An experiential approach for innovation

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Abstract
This paper explores innovation in relation to product design, with an emphasis on designing for experiences. In the paper I introduce an experiential model called the “Peel model”, and showcase how it can be applied as a tool for innovation. The Peel model depicts different layers of a product, going from immaterial layers to material, with the product experience particularly present in the top layers. A benefit of using the model is that it enables a more strategic approach to innovation at different layers. The model also enables transferring experiential concepts from one product and assigning it to another, which can be very fruitful as a tool for innovation. I present an experiment done with a group of design students, where we used the model to analyze the experience of the Beosound 3200 stereo. We identified concepts such as the welcoming where the stereo opens by a hand gesture, and transferred that concept to other product types, generating ideas about how a lamp, for instance, could provide a similar experience. The introduced Peel model is intended to be beneficial at an operational level for designers, project managers, business executives etc. as a tool to guide the innovation process.

Sources of innovation
In recent years, with the propagation of user centered design methods, human beings and what we do, think and feel, have gained acceptance as a valuable source for ideas and innovation. What we do, think and feel are the key components of having an experience. Cain (1998) developed the user-based categories of “think, do, use” as a way to describe human experiences with a product, defining the person as a user. So one of the major sources for innovation is human experience. Anthropology in particular has been regarded as the key in understanding “people” and how they think, act, and live as a methodology that can be useful for informing design (Jones 2006). This approach can not only provide information, but also become an inspirational source.

A second inspirational source would be nature itself. Drawing inspiration from animals, trees, plants etc., and adapting them to our capabilities in terms of production and technology, has always been a significant source of innovation. One might argue that there shouldn’t be a distinction between the formerly mentioned human experiences and “nature” since they are both natural phenomena. But I find this distinction to be very useful as a way to separate looking at “ourselves” and seeking inspiration from somewhere else.

The basis for doing innovation at all comes from the resources we have. Resources are here meant as a very broad term, covering knowledge, technology, materials, engineering etc. These resources make us capable of creating - transforming ideas into products. And for something to become innovation, it needs to not only become a product, but also to be brought to the market (Schumpeter, 1934). Denning and Dunham (2010: xv) make an even further reaching definition, namely that innovation is “new practice adopted by a community”, which means that in order to become innovation, the product will have to be bought and used by the consumers, which implies that there has to be a certain degree of successful commercialization for a product to become innovation.
But resources are not just the basis for doing innovation; they are also significant sources of innovation in themselves. When the Internet was first invented, no one really knew what we would be able to do with it. So developing new resources naturally brings new possibilities to be explored. This leads to two approaches of innovation; either the inspiration-based leading to the question “how might that be possible?” or the resource-based leading to the question “what might that be used for?”

**Meaning matters**
These two approaches to innovation are analogous to the main aspects of a product. There are the material aspects, which are dependent on the resources – meaning technology, the materials it consists off, the production processes to make it etc. And there are the immaterial aspects that depend on the meaning we assign to it – how it may be used, how it makes us feel, the values we attach to it etc. The latter is especially significant for the experiences we can have with a product. But you can’t have on without the other – so ensuring a strong connection between them, and treating a product as a cohesive whole is of high importance.

**Innovation as appropriation**
Schumpeter wrote that: “...the defining characteristic [regarding the 'entrepreneurial function'] is simply the doing of new things or the doing of things that are already being done in a new way” (1991: 412). He emphasized that innovation was often a matter of reconfiguring what exists. And innovation is very often done by taking something from somewhere and applying it somewhere else. A statement that is supported by the way Zaltman, Duncan and Holbek (1973) describes innovation as something perceived to be new by the relevant unit of adoption. So a shift from one “unit of adoption” to another would, by this notion, make it innovation if it was hereby perceived to be new. The field of bionics, as an example, builds solely on the idea of applying concepts found in nature to man-made objects.

**From products to experiences**
The emphasis on the experiential aspects of a product has increased rapidly, as consumers to a higher and higher extend crave engaging experiences (A. M. Fiore in Schifferstein and Hekkert, 2007, pp629-648). Products need to be able to convey an experience and elicit emotions, to become engaging and meaningful to users. With the emergence of experience design we are expanding the holistic view of the users interaction with products, building on the methodologies of user-centered design and interaction design. This increased focus on human factors has become important in order to:

- Engage emotionally with the user in a way that creates preference above other similar products (desirability to improve competitive strengths)
- Create experiences which are characterizing and unifying for all products from the same company (building brand loyalty)
- Enable the interaction of increasingly complex products to be understandable and pleasant for the user (Technological advances)

An important aspect of experience design compared to industrial design is the focus on the experience rather than the product, even though the physical outcome of both may be similar. This focus could for example mean that the task of “designing a new mobile phone” instead could be phrased as “designing the experience of communicating with someone far away” in experience
design. This rhetorical difference opens the solution space, which gives room for new ideas that may – or may not – end up as a mobile phone. An example of a communicative object that did not turn into a mobile phone is the “Kiss communicator” designed by IDEO. The Kiss Communicator is a conceptual prototype that allows you to blow a kiss to your beloved when he/she is far away.

Fig. 1. Kiss communicator by IDEO

To make the product experientially engaging, the intended experience needs to shine through in all aspects of the product, meaning that even the choice of materials should be done strategically to support the experience intention. There is a need to ensure congruity between all aspects of the product.

Levels of abstraction
In the vision-based model developed by Lerdahl (2001), he claimed that a product can be divided into 4 levels of abstraction as a way to enable the designer to focus explicitly on the congruity through all aspects of the product.

These levels are:
1. The spiritual level which is related to intention
2. The contextual level related to expression
3. The principal level related to concept
4. The material level related to physical product.

The first two levels are related to the immaterial and “soft” aspects of products, the other two are related to the material and “hard” aspects of products. The levels are closely inter-connected and
should not to be seen as fixed stages in the design process but more as a way of perceiving the product. The most abstract level in the model is the spiritual level, which is connected to the underlying values, intention, philosophy and purpose behind the product. On this level the product can be viewed as value carrier. All levels are equally important, and in practice there will often be an overlap between the levels. A change on one level influences the other levels (Lerdahl, 2001). This model seems to relate the product to the company, and the spiritual levels thus relate directly to the vision and values of the company.

Connecting the product to the experience instead requires a change of focus on the high levels of abstraction, which led me to developing a new model with an increased experiential focus, named the Peel-model.

The Peel model

Peel is short for *Product Experience Layers*, emphasizing the experiential focus and the division in abstraction levels, viewed as different layers of a product – like peeling an onion.

In the development of the Peel-model the idea of the different levels of abstraction is kept, but the product is in this model seen in relation to the experience, meaning that the top levels of abstraction deals with experiential issues rather than company-related issues.

A main purpose of using the Peel model is to ensure that the connection between intended experience and physical product - i.e. abstract aspects related to emotions and meaning, and concrete aspects that relate more to the material and shape of the product – could be developed explicitly, and not just considered to be inherent. In this way the product itself, as a materialized construction, can be regarded as a scaffold for the intended experience. (Jensen, 2012)

The Peel model also adds a third dimension, by including the aspect of time. Hassenzahl (2011) describes an experience as a story, emerging from the dialogue of a person with her or his world through action. He mentions that a story involves actors, props and scenery interacting with each other during the course of time, hereby depicting some of the basic elements of an experience. Using a timeline, similarly to screenplays and storyboards for movies, can help structuring an experience as something that unfolds as a sequence of connected events. Each event is significant for the overall experience. In movie terms, you could say that the movie consists of connected scenes, building the encompassing story.

A second purpose of the Peel model relates directly to innovation, as each layer can also be regarded as a place for innovation. New design can for instance come from a new form with familiar functions, new functions to a familiar form, new use of materials, changing the interaction style, or evoking new meaning and a different feel. Hereby the Peel model provides a structured way to identify innovative potential, and can be a tool to decide what kind of innovation to aim for.

This division of the product into layers – with the increasingly experientially engaging layers towards the top - can be used both as a strategic and inspirational tool for the process of innovation.
Layers of the Peel model

<table>
<thead>
<tr>
<th>Theme</th>
<th>The theme targets the solution as an experience – e.g., “Communicating with friends at a distance”.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feel</td>
<td>Is the overall feel/atmosphere of the experience. A coffee drinking experience could for instance be defined by a “cosy, casual café-feel” described by a certain atmosphere. Similarly a workplace, such as a gravel pit, may have a more masculine, “rough” feel, which an experience in that context could be designed for.</td>
</tr>
<tr>
<td>Product personality</td>
<td>A product doesn’t have a personality. But the person interacting with it tends to bestow human-like qualities to it from the product attributes, hereby perceiving a personality from the product. Designers can design with the intention of eliciting certain personality traits in a product. The perceived personality of the product is highly influential on the way an interaction is experienced, and whether engaging with the product seems desirable, so it will have a strong impact on the overall feel of the experience (Govers and Mugge, 2004).</td>
</tr>
<tr>
<td>Events</td>
<td>Creating or analysing an experience can be aided by defining the important events that occur during the experience to create a timeline. Such events are seen as pillars, carrying the experience, and are similar to what other researchers have described as touchpoints (Bate and Robert, 2007), affordances (Gibson, 1979) or use cues (Boess and Kanis in Schifferstein and Hekkert, 2007, pp305-332). An important task is to define the nature of the events, especially when something stands out – for instance particular events during the experience that seem to evoke unpleasant emotions for the user.</td>
</tr>
<tr>
<td>Use</td>
<td>Focusing on the “use” is about the interaction that takes place in the different events, and how particular ways of interacting with the product relates to the overall feel of the experience.</td>
</tr>
<tr>
<td>Function</td>
<td>Functions relate directly to the theme, as the basis for making the intended experience possible. But it also relates to the use, in how functions should be triggered by the particular ways of interacting between product and user.</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>Aesthetics refers to visual form, motion, sounds, smells, touch etc. The aesthetics and materials can be regarded as the basic building blocks for design.</td>
</tr>
<tr>
<td>Material</td>
<td>The materials used in a product are important not only in handling the functional aspects, but also in creating the perceived product personality (van Kesteren et al., 2005) and feel of the experience.</td>
</tr>
</tbody>
</table>

![Fig. 2. The Peel Model and description of the layers](image)

Although described separately here, all layers have a strong influence on each other, and the consistency of the experience is only complete when all layers have become a naturally embedded part of the experience. It is believed, that a high level of congruency ensures a deeper level of engagement and a more desirable overall experience (Isbister and Nass, 2000). To further test the use of the Peel model, we arranged a half-day workshop with a small group of 7 design students at the University of Southern Denmark.

The Peel model workshop

We wanted to use the Peel model both analytically and constructively, meaning that we set out to deconstruct one product experience, and reuse elements of it for the creation of a new product. In doing so we also wanted to see how it might bring out new potential for innovations. We had
chosen the “Beosound 3200” stereo, which is generally a well-known product, and had brought a video clip showing a person using the stereo, so we had a particular sequence of the experience to deconstruct.

It should however be emphasized that a video-clip does not provide the full experience, but since most of the students were already familiar with the product from first-hand usage, the video-clip acted mainly as a trigger for them to recall their past experience. So, although not the ideal solution, it was accepted for this experimental workshop.

**Fig. 3. Beosound 3200**

**Part one: The deconstruction**
The deconstruction was done by first defining the events of the particular sequence, noting every activity between the user and product in a chronological order, to create a timeline of the sequence. Secondly we analyzed each of these events referring to the layers, where we focused alternatingly between the lower ones, describing how the aesthetics, materials, shape etc.
supported the particular event, and the higher ones concerned with the experience evoked by the event. One of these events was described as the “hand-gesture”, where the user approaches the stereo with a hand gesture, and the product responds by opening the front, which is done in a motion where the two glass-panels on the front slides to the sides.

We saw the experiential theme in this as a “welcoming”, which makes the user feel that the product greets him and he feels an immediate connection between him and the product. There is a silent understanding, where the product meets the user similarly to how a concierge at a high-class hotel would open the door for you when you approach it.
On the lower layers of the model, we identified that the movement itself – sliding the panels to the sides – seemed very unobtrusive and inviting. A different kind of movement could have been more like a push towards the user in a way that might have been perceived as aggressive, which
emphasizes the importance of how this specific movement is designed to create the welcoming feeling. The clear glass-panels also added calmness to the situation, since you were not surprised by what was revealed. And considering the relative complexity of the functions, there was a need to have time to read the layout of the stereo behind the panels to avoid an unpleasant moment of confusion.
The design/form of the stereo in itself also underlined the calmness and “class” by its very orderly structured layout, the attention to details and an elegant look, emphasized by the composition of the materials – the glass, the aluminum and the crispy black plastic – all in a high quality finish.

Part two: The construction
In the second part of the exercise we used this deconstructed sequence to construct a new product. We decided to use a lamp as the object to design, and wanted to transfer the experiential stimuli from the “welcoming” of the Beosound 3200.
It was decided to re-use the hand-gesture + opening as interactive principle, since this was estimated to be the key element in creating the particular experiential stimuli, intended to greet the user. When the lamp had opened, the user would be able to turn the light on/off and adjust the brightness of the light. This was done by very simple controls, which could be perceived immediately, so it was assumed that there was not the same need for transparency as with the glass-panels of the Beosound 3200. So the decision was made to use an opaque glass instead of the clear glass, making the lamp an even more unobtrusive and simplistic object, resting in its closed form when not interacted with.
In this way we were able to adapt some aspects from the experiential part of a product to another, also adopting the main principles that elicited the particular experiential stimuli, to create a new product with a certain degree of innovation. Although not tested, it is my conviction that the design principles mentioned here would make the user of the lamp perceive a similar experiential theme of “welcoming”, making him feel that the product greets him and feel an immediate connection between him and the product. It became a re-creation of the “silent understanding” between product and user.

Two examples
To further explain this idea of transferring and adapting elements by using the Peel-model, I will in the following briefly describe two interesting products: The “Bedside gun” lamp by Philippe Starck and the “Plopp” stool by Oskar Zieta.
By re-using the familiar shape of the gun but with a totally different function, and placing it in a new context, Philippe Starck changes the meaning of the product. From being a product of war it becomes almost the opposite as a critique of war and violence, by removing the original functionality, which was likely perceived (by the designer) to be wrong. It also has a humorous side – the typical quirkiness that is characteristic for Philippe Starck – without loosing sight of its critical message.

In the stool by Oskar Zieta, he creates a disconnection between how we would ordinarily perceive the relationship between appearance and material. Visually it is perceived as inflated plastics, but is actually made from hydro-formed metal. This adds surprise and “fun” to the experience. This stool also shows how a product experience can evolve as the user becomes familiar with the product. When you see it you have one idea of it – but once you become familiar with it, and understand that the material is not as expected, it changes the meaning of the product. There is also a second experience in watching how guests may be surprised the first time they encounter your new stool.

As the examples show, the immaterial and material layers will always influence each other. In most cases it will be required to shift focus between them several times during the development of a product/experience in order to ensure congruity. It is not possible to define the layers separately. The examples also show how a change at one layer can bring new meaning, new experiences, and, ultimately, reveal a potential for innovation.

The level of innovation

Even though the level of innovation can’t be measured, we can see from the examples above, that the Peel model can be used as a tool to evaluate which aspects to innovate from, which again will lead towards a certain level of innovation. Dewar and Dutton (1986) describe the level of innovation as the perceived degree of new knowledge, leading to a scale from incremental innovation to radical innovation. Incremental is characterized by linearity and modification of practice, where radical is characterized by non-linearity and industry redefinition. The Beosound 3200 mentioned above was an innovative product when it was introduced. The lamp, where we adapted the experiential stimuli of the welcoming, might become innovation if produced and reaching some degree of successful commercialization. I would consider them to be
more than just incremental innovations, although not radical innovations. The designed discrepancy between the shape and material of the Plopp stool, is also considered to be more than just an incremental innovation, since it also affects the experience users have, adding an element of surprise and fun. Once a product affects the experience we have – compared to similar products and the experiences they give – I believe they can be considered more than just incremental innovations. An example of an incremental innovation could be a new shape for a shampoo bottle that changes the product visually, but doesn’t have a great impact on the production, the features/usage, or the experience in any major sense. But it might still be an important product, if it fills a gap in the range of shampoo bottles.

A radical innovation would create a major change of the experience, and might even lead to a new product category. This is what I consider the ultimate experiential innovation, changing the theme in the top layer of the Peel model. So instead of designing a new mobile phone you are designing for the experience of communication between to people who are far from each other. Once you open the solution space by designing for an experience theme instead of a product category, you are more likely to be able to develop radical innovation.

So by changing focus between the layers of the Peel model in this way, I believe it is possible to handle the aspect of innovation more strategically, to guide the company and line of products towards the desired type and level of innovation.

Even though radical innovation is typically the one that is most highly esteemed, incremental innovations are where we can fill the gaps, and explore the opportunities of the solutions at hand. The level of impact is generally much higher with radical innovation, so there will be more things to consider before the product can be successfully commercialized. It has the potential to create a market breakthrough, but also some challenges to overcome that incremental innovation does not, in order to go from idea to commercialization.

The three major difficulties I see are:

- **Market preparation.** If you bring something radically new to the market, you need to make sure that the market is ready. The users need to adopt the change an unfamiliar product will bring, referring to the definition by Denning and Dunham. You are not just introducing a new product; you are changing an entire culture.
- **Company preparation.** A radical innovation typically also affects the company internally, not only by new production processes and need for knowledge, but also the culture within the company.
- **Brand preparation.** Are the loyal customers ready to this change, or will they become doubtful of the company intentions? Does it still fit the brand, or does it push the brand in a new direction?

So radical innovation can be a daunting – but if successful also very profitable - task, where incremental innovation can be a less challenging but still fruitful path.

This introduction of the Peel model and the examples of its usage can hopefully be of inspiration for those in search of a more strategic approach to the somewhat mystified process of innovation. At the same time it can be an efficient tool for developing products that are experientially engaging, which is particularly essential today, where consumers crave experiences over products.
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References:


**Figures:**

Fig. 1. Kiss communicator by IDEO

Fig. 2. The Peel Model and description of the layers
[original work by author]

Fig. 3. Beosound 3200
http://beostores.bang-olufsen.com/washington-logancircle/undefined1

Fig. 4. Left: Bedside Gun. A table lamp by Philippe Starck. Right: Plopp. A stool by Oskar Zieta
http://www.casanovafurniture.dk/shop/flos-bedside-gun-719p.html
http://hay.dk/#/site/products/chairs/plopp