Adaptive Products - emotional bond by polymorphic objects?

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The adaptation of objects is a common phenomenon, which is caused by the use of things. Everything which one interacts is appropriated by use, repair, modification, change of use or conversion, etc. The resulting traces of use provide an everyday aesthetics that determine replacement or attachment to things. The aim of this project is a targeted exploration of the emotional component within the products, which results form the use of things. In order to make statements about how an emotional attachment to products is created and the consequences of adaptive products.

Keywords: Transformation, long live products, emotional bond, adaptive products as individual ergonomic products

1. Introduction

The paper deals with the theoretical idea of products with eternal life and the translation to the emotional and ergonomic context of real products: Transformative products that provide an opportunity to be re-shaped. In the following objects which gone to break are examined to show their real value and importance that comes through the break only. It is intended to show the possibilities of individual products, which produce an emotional bond by transforming the object itself.

The thesis is one of many possible approaches but it introduces the idea even further and explores the change in the emotional bond by polymorphic objects. Adaptive objects that transform in shape in the course of using and gradually adapt to the user – possibly as a method to adapt a product to the individual use and ergonomic requirements?

2. Method

Firstly everyday objects were examined which often go to break due to the particular handling or by an introduced minimum durability, which describes the planned obsolescence. On the other hand memories and emotions associated with these fractures often leads to grief. Followed from the fact that things are simply discarded without a second thought. Thus, the work deals with the central issues how something valuable can be suddenly worthless? What makes objects emotional? How can you reverse the planned obsolescence? As a basic study research on the philosophy of breakage and numerous experiments are used intended to illustrate this concept to address the behaviour after the break. Several simulations out of paper with different patterns have been made to study their buckling behaviour in case of a fraction.

The method deals with reversing the characteristics of planned obsolescence. In the first step the idea was a flexible mat with predetermined breaking points, which are arranged in a pattern. In the event of an impact the points would break accurately and thus provide the opportunity for a new formability. Conscious vulnerabilities create an added value of the product and provide space for transformation. This could result in products with personal and emotional value and functionality, yet this approach does not seem to be the best method to achieve products with high value and usability. Does the personal esteem lie within objects which firstly need to break or within the use of objects itself?

To let the user have the opportunity to design his objects and environment actively and to express his personality the method was developed even further. In the second approach the changes of the emotional bond caused by polymorphic objects are explored. In this step it is no longer needed that the object has to
break first in order to transform. Here the object is as raw and sober subject with archetypal characteristics. The user designs the object through the use and with time it gradually adapts to the users behaviour and changes within form, material and pattern may enter. A concept for objects with individual ergonomics.

It is important the object is raw and sober in the beginning, because only then the user notices the changes and understands that only the user is designing the object, by this he gets the feeling of really doing something and creating his own things and environment. The everyday products are subject to continuous adaptation and are also customized by the user over again and again, but this often happens unconsciously. With this concept, it should be brought to the awareness to see the value of things and the ability to recognize the gift in itself to design things, which already starts in everyday life.

3. Design Process

This Idea is a future vision of the possible changes of product design. It requires intelligent and programmable materials that respond to the user and adapt accordingly. To determine transformation processes and their initiators there have been made a series of field studies like a survey on emotional bond, workshops with the students of the University of Potsdam to determine factors of appropriation but also user tests and short termed projects. Within the user tests, users should exemplary overcome various tasks on the knife. The material transformation should be visualized within the usage, once by itself through independent variation of the material, then by the users own decision and finally by earning material to create and get more properties.

This design process is a combination of empirical study and experimental research by comparing and researching profound knowledge with practice and reality.

4. Concept

Through the planned obsolescence products have a built-in minimum durability date by which they would fail according to plan. This concept allows not only durable products, but also reduces the quantity of products, and thus protecting also the resources. By the gradual adaptation to the user, not only individual products with personal value would be created but also products which are adapted to the ergonomics. The individuality here is holistic.

This would reverse the negative characteristics of the planned obsolescence and also require a rethinking in both the current market economy but also in people, society and culture. The stress to have the latest product and the need to adapt to the trend would decrease because adaptive products are always user-dependent and are in a constant process and thereby also changeable. As a result, the objects would be also irreplaceable and longer in use.

5. Problem

However, the thesis presents two problems. On one hand the emotional bond and on the other hand adaptive products which creates creeping rituals and strengthens them even more. It turns out that the depth of the emotional bond depends on different factors such as brand, product image, image of the user, origin, quality, frequency, function but also the sentimental value such as gifts, souvenirs or things that one has used for years and has changed by itself through the usage. However, the fact for all is that a function needs to be present at first so a need for the use can arise like achieving a goal. The more satisfying the function within use is, the more often it is used. This raises initially an emotional attachment, because you are happy and satisfied with the result, but it increases with time after since no changes happen and it becomes a known habit. However, if an abrupt change occurs, then the function is not important and the emotion is rising rapidly as frustration and sadness about the broken object and its malfunction. The interesting thing is that the function can be individual in nature and, depending on what one wants to achieve this creates an emotional use as well as a pragmatic use.

Since man quickly get accustomed to everything and already imposes rituals himself, the question arises to what extent adaptive products are useful and for which products they are suitable. Adaptive products have the disadvantage that they can reinforce habits and can provide disgust and hatred after some time, because the changes at a certain time are minimal and hardly noticeable.
6. Results

Thus adaptive products are not getting boring with time and lead to disgust, it is important that they have planned boundaries of change such as Mutations which is seen in the evolutionary biology. Within the adaptation errors must occur to help the user to notice his habits and to have the chance to change them. Adaptive products as appeals for change.

Then it is important to determine which products are useful for the process of adaptation and which are not. The Planned obsolescence has its meaning in constantly bringing out changes that shows people the finiteness of life and gives them the opportunity to break out of habits and develop further. As a result, everything remains in flux.

It is also striking that it shall not be mandatory using intelligent materials to achieve this concept. This opens up new application areas and new possibilities and types of adaptation that need to be explored.

6. Discussion

In general, adaptive products offer many advantages both for the use and durability of products as well as for the industrial production. With this not only aesthetics and style of the products would change, but also the profession of the designer, he would have to make a holistic design and also take care of the DNA of the object, its construction plan, course of use, initiators and impacts, patterns etc.

However, adaptive products must provide boundaries and allow changes. Therefore, in the next step it is important to explore products for which the adaptation process is meaningful and to consider how far the adaptation can be developed for errors to occur as a benefit for the user to change. The adaptation has to be seen as a chance of development and appeal for habits to change them. This would be the next step to examine how this can be done and how these products would look, act and feel like. Imperfection provides an opportunity for transformation and adaptation.

![Figure 1. Folding patterned mat.](image1)

![Figure 2. Process of using and reusing patterned Objects.](image2)
Figure 3. User Test: Dough adapts to User behaviour

Figure 4. User Test: User earns pieces to adapt the knife for his habit of using

Figure 5. Usecase Scenario 1

Figure 6. Usecase Scenario 2

Figure 7. Knife in the beginning before using

Figure 8. Knife adapting to using behaviour
Figure 9. Principle of adapting products

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