (UX) evaluations there are various methods for understanding users and their relationships with products. In general, one can distinguish between summative and formative evaluation methods. Summative methods are mostly used to compare product alternatives according to pre-established criteria in a quantitative manner, whereas formative methods are applied to identify and understand the strengths and weaknesses of a particular product from the user's point of view.

UX research has broadened the scope in the realm of Human-Computer Interaction (HCI) from task performance and technology acceptance to emotions, attitudes, beliefs and values. The number of methods has grown. However, there are few practical methods for evaluating prototypes or concepts. Existing methods are mostly applied in later phases of product development as they primarily focus on the user's interaction with the product. This is unsatisfactory because recognising possible problems or benefits at such a late stage can require substantial changes, that are either impossible or too expensive. A method that can help identifying important experiential aspects during very early phases of development can reduce costly changes but also provide a competitive edge.

It is well known that study participants perform poorly when trying to describe their future needs. This poor performance is underlined when experiential aspects are taken into account. Describing experiences with only words is a difficult task in itself and making someone imagine an experience with a product makes it even more challenging. If a person is asked to imagine and explain an experience, with a future product, there will be a bias caused by the interviewer's wording. Another problem arises with the participant's responses, as words can be interpreted in endless ways. The meaning behind individual words can be derived to some extent from the context. This approach, however, is very vulnerable to misinterpretations and subconscious bias due to the desire of seeing the evaluated product in a positive light by the person doing the analysis. Words in general, both written and uttered, poorly convey subjective appraisal. For correct understanding, adjectives in particular need to be clarified with respect to the meaning of the adjective and whether it contains a positive or negative judgment. For example, the sentence "This is a funny product, it

makes me laugh” can have many meanings. Firstly, does “funny” refer to something that enables a person to have fun or is the product itself ludicrous? Secondly, is “funny” in this setting a positive judgment? For a situation that is serious, a funny product may not fit and thus create a negative outcome.

The type of challenges normal interviews and questionnaires entail can be decreased to some extent with projective techniques. Projective techniques utilize less structured stimuli that help the participant project their attitudes, opinions and self-concept. When ambiguous pictures are applied as stimuli, there is plenty of room for the participants to make their own interpretations. The ability to interpret stimuli freely allows participants to express their views more extensively as there are no right or wrong answers. The selections of stimuli for AXE are based on the AttrakDiff questionnaire items by Hassenzahl¹, which probe on perceived pragmatic and hedonic qualities of interactive products. Pragmatic qualities correspond to usability and usefulness whereas hedonic qualities are further divided into dimensions of identification, stimulation and evocation.

1. Hassenzahl, M., M. Burmester, und F. Koller. „AttrakDiff: Ein Fragebogen zur Messung wahrgenommener hedonischer und pragmatischer Qualität“. In *Mensch & Computer*, 187–96, 2003.

2. Materials used in AXE

AXE utilizes a predefined set of picture pairs as stimuli. These pictures are hand-picked to address different aspects of UX. Each pair corresponds to a certain item under a UX dimension. There are 3 pairs of pictures for 4 different dimensions and one additional warm-up pair. These picture pairs have been tested in many projects. It is possible to modify the pairs in order to change the emphasis of different dimensions. The modifications, however, should be done with great care as the choice of stimuli has an effect on the evaluation outcome and may thus lead to results that cannot be analyzed with the framework presented in this document.

There is extra room in the set of pictures. These pairs can be used to probe specific aspects of interest that are not addressed by the default set, such as privacy, intimacy or security. However, the total amount of picture pairs should not exceed 16 (excluding the warm-up pair) in order to limit the time of the interview.

It is possible that some pictures get outdated or unacceptable in some other way. In that case the substituting pictures should be chosen to resemble the previous ones as much as possible. All the pictures should always be non-copyrighted to ensure trouble-free use.

Guidelines for selecting pictures

In certain situations, some pictures may become outdated or be unacceptable. In that case the replacement pictures should resemble the previous ones as closely as possible. Pictures should always be non copyrighted to ensure trouble-free use.

Copyright issues:

- » If you are using pictures from the Internet, please make sure that you have the necessary rights to copy, distribute, transmit and adapt the pictures. The current set of pictures are from Flickr® and are licensed under the creative commons attribution 2.0 Generic (CC by 2.0).

Selecting pictures:

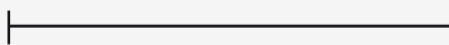
- » Before you start searching for pictures, do some brainstorming on potential motives that could carry the desired meaning you are looking for.

- » Try to find at least 10 pictures per differential that could trigger the response that you are looking for. Then choose the most suitable one from this short list.
- » Avoid professional pictures (i.e. stock-photos, unless this is utilized as a distinct feature).
- » Try to avoid any bias concerning gender, age or race in the selection of pictures.
- » Keep a balance between abstract and concrete picture content.
- » Avoid pictures displaying objects or people in an isolated manner. It is important that the picture carries additional contextual information.

Creating picture pairs

The careful selection of picture pairs is essential for stimulating the participants and obtaining rich feedback in the course of the evaluations. The following points provide simple rules of thumb for selecting the pairs.

- » Create a pair that has at least two easy to identify semantically opposed meanings
- » Avoid pairs that allow a semantic differentiation that can be used as an “easy way out” (e.g. a picture in black and white opposed to a colour-picture could be interpreted as colourful vs. colourless), thus possibly not providing an interesting lead for discussion.
- » Test your picture pair with some of your colleagues to identify whether it is



Example of a picture pair:

The displayed pictures have been chosen to convey the idea of *undemanding* and *challenging*. Responses towards the pair may differ such as *relaxing/engaging*, *intuitive/trained*, *easy/difficult* etc. The scale in between the pictures represents an imaginary area that allows the participant to express the closeness of the concept to either of these extremes.

triggering a response that is semantically related to what you are looking for.

- » Discuss with your colleague how difficult it was to understand the meaning of the picture pair
- » Do some test rounds where your colleague has to evaluate a random object based on the picture pair

3. Evaluation prerequisites

Identification of design targets

The value of the obtained results from AXE highly depends on well-defined targets that have been established by the design team. As AXE is a tool for evaluating a single concept the only reference point against which the concept can be evaluated are the specific intentions of the design. By design targets in this context we mean the benefits that the product concept in question is supposed to deliver to the user. The most obvious target could be the preference of the product concept over an existing alternative. Other targets could be thought of as enablers of stimulating activities that would not have been possible before in a particular context.

Creation of a concept descriptions and representative use scenarios

To communicate the concept to the participant you need to create (i) a comprehensive concept description and (ii) representative use scenarios.

(i) **The concept description** should include: product concept, its purpose, its functions, its operation and the context in which it is used. Since real products do not exist in a vacuum, it is paramount that a realistic balance is kept in the description. The description should be as truthful to a real-life product description and/or marketing material as possible. This is very important because the description has an effect on how a participant interprets a concept.

False promises should be avoided at all costs, like with real products.

(ii) **A representative use scenario** is a narrative in which a person uses the product concept in a specific setting. The use scenario takes the form of a short story following a classic storyline. The story can also be accompanied by visual material (e.g. drawings, renderings, storyboards) that show various design aspects of the product and its social and physical use context. The story is written by using the second person pronoun “you”, in order to immerse the participant in the scenario.

The narrative should contain the following elements:

Use context: social, physical and temporal context

Motivation: the reason for the user to act

Task: the activity that involves the use of the concept (not a detailed description of the individual operations)

Consequence: the outcome of the interaction with the concept

To avoid biasing the participant the use scenario should be written neutrally and avoid highlighting the benefits. As the pronoun “you” is used, the scenario should be created carefully, keeping the target audience in mind so that it would not appear implausible.

Design of a low-fidelity prototype

Depending on the concept to be evaluated, a prototype can be used to showcase interactions and highlight interesting aspects. Situations where a prototype comes in handy are with products that have interaction techniques that differ greatly from what the participants are used to, the context of use is unfamiliar to the participants, or when it is reasonable to believe that the concept introduces unfamiliar changes to behavior. The prototype should include only the most important elements that are required to illustrate its meaning. To avoid distracting the user, everything else should be excluded from the prototype. The lo-fi prototype should not be polished if there is no particular need to evaluate the look and feel. If there isn't a specific reason, the prototype should not carry any markings of brand or model.



Recruiting participants

The participants for the evaluations should ideally represent members of the intended target group. It is recommended to start recruiting participants at least one week before the actual evaluation session. The purpose and the duration of the session should be communicated to the participants. Furthermore an appropriate reward should be promised in order to provide an incentive for participation. The estimated duration for each session is approximately one hour, which means the communicated duration should be one and a half hours to be on the safe side. At minimum the concept should be evaluated with 8 participants. Ideally the participants should not be familiar with this evaluation method to avoid bias and to obtain richer results.

4. Test setup

Choosing an appropriate setting for the evaluation session

The environment where evaluations take place should be a room where the participant can be relaxed and also focused on the task at hand. As the evaluation itself is quite minimalistic and intimate, there is no need for an excessively big room (for instance, a negotiation room) but for a room where two people can work comfortably around a table. It's advisable that the room has some furnishings for making it more comfortable.

The amount of technology (see following subtopic for equipment) should be kept to an absolute minimum as they may have an effect on participants' behaviour. The participant should be able to feel equal to the interviewer in the evaluation. Therefore there should be no elements that communicate a hierarchy such as different chairs, the interviewer sitting higher than the participant, handing papers over a long distance, etc.

The evaluation session should not be interrupted, so the room should have as little disturbances as possible. This means that the room should be reserved for the duration of the session and it should not be a room that is used for through-passage. The amount of surrounding noises should be kept to minimum but a low non-distracting background noise (e.g. hum of air conditioning) is welcomed as it can help the participant relax and make the situation less interrogation-like. The room should not have a clock that is visible to the participant. The session facilitator should have an inconspicuous way of keeping track of time, for example, a wrist watch.

Equipment

There are two different needs for equipment: Firstly, for introducing the concept to the participant and secondly, to record the session. If introducing the concept needs particular equipment such as a computer, it should be close by and situated thus that the participant can return to it if he or she so chooses.

For analyzing purposes, the interviews should have the audio recorded. If there is no specific need, video recording should be avoided as it may disturb the participant. Recording equipment should be located in a way that a high quality recording can be achieved but without making the equipment a dominating element in the space.

Apart from recording, it is often beneficial to have a possibility for others to listen to the interview unobtrusively in real-time or to make notes on the fly.

One way to do this is to use a microphone in the setting itself and have the actual recording equipment situated elsewhere.



Personnel

The session can be carried through with only one person (session facilitator). As the analysis utilizes a transcription of the session, it is possible to speed up the process by having a person making notes during the session. The session can be used also to highlight different experiential aspects of the concept for interested parties such as designers. If there are extra persons present, they should not be in the same space as the participant and the facilitator.

5. Once the participant arrives

One of the most important conditions for having a successful evaluation session is that the participant feels that he or she can express opinions freely and without stress. As the setting is most likely unfamiliar and artificial to the participant, providing information can reduce uncertainty and help him or her relax. It should be emphasised that the participant can ask questions at any given moment.

Explaining the setup

Once the participant arrives to the evaluation session the setup should be explained in detail. The participant should be informed of the recording equipment and the personnel involved in the study. If the session will be recorded, it is highly recommended to have a written consent form that the participant signs before starting recording. If the session is recorded or observed from another room, these should be introduced to the participant.

Describing the purpose of the evaluation

Ideally, the interviewer and the participant work in the evaluation as equals. Therefore the purpose of the evaluation should be explained if there are no reasons to do otherwise. If there is a possibility that revealing too much of the goals can have an effect on the evaluation, this too should be communicated clearly to the participant.

Explaining the session outline

When the participant feels more familiar with the environment, the actual session can be explained. The participant should be informed of the next steps on a general level so that he or she has a clear picture what will happen next.

Presenting the concept

For uniformity reasons, the concept should be presented to the participant each time in the same manner and order.

Concept description: The description should be read out loud by the facilitator to each participant. The participant should be also handed a copy so that he or she can refer to it later.

Use scenario(s): The scenarios should be presented to the participant one by one in the same way as the concept description, by reading them out loud and providing a copy. If the scenarios are accompanied with other material than text, these materials should be handed to the participant so that he or she can refer to them freely throughout the session.

Prototype (optional): If a prototype is used for presenting the concept, the participant should preferably have the opportunity to access it throughout the session. If this cannot be achieved, the reasons should be told to the participant.

Answering questions

Even if the participant does not ask questions about the concept or the outline of the method, the facilitator should ask once more if there is anything unclear at the moment. After presenting the concept it is recommended to remind the participant once more that all questions are welcomed at any moment. If the participant asks a question for which the facilitator deems the answer could bias the participant or otherwise affect the results, the answer should be postponed to the end of the evaluation.

6. AXE session

Interview guide

The heart of the method is the interview guide that is composed of the picture pairs. The main purpose for the interview guide is to steer the participant to talk about the experiential aspects he or she anticipates. The interview guide comprises three different parts. The first page includes (1) instructions and (2) a warm-up pair. The following pages cover the actual (3) picture pairs.

1) Instructions: The instructions are meant to guide the participant through the procedure. The first page should be kept separated from other pages so returning to it will be easier and not cause unnecessary shuffling.

2) Warm-up pair: The first page also includes one pair that the participant can practice with after the instructions have reviewed. The warm-up pair gives the facilitator a chance to find out if the participant understands the procedure right and spot possible problems. The pair has been chosen to be highly contrasted and therefore easy to interpret, so the participant feels encouraged and comfortable continuing to the actual picture pairs.

3) Picture pairs: The picture pairs that are introduced to the participant should be handled one pair at a time. Ideally, the participant should not be aware how many pairs he or she has left to fill. Revealing this information can cause hurrying through the remaining pairs and thus decrease the quality of the collected data. Going through a pair should take about three minutes on average.

Introducing the method to participants

The easiest way to introduce the method is to hand the cover page and let the participant read through the instructions part on his or her own pace. After that the facilitator repeats the instructions with the help of the example provided on the page.

With the concept in mind, the participant should use the scale between the two pictures to choose which picture he/she associates with the concept. If both of the pictures can be equally associated or neither of the pictures fit, the participant can make a mark at the centre of the scale. Otherwise, the participant chooses one or

the other picture and tells how strongly the picture represents the concept with the provided scale. Once the choice is made and explained, the participant should mark which option would be the best according to his or her preference.

While going through the interview guide, the participant should not use excessive time trying to reason the pairs. The participant should be encouraged to be spontaneous and reminded that the choices don't have to be final and they can be modified.

Getting the participant to talk

The choices made serve as a platform for the facilitator to start a conversation around the concept. One natural way of starting a conversation around a pair is to ask why the participant associates the concept more with picture A than picture B. As the participant explains his or her choice, the facilitator asks continuation questions that probe deeper into the choice. If the participant has indicated that the concept associates more with a picture (A) that is not the preferred (B), the facilitator has the option to ask what makes it more A than B and why B is preferred. The facilitator can probe further preferences and ask what would make it more B-like instead of A.

Example: The participant has marked that the concept is strongly towards the picture on the left but the picture on the right is preferred. The concept is a tally marks application for cell phones with touch-screens.

Facilitator: *“You have marked that you associate the concept strongly with the picture on the left. What makes you feel it is more there?”*

Participant: *“The way how it works represents more this picture, it's unnatural to me.”*

Facilitator: *“Can you tell me in a more detailed way what makes the way it works unnatural?”*

Participant: *“I guess it's because how you draw with your finger on the screen. I guess it could get more natural in time. But for me it is still easier to put a paper and write on, because it is a little bit difficult still to handle this for me.”*

At this point the facilitator has extracted from the participant that he or she perceives the interaction unnatural. The facilitator could continue and ask for example “What would make the tally marks application more natural for you?”

Important issues

The facilitator should pay extra attention when asking questions. All the questions should base on the information the participant has provided, either with the form or earlier answers. The facilitator must avoid using adjectives that have not been used by the participant, as there is a high risk that the participant assumes the word and a cognitive bias is caused.

Questions that have only a very limited set of answers should be avoided because of the natural tendency for humans to conform. Therefore the facilitator should refrain especially from asking closed-ended questions that the participant can answer only with the choices provided, even with aforementioned adjectives (by the user).

Experiences with the method have shown that many participants forget very easily the order they should work with picture pairs. However, this is not a problem as long as the pictures work as stimuli and the participant keeps on expressing views about the evaluated concept. Forcing a specific order can decrease the quality more rather than allowing a deviation and is therefore not recommended. Because of how the concept is introduced to the participant, there is a possibility of misinterpretations. However, if the concept is interpreted wrongly the facilitator should not correct this as soon as the misunderstanding is found but probe deeper if the errors do not compromise the whole evaluation. The facilitator can try finding out what makes the participant think of the function or the purpose and by this means collect valuable information about how the concept is imagined.

The markings the participant does on the form serve primarily the facilitator to help maintaining conversation. The only use for the choices and preferences in the analysis are for finding out if the participant speaks in a positive or a negative sense.

Hints for the facilitator

It is possible that the participant feels that a certain pair does not carry a meaning or that trying to find corresponding associations is too difficult. In such a case the facilitator can propose that the pair is postponed for now and returned to later. In the case of running out of time or if a pair appears to be impossible for the participant, the facilitator can skip it altogether as the results are not very sensitive to singular misses.

Following the used pairs gets easier if the facilitator has an own copy of them. It is beneficial for the facilitator to be equipped with a paper and a pen as they can be used for keeping count of the picture pairs as well as keeping the facilitator occupied. If a participant has difficulties making up his or her mind, the facilitator can focus on the paper instead of causing stress by watching the participant struggle. If the participant continues struggling with a pair, the facilitator can ask what are the associations like that arise from the pictures in question.

People have a strong natural drive to justify their choices. In this setting people tend to explain what made them choose one picture over the other by describing the pictures. This has to be tolerated to some extent for politeness reasons but the focus should be led back to the concept. One way to achieve this is to remind the participant with an expression like “If you think of the concept, with which picture you would associate it?”

After the session

Imagining a use situation and simultaneously creating contrasting association pairs from pictures is a very straining performance. Once all the picture pairs have been gone through the participant must be allowed to make comments on the evaluation session and the concept itself. In the end of the session the participant is given the promised reward regardless if the whole interview has been conducted or if the participant has chosen to end the session early for any reason.

7. Analysis

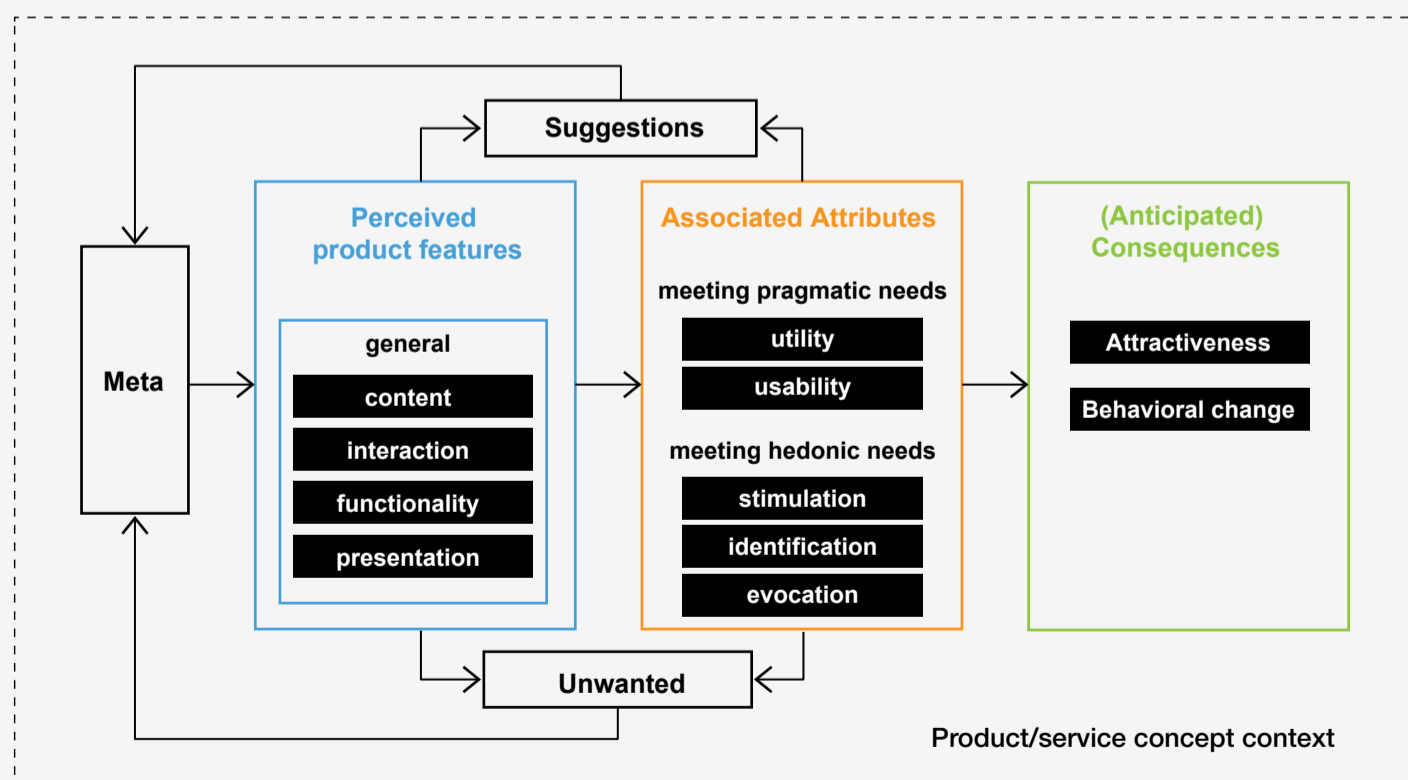
Analysing the data from sessions is used to break down the recording into small pieces of information by means of transcribing and coding. The resulting information consists of pieces that are filtered into categories, dimensions and subjective valuations.

Transcription

The analysis of the session data requires a transcription. The transcription has to be done word-to-word in order to preserve as much of the information as possible. If the same people who run the evaluations do the transcription, some portions can possibly be skipped. The valuable data for picture pair starts generally from the participant choosing the association and ends when moving to the next pair. If outsiders not familiar with the method do transcribing, leaving out parts is not recommendable.

Selecting segments

Once transcription is complete, the text is to be partitioned into more manageable segments. Each segment, or a snippet, should each have only singular observations. An observation can be, for instance, an expression of attitude towards the concept,



Analytical Framework: The categories applied for analyzing the data have been adapted from Hassenzahl's UX Model (Hassenzahl, M, 2003. *The thing and I: understanding the relationship between user and product.*)

a claim about a function or a comparison between two attributes. All snippets should be coded according to the source.

Example: “This picture reminds me of calmness. I don’t think this concept is very calm. If it didn’t have such flashy colours or if there were no animations, it would be calmer.”

When the example is partitioned into snippets, there are four different observations:

- (1) “This picture reminds me of calmness.”
- (2) “I don’t think this concept is very calm. “
- (3) “If it didn’t have such flashy colours, it would be calmer.”
- (4) “If there were no animations, it would be calmer.”

The last sentence carries two different items and therefore it has to be broken down into two different snippets. In order to maintain the connection between the subject and the appraisal, “it would be calmer” has to be duplicated. Since the first snippet obviously does not carry information about the concept but only about the picture that was used for extracting information, it can be dismissed as trash right away or later in categorization. See the next subsection for more detailed explanation.

Categories, dimensions and valuation

The next step in the analysis is coding snippets into relevant categories, quality dimensions and subjective valuations. Categories represent either different facets of the concept or activities that are linked to the concept. The categories are divided into two different themes, namely anticipated present state and improving the concept. The anticipated present state reflects how participants see the concept at the moment whereas improving the concept refers to things that should be addressed when developing the concept further. Dimensions are different perspectives to the participants’ perception of the concept’s experiential quality. Subjective valuation refers to whether the participants’ statement carries a positive or a negative judgment.

NB: Each category and dimension should not be considered for favourable sentences only, but include also the adverse.

“This kind of on/off switch is totally new to me, but I definitely like it.”

functionality	stimulation	attractiveness

Coding: Example of coding the text according to the predefined categories

Categories for concept's present state

General Concept: This is a category for the participants' perceptions of the overall concept, for example, usefulness or for which purpose the concept is for. The perceived purpose of the concept should be included only if it differs from what is presented to the participant before the session. This category can be used for collecting snippets that do not fall under any other category.

Example: "I don't feel like I want to have it."

Function: Snippets under this category deal with issues that concern specific functions of the concept. These can be also understood of enablers of some activity.

Example: "I didn't understand why there was an option to print."

Presentation: Issues that relate to the look and feel of the concept fall under this category.

Example: "Those rounded corners were quite ugly."

Interaction: This category contains participant descriptions of interaction qualities.

Example: "I think flicking through the data sheets using swipe gestures is really fast."

Content: Some content issues can have an impact on the perception of the concept or for the user experience of the concept. Snippets under 'Content' consider participants' views on the activity that the concept is for. An example for a snippet in this category could be the liking or disliking the game tic-tac-toe when the concept is an application for playing it. These snippets can indirectly illustrate the perceived usefulness or acceptance of the concept.

Example: “I think playing tic-tac-toe is great fun.”

Categories for improving the concept

Suggestions: While describing the concept and formed impressions, the participants often very readily give suggestions on how to improve the concept. This category is reserved for suggestions for improvement (can be independent of category).

Example: “There should be a back button.”

Unwanted: Participants state also things that they see as undesirable. These can be understood also as the opposites for suggestions as in functionalities or outcomes that should not be included (can be independent of category).

Example: “That confirmation screen annoys me so much”

Meta: Some snippets can “fall in between”, in the sense of not addressing the concept or linked activity directly but still carry interesting information. Collecting these snippets instead of trashing them can be beneficial in situations where the evaluated concept is part of a bigger totality, for instance a product family, and thus they can have later uses.

Example (in context of hand-held devices): “I don’t like to carry much stuff with me when I’m jogging.”

Categories for associated attributes

Pragmatic: Concept’s perceived capability to support the user in executing a certain task. This dimension typically covers issues like **utility** and **usability**. Satisfaction (which is sometimes included in usability) is not part of the pragmatic dimension.

Example: “I think it’s pretty much organized.”

Stimulation: Concept’s perceived capability to motivate use. This dimension covers aspects such as perceived novelty, learning, engagement, excitement and fun.

Example 1: "I would be excited when I use the application."

Example 2: "I haven't seen such a gadget before."

Identity: Concept's perceived ability to communicate identity to relevant. This dimension also contains participants' perceptions of what the concept means to them.

Example 1: "If I post a nice picture but the comments are not positive, it might hurt."

Example 2: "This application is for editing pictures."

Evocation: Evocation refers to the concept's ability to provoke participant's memories. The concept represents past events, relationships or thoughts that are important to the individual.

Example: "But seeing an emoticon would make me realize of the memories that have passed long back."

Categories for anticipated consequences

Attractiveness: This dimension captures the participant's perceived evaluation of the concept or a particular characteristic. Attractiveness can also point to a consequence that would be achieved through aspects from other dimensions.

Example 1: "It is a very enjoyable way to express my feeling."

Example 2: "This concept satisfies your desire to get connected with others"

Example 3: "The interface is not so nice."

Behavioural change: A concept may introduce a change in behaviour for the participants. Consider for example a speech-to-text input for text messages used in public places. The descriptions of change and attitudes are to be documented here. It is also possible that the participants describe voluntarily how using a concept or product could change their behaviour.

Example: "I'd listen to more music if I had this product."

Ideally, each observation carries a subjective valuation of something being desirable or undesirable, good or bad, positive or negative (see figure 1). When marking snippets positive or negative, one should proceed with caution in order to avoid misinterpretation. In the straightforward case, valuation can be deduced directly from the snippets. If this is impossible, valuation can be done indirectly by utilizing the whole utterance. The answer sheet can prove to be a valuable asset for marking perceived valuation because the participants mark on them their preferred options. If the snippet in question is such that A) valuation does not make sense or B) valuation cannot be marked with great certainty, it should be marked as not applicable.

Documenting results

To allow further work, the snippets have to be sorted (see figure 2). All snippets should be sorted first according to category, then dimensions and finally valuation. This sorting results in presenting how the participants perceive the concept in a way that can be utilized by developers and other interested parties.

8. Interpreting results

The results that are produced with the method are mainly qualitative. This means that the amounts of positive or negative judgments by themselves should not be used for decision-making. The results are not absolute but always tied to the target group.

Comparison of design targets and perceived value

The results should be interpreted by comparing the design targets and the perceived value by the participants. If the design target is to enable or support a particular activity for users, this should be reflected against how the participants perceive the activity itself and the perception of the capacity of the concept to enable the activity. If the design target's aim is users to prefer a product over another, this can be found out by inspecting how participants perceive the concept relative to the benchmark product. If the benchmark product is not mentioned, the participants don't identify the concept and the benchmark product to serve the same purpose or there is a problem in how the concept was introduced. For a concept to deliver a certain benefit, a joint comparison based on valuations in quality dimensions for relevant categories can be made.

Identifying critical aspects

The method is powerful in revealing aspects that can either hinder or promote experiences. These critical aspects can be found out by creating overarching themes from each block of positive or negative in each category. When interpreting these themes, one should consider the amount of sources (bigger amount is more reliable).

Dissecting suggestions

Suggestions for improvement should not be considered as a list of items that automatically help improving the concept once implemented. Suggestions have to be reflected with the problems and negative attitudes the participants have expressed during the sessions. For example, if participants experience a problem with a function, they may easily suggest another function to replace the existing one. The reason for this can very well be that the function is not meaningful for the participants. However, another explanation for this could be that the particular function had usability problems and caused a bad experience for the participants. Examining positive and negative items under Function and Interaction categories can do this kind of differentiation.

Dangers in numbers

As the method utilizes a technique of non-structured answers, the collected data is dependent on individual characteristics and the number of observations cannot be standardized. This means that a session with a talkative person can result in high numbers of positive or negative observations. When interpreting the results, the source should be taken into account. Recurrent observations that come from multiple sources are more meaningful than observations generated by an individual.

The method is not originally created for comparing two or more different concepts. However, if it is used for comparison, the target groups have to be the same and the sample size big enough, that individual differences in verbosity are averaged out.

