

Making Users Talk about Product Experiences: Exploring the Three Levels of Human Processing in a Product Design Context

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Abstract

The complexity and diversity of a user's product experiences can be difficult to predict. Nevertheless, to fully understand how a user perceive and interact with a product is of high importance to a designer in a market of hard competition and with deliberate users and customers. The communication between user and designer throughout the product development process is essential in order to reveal users' habits and preferences, and by this unmask the different aspects of the total product experience.

This article presents a tool developed to enhance the user-designer dialogue. The tool is inspired by the model of the three levels of human processing as presented in Emotional Design (Norman, 2004), and is based on the idea that visual input will encourage users to tell their product stories. The tool and how to use it, as well as a project where the tool is employed are described in the following. It is suggested that the tool can be used in any product development process.

Keywords: Product experiences, user experiences, context of use, visual input

Introduction

Product experiences are complex. Appealing looks or useful features will provide positive product experiences. The user's social network, education and cultural background will affect the way a product is perceived. The contexts of use will also have a strong impact. These impacts can be difficult to predict, as the context will vary and in some cases be different and more complex than expected. In addition to these factors, previous user experiences and individual preferences and comprehension might play an important role. A strong user-designer dialogue will assist designers and product developers in their attempt to fully comprehend user scenarios and contexts.

In Emotional design (Norman, 2004) three levels of human processing are introduced to the field of product design, explaining the complexity of product experiences. To facilitate the use of such a framework there is a need for tools and methods that are adapted to the designer's resources and way of working. The tool presented here, facilitates the user-designer dialogue and helps the designer reveal varied and unexpected aspects of the users' product experience and expectations. The tool is inspired by the three level model and use visual input to inspire users to talk about product experiences. This tool can be used in the early phase of product development and provides the designer with product mood boards, containing visual information about real product experiences.

Background

Norman, Ortony and Revelle at the Psychology Department of Northwestern University, USA, have examined how emotions relate to other human mechanisms. They claim that emotions and affect can not be seen independently from cognition, motivation and personality. All these aspects are essential for us to function as humans (Norman, 2004).

Norman, Ortony and Revelle describe how human processing takes place on three levels: The visceral, behavioural and reflective. Norman introduces a simplification of this model to the field of product design to give a more profound understanding of the complex impact of products (Norman, 2004). Emotions can not be clearly separated from cognition and functionality. These connections also create the total negative, positive or even contradictory product experience.

The visceral level has to do with the most basic circuits of the brain. The brain analyses and we act, without reflecting more upon why or with which consequences. The reactions on this level are basically biological and will remain the same across cultures. Visceral design is about product appearance.

Processes on the behavioural level are based on routines and behaviour that are learned through experience. Most human behaviour is controlled by this level. Behavioural design is about the pleasure and effectiveness of use.

In contradiction to other biological organisms, humans have an extended ability to reflect upon their own actions and experiences. These processes belong to the reflective level. When people generalize, learn and communicate, the reflective level is active. Reflective design is about self image, personal satisfaction and memories.

The visceral level can be refined or restrained by control signals from the two other levels. Similarly, the behavioural level may be influenced by the reflective level. This upper level is not affected by visceral impressions or behaviour, but is solely reflective and will influence the way we act. The activity on different levels may be contradictory and all the three levels contribute to the total product experience. The influence of each of the three levels depends on the product and its target group, but all levels are important to consider, and they all demand different approaches in the design process.

Purpose

It is a well known quote that emotions are not always easily expressed by words. Likewise can expressing product experiences in a way that is useful for a designer, seem difficult to users. The designer might be interested in deeper and more complex reasons for the user's relationship to a product. By using picture cards as input for the user-designer dialogue, the user will not have to start explaining by words, but can allow himself to associate and be less rational when considering his product experiences. The pictures will make it easier for the user to describe experiences and emotions related to a product. The project described in this article also shows that participants find the exercise fun and informal.

This article shows that picture cards will encourage the user to explain different aspects of the product experience. Using the three level framework as a basis, the user will consider aspects on different levels, and will be encouraged to describe a more complex product experience than if inspired by questions asked by the designer. Norman's model put an overall structure to the conversation, but the participants will still be inspired to associate freely. The user leads the conversation, but the designer will still at any time be conscious of the three level model and will be able to ask encouraging questions and complete the pictures by words if the conversation slows down. The model also makes the designer conscious of what to listen for. The picture cards therefore appear as a good tool for conversation for both user and designer.

Method

The tool consists of 47 picture cards of 5cmx5cm distributed over the three categories: Visceral, behavioural and reflective. Each card represents a value or an aspect of one of the three levels. To find the proper pictures, the different levels are described by keywords. These keywords are used for picture search on the Internet (www.gettyimages.com, images.google.com/imghp?hl=no).

To describe the visceral level, the following keywords were selected:

The five senses:

Direct: See, listen, feel, taste, smell

Indirect: Sense stimulus, aesthetical experiences

Pictures of the eye, ear, tongue, hands and nose were chosen in addition to pictures of objects that can be sensed, like sand, spices, roses and water. Some pictures of experiences that appeal to intuition, like a skydiver and impressive mountains, were also selected for this level (Figure 1).

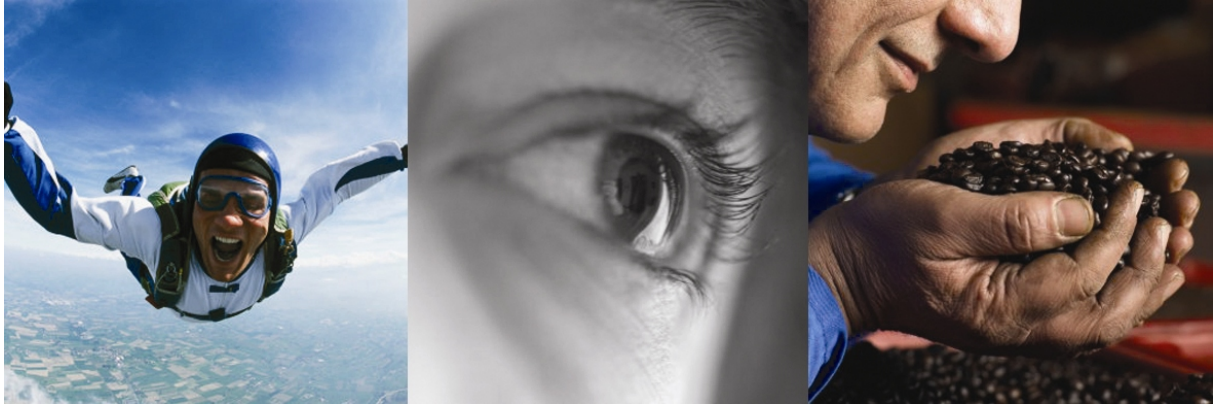


Figure 1: Three pictures from the visceral level category

To describe the behavioural level, the following keywords were chosen:

Process, technology, skills, speed, mastering, tool, precision, control

On this level, pictures of industry, cog wheels and a digital watch were chosen among others (Figure 2).

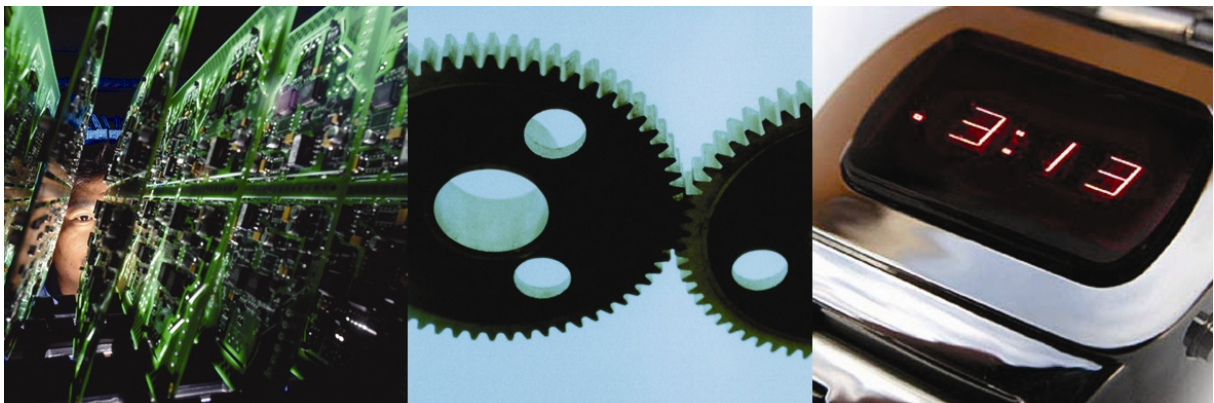


Figure 2: Three pictures from the behavioural level category

To describe the reflective level, the following keywords were chosen:

Self image: Status, self confidence, masculine/feminine, dreams, ambitions

Personal satisfaction: Social relations, self-fulfilment, admiration from others, safety

Memories: Nostalgia, seasons

Pictures of a man who has made it to the top, of a winter day and of a woman beating a competitor were chosen for this level (Figure 3).



Figure 3: Three pictures from the reflective level category

To evaluate the choice of pictures five product design students were asked to consider each picture and discuss how to describe them without knowing the initial description. As a consequence of this exercise some pictures were removed, changed or moved to another category. The picture descriptions are not absolute but will give certain associations. A picture representing a specific level will not necessarily lead to a description of a product experience belonging to that level.

The pictures are put out on a table and presented equally to each participant. There is one participant per interview. Some pictures are put together in groups as it is assumed that this will amplify the meaning of each picture. Likewise the pictures are grouped by the three categories. The five pictures of the senses are put at the upper left. Most products will be connected with one of the senses, and putting these pictures first can help the user start selecting. The participant will have the product beside him when choosing the pictures. This will make it easier to associate.

The participant is given a short description of the tool and is explained that the designer would like him to describe his relationship to the product. He is asked to select pictures that, direct or indirect, can be associated with the product itself, the use of the product or the context of use. The participant is told that there are no wrong answers, that he can select as many or as few pictures as he wants and that he might select more than one picture to describe one emotion, opinion or experience. To assure that he gets time to associate, there is no time limit. The participant is asked to consider all pictures for some seconds. It is better to select too many than too few. The participant is asked to finish the selection and then explain by words why each of them is chosen. When the participant explains the picture choices the

designer lets him talk freely while taking notes. The designer can go back on points of special interest when the participant has finished talking. The designer notes whether the participant describes experiences and emotions on all three levels, or if one or two levels dominate. If the latter is the case, the designer may ask questions to reveal experiences of other levels.

Results from practice

The picture cards were tried out on 12 participants, 7 men and 5 women, from the age of 16 to 28. The participants were asked to bring a product that they appreciated and a broad range of products, 17 in all, were objects of conversation. It was assumed that some participants would have difficulties understanding the interview situation and would have problems selecting pictures. The group of participants was small, but should be large enough to consider the potential of the tool.

The interviews are carried out in relaxed environments like in a café, a university common room or in the participant's home. Some participants seemed unsure to begin with. They believed the task was too abstract and were afraid they would not contribute with anything of interest. Still, all got curious when they saw the pictures. Many commented spontaneously that they liked the pictures and examined them with enthusiasm before they were told exactly what to do.

The average participant selected 6 cards. The extremes were 2 and 11. Most participants selected cards from all three categories. In general the participants seemed comfortable with the situation and the way the conversation were carried out. It seemed like the explanation given beforehand gave the participants a good comprehension of the task.

No participants expressed that there were too many pictures or that it was difficult to get an overview. Most participants talked for several minutes without any other input than the selected pictures. Some made very different associations but always returned to one special aspect of the product experience. Others revealed that there were many and complex reasons for why they appreciated the product. For most participants the main arguments could easily be derived from the explanations. Many selected more than one picture to describe one experience or emotion and so the description became more nuanced and precise. Each participant spent a little less than five minutes to select pictures. From here, the conversation lasted up to 40 minutes.

Most products give an experience on the reflective level. The participants all have their personal reasons for appreciating the products. In most cases one or two levels dominate the explanation. These are often the behavioural and the reflective level. Most participants talk about functionality or memories and self esteem. It seems to be difficult to make the participants express themselves on the visceral level with only visual input. Questions about first impression and sense experiences trigger statements about visceral product experiences. Many participants mention sensual and intuitive experiences, but they are not able to describe this further without adding meaning to the product or interpret it based on individual references. Even though they found the product attractive at first sight, they can not explain why based on the products physical properties.

The participants seem honest and willing to talk. There does not seem to be product pleasures that they will not admit or talk about. Some reveal that they bought the products solely due to looks, or that they like using the products to see other people's reactions. Some claim that they are surprised of the pictures they have selected and that they have another and deeper relationship to the product than they thought. One participant describes the picture selection as "frightening" as it makes her realize how addicted she is to her cell phone. She claims that the pictures are a good description of how she actually relates to her phone, but that she has not really thought about it that way before.

One participant is so fascinated by his mp3-player that he talks for several minutes about the technical specifications without relating it to the pictures he has selected. When he has nothing more to say, he is asked to explain why he selected the pictures. Now, other aspects are revealed, like the context of use, the pride of owning the product and the surprise he always feels because the tiny player makes such a good sound. Obviously, the technical specifications are important to him, but other aspects, which he did not think of in the first place, are also essential for the total product experience.

The pictures of the five senses are selected more often than the others and many participants choose these first. Only three products are not associated with these pictures. Some pictures give different meaning to different participants while other pictures give the same associations. In general all three categories contain pictures that are interpreted equally by all participants and some pictures that are perceived differently. This strengthens the

hypothesis that the controlled picture selection will encourage free association and still give some guidelines for conversation.

The following quotes describe product experiences connected to the appearance of a product:

“... I tend to think it’s elegant when the design is clean and cold...” (Kitchen knives)

“...I bought it only because of the looks...I’ll keep it even if I buy a new one...” (Cell phone)

The following quotes describe how people describe the functional properties of a product:

“...if I lose it, it’s not losing the amplifier that worries me, it’s losing the sound...” (Amplifier)

“...the menu is so simple...a lot of good functionality that is easily accessible...you don’t have to be a nerd to understand it...” (Cell phone/mp3-player)

“...I chose clam shell because I don’t want it to be damaged...I always keep keys and money in the same pocket (as the phone)...” (Cell phone)

The following quotes describe how people add meaning to products:

“...there are some social aspects connected to cooking...being in the kitchen together...doing stuff together, talk, listen to each other...” (Kitchen knives)

“...it’s about personal quality time...I enter a different mode when I wear them...relaxing mode...” (Socks of wool)

“...it’s the same feeling as having a girlfriend...it’s what you want to see when you wake up in the morning...” (Motor bike)

The participant who talks about his kitchen knives describes product experiences on all three levels. Not only are the knives good at doing their job, they also look elegant and play an important role when he invites good friends for dinner.

Another participant describes the different reflective experiences connected to her cell phone:

“...it looks so cold...it is nothing wrong with it and that creates a distance (to people around)...I feel balanced and elegant...”

“...I’ve chosen a very nice ring tone...a discreet tapping sound...ring tones tell so much about a person...”

“...it has another dimension now because it’s old...no other people use it anymore...”

This participant uses her phone because she feels that the appearance and sound of the phone represents certain values that she can relate to. It is also important to her that other people perceive these values. Finally, it has a more personal value connected to nostalgia.

One participant shows how product experiences can be complex when she talks about a soft drink:

“...it is annoying that everybody drinks coke...I’m so aware of the fact that they (the company) dupe me, but there is nothing that compares to it...”

“...it’s not that I’m addicted to the caffeine...it’s only the fresh taste...”

The quotes above show how people can experience products in varying and complex ways. In some cases the picture cards contribute to revealing completely different aspects of the product experience. In other cases they make the user differentiate the description of one aspect. The results confirm that people have product experiences corresponding to the different levels. Some experiences are directly connected to the product’s appearance while other products are appreciated simply because they do their job very well. Many products are given added value because of prejudices, individual experiences and personal preferences. Some of the quotes are passionate while some reflect more modest personal satisfaction.

Discussion

The major issue is whether the use of this tool gives the designer relevant information of the product experience. The results from the conversation show that the tool encourages users to talk about both physical product properties, context of use, aesthetics, functionality and personal opinions and interpretations. The participants mention a broad and varied range of product experiences, and the designer can ask for more details about relevant aspects. It is reason to believe that visual input stimulates the participants to comment on aspects of product use that would normally not come to them, or aspects that they believed were not important enough to mention.

Even though the participants’ task in this case was to describe a product that attracts them, many users selected pictures unsolicited to describe negative aspects of the products or to comment on features that they wished the product would have. This suggests that the tool has a greater potential than encouraging conversation about product pleasures. When using the

tool in a product development process it might be appropriate to extend the picture selection to make more room for negative associations.

Using this tool provides the designer with product mood boards. Mood boards are often used in the product development process, but can often be vague and based on the designer's opinions and assumptions. By using this tool the designer is provided with mood boards with more substance, created by real users with real product experiences. This study also shows that the tool can be used in the development of a broad spectre of products.

Additionally, the tool can be used as the basis for a focus group conversation. Individuals in a small group may be asked to pick their personal collection and then discuss it with the others. Alternatively the participants can be asked to find pictures together. The discussion between the participants should be interesting for the designer to follow.

The tool may also be used in design educations, helping students to develop a terminology for product properties and experiences. Using the tool in small groups, with themselves as examples of users, the students are made conscious of a product's complex influence.

In the everyday life of a designer there is not always room for extensive and expensive user tests and interviews. This tool is a practical aid for the designer as it demands little preparations, it is cheap and it is easy to bring. Pictures can easily be removed or added if appropriate. Using this tool is an efficient way for the designer to get an overview of the users' relationship to a product.

The picture cards reveal many aspects of the product experience, but it might also exclude some. One user did not mention the tactile experience because the picture that represented tactility was too feminine and sensual. The fact that this experience was important to him came clear by a coincidence at the end of the conversation. Even though the three level framework provides good keywords for choosing pictures, it is difficult to predict exactly how the participants will react to each picture. It is also important to remember that the interpretation of the pictures is dependent of culture and nationality. If a picture shall represent "summer", the right picture for a Norwegian user might not be the same as for an American.

The study reveals many experiences on the reflective and behavioural level, but not so many for the visceral. Describing exactly what is so appealing with the product's appearance seems to be difficult. How products elicit emotions is one of the main issues in the emerging field of design and emotions. The study confirms that it is not necessarily the product's physical properties in itself that evoke an immediate positive experience, it might just as well be the attitudes and experiences that each individual user associates with the product properties.

Conclusion

The tool presented in this article is an example of practical use of the three level framework. The framework suggests that a product can influence users in other ways than the designer intended. The more the designer controls the product's influence; the stronger the assurance of product success. The three level framework makes the designer conscious of the varying aspects of the product experience. This tool is a way to use the model directly in the product development process. The tool is developed to encourage users to talk about product experiences and to make the designer conscious of how complex and varying such experiences can be. The picture cards allow the user to associate freely, still providing an overall structure to the user-designer dialogue. Like for all other user interviews the designer must be careful when handling the data. The tool is a qualitative way of collecting user experiences, but it gives the designer an anchoring in a framework that describes the psychology of human cognition.

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