

"No Fun, but Very Effective": Consumers' Evaluation of Design Strategies for Product Care

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Keywords: product longevity; consumer behaviour; behavioural change; repair; maintenance.

Abstract: Product care describes consumers' activities to prolong the lifetime of a product, such as repair, maintenance or careful handling. By keeping the product in a functional state, replacement can be postponed. Previous research has identified eight design strategies that can foster product care among consumers. To use these design strategies to their full potential, a deeper understanding of their effectiveness is needed. The current study aimed to evaluate the design strategies with consumers. We conducted interviews with 15 consumers and discussed the effectiveness of our strategies for product care in the consumers' daily life. Results indicate that the effectiveness of our strategies varies over products and product categories. A combination of strategies seems to be the most promising approach for fostering product care among consumers. Our research contributes to the scientific knowledge by providing deeper insights into the conditions under which design strategies for product care are most effective.

Introduction

Product care is defined as all activities initiated by the consumer that lead to the extension of a product's lifetime. It includes repair and maintenance, and preventive measures, such as protective covers for smartphones, or a general careful handling of the product (Ackermann et al., 2018). Due to product care consumers can keep products in a usable and appealing state for a longer period of time, thereby postponing its replacement by new products. An issue of product care is that it heavily relies on consumers' behaviour once the product is in use: Product care activities can be executed by the consumer him/herself or by a service provider, but in both cases, the initiative for product care lies with the consumer. Unfortunately, consumers often fail to include these activities in their daily lives (Ackermann et al., 2018). As a result of this value-action gap, consumers do not make optimal use of many products' optimal lifetimes (Cooper, 2005) thus retaining a less sustainable way of consumption.

The design of products and services can be a valid approach to achieve behaviour change (e.g., Bhamra et al, 2011; Daae et al., 2017; Lilley et al., 2017). Prior research has identified design strategies to foster product care among consumers (Ackermann et al., 2019). These strategies are: Informing (providing information

about product care), Enabling (facilitating product care by offering right tools or a service), Social Connections (as a facilitator or as an outcome of product care), Appropriation (adaptation/personalization of a product), Control (ranging from a product that takes over the initiative for product care to self-healing materials), Awareness (reminder or a change in the product's appearance or functionality), (communication of) Antecedents & Consequences (of product care) and Reflecting (creating meaningful memories).

The aim of our study is to have consumers evaluate the perceived usefulness of these design strategies using semi-structured interviews. This will allow further development but can also help optimizing the application of these strategies in design for product care.

Method

We interviewed 8 male and 7 female consumers (mean age 38.5 years). Interviews lasted on average 35 minutes. The final three interviews did not provide any additional insights, thereby supporting our estimation that 15 interviews were a sufficient sample size for this study (see also Guest et al., 2006).

Participants were from a convenience sample and received a brief description of the concept of product care and of the study. Before the interview and as a preparation task, we sent



them a list of six product categories (household appliances and tools; consumer electronics and communication devices; means of transport; furniture and interior design items; clothes, shoes and fashion accessories; sport equipment and accessories for hobbies and leisure) to cover a broad range of products. Participants were asked to think about examples of a product that they do not take care of for each product category to prepare for the interview.

During the interviews, we first explained product care in more detail to ensure that the participants were aware of all the aspects of product care. Then, we asked them to explain what hinders them in taking care of their products. This helped us to understand their reflection on the strategies better. Subsequently, we explained the design strategies one after another. After each new strategy, we asked them if they think that this strategy could help them to take better care of their products, and for which of their products this strategy may be most effective, and to elaborate on their reasoning. At the end of the interview, we asked them to select the strategy that would help them the most to take better care of their products.

Results

In order to gain a comprehensive overview of the suitability of our design strategies, we analyzed the interview transcripts. This provides the following insights on each design strategy.

Informing

Providing additional information by companies on how to take care of the product was seen as especially helpful for relatively easy product care activities, such as cleaning printers, or exchanging the filter from vacuum cleaners or washing machines. However, participants admitted that they still struggle to integrate such easy product care activities into their everyday life, and that it is often not a matter of missing information that stops them from taking care of their product. They also suggested improvements for existing instructions, such as providing an overview of the most important product care tasks for the product and an indication of how often these tasks should be performed. Regarding the medium for providing the information, participants differed in their opinion. Some preferred a printed manual because this allows them to stop reading at any time and jump between pages. Others

preferred (Internet) video tutorials because they can view these any time and place.

Awareness

Creating awareness through push messages was criticized by many participants, as these were perceived to be annoying. It would only be accepted for products for which they use a service, such as cars, in order to arrange appointments. Making the consumer aware through changing appearance or performance of the product was better accepted. However, participants often failed to imagine this strategy for different products because they said that the product (e.g., a bike) automatically functions worse or makes strange sounds if you do not take care of it. They did not see this strategy as a design strategy but more as a natural consequence of missing product care. Creating awareness was often also discussed in a broader sense, with participants mentioning how important it is that consumers are aware of their power to prolong products' lifetimes and that they have to learn to use this power. In their opinion, it is crucial to teach consumers how many resources are needed to produce a product and the importance of valuing these resources by taking care of the product as good as possible.

Antecedents & Consequences

Participants are only interested in negative consequences if the product is either safety-relevant (e.g., a car) or if negative consequences for their own health can be anticipated due to a lack of product care (e.g., moulding of a mattress). Apart from these negative consequences, participants preferred that the strategy emphasizes positive consequences. These can on the one hand be relevant for the consumer (such as feeling good when using a cleaned car) but also for the environment. For example, participants said they would like to know if they contributed to a better environment by taking care of their product (e.g., 'because you renewed the filter of your car, the exhaust gases are less toxic now').

Social Connections

Social Connections was found to be a good strategy for products that are used and taken care of in public. For example, one participant reported that she felt a social pressure to take care of her horse saddle because other girls at the stable did the same for theirs. The strategy was also appreciated in the context of shared hobbies (e.g., biking), where not only the



activity itself but also product care is done with friends.

When discussing this strategy, most participants immediately referred to repair cafés, which they often knew but never visited before. One participant said that repair cafés are good for singles and elderly people who struggle to conduct easy product care tasks. Another participant said that a certain level of openness is needed to join repair cafés. Many participants stated that they often help neighbours and friends and that these people also reciprocate. However, they added that it is important that everyone shares the same understanding of product care. They do not want to share their products with people who do not handle them carefully or who are unaware of the need to clean them properly. If you do not know the people well (e.g., a shared washing machine in an apartment building), chances are high that nobody feels responsible to take care.

Enabling

Offering matching tools or other care equipment was preferred for products that are not too complex but still require special tools, such as shoes. Participants think that it is convenient if the right products are immediately available as opposed to finding out which additional product is needed and where to get it. Tools and equipment that are directly attached to the product (such as the sewing machine compartments that come with oil, a brush and a small screwdriver) were judged as especially helpful. A few participants also mentioned that they do not want to get the right tools and other care products together with the product because some prefer spending more on their tools while others prefer the cheapest version. However, the same participants said that they would appreciate it if the manufacturer at least offered to add care products during the buying process so that they can select the desired products. A service for product care tasks was only seen relevant for complex products, which is often equal to products with electrical and/or safety-relevant components, such as a washing machine, a laptop and a car. Participants claimed to be afraid to open and repair these products, even if they have the right tools.

Appropriation

Most participants were skeptical about aesthetic ways of personalization, such as adding stickers to your car or selecting specific colour combinations for your sneakers. They said that while personalization was more

important when they were younger, they are not interested in these things anymore. When making them aware that personalization can also refer to functional aspects, such as selecting specific modules for your smartphone according to your needs, they were more enthusiastic. Many agreed that a product that works well because it fulfils your individual needs enables a positive experience and this in turn leads to consumers taking better care of their products. This was also observed for the creation of new products. Participants mentioned that they are proud of the things they made or adapted themselves and are thus taking care of them.

Reflecting

All participants agreed that they take better care of products they cherish. Reasons for emotional attachment towards the product were positive memories associated with the interaction with products, such as working shoes that reminded the participant of his first job or dinnerware that has been used for a long time. Participants also reported that traces of use, such as small scratches on a vacuum cleaner or little dents at the car reminded them of the fact that they owned the product for some years. This often leads to enhanced motivation to keep it also for the coming years, thus stimulating product care. However, one participant mentioned that he only takes care of his products as long as they are new; as soon as they show traces of wear and tear, he is not taking care of them anymore.

Control

Control was the strategy that caused the most controversy. Spontaneously, some participants claimed 'oh no' or 'never ever' when the strategy was explained to them. They often had the feeling that this strategy is quite unrealistic and can only be implemented in the future. However, when we explained that many products already refuse to work until product care is conducted (e.g., coffee machines, laptops, smartphones), participants admitted that this strategy may indeed foster product care. One participant summed it up as 'This strategy is really no fun but can be very effective'. Most participants could not imagine including this feature to analogue products, but one participant even brought up the ideas of shoes that stick to the ground if you do not take care of them. Especially for safety-relevant products (such as bicycle brakes, a saw, or ski bindings), the acceptance of this strategy would



be high. Participants mentioned that a car that refuses to drive as long as you did not take care of relevant parts, would be a reasonable approach.

The Most Preferred Design Strategy

As explained, we asked each participant to name his/her favourite strategy for all product categories. When analyzing the results, we realized that there was no general preference for one of the strategies. Except from Control, every strategy was at least mentioned twice as one of the best strategies. Informing was named five times, and Enabling and Reflecting four times, respectively. Many participants could not decide for one specific strategy but rather chose a combination, such as Informing and Enabling or Appropriation and Reflecting). For example, participants mentioned that taking care together with others (Social Connections) also concerns the Reflecting strategy, because they then remember the product care experience as positive and fun.

Discussion

Overall, we received positive feedback on our strategies. When looking at the different products that were mentioned for each strategy, we observed a few relevant patterns: First, products with electronical components are often only cared for on a simple level, such as dusting off. Regardless of having more information or the right equipment, participants would still refuse to open these products, for example in order to replace parts, because they are afraid of doing so due to safety reasons. Safety seems to be an important aspect also for the Control strategy which is especially well accepted for safety-relevant features, such as bike brakes. Second, the preferred strategies named by the participants are also the most common ones for products: Informing, Enabling, and Reflecting. Still, these strategies do not seem to be effective, as previous research has shown that consumers struggle to include product care into their everyday life (Ackermann et al., 2018). This may be caused by missing triggers that remind the consumers to take care of their products or facilitate product care in specific situations. Triggers have been identified as a crucial element for behaviour change (see Fogg, 2009). For product care, Awareness and Control are strategies that can serve as triggers. It may therefore be reasonable to combine these strategies with other ones, such as Informing and Enabling in order to stimulate the intended

product care behaviour. For example, Awareness, Informing and Social Connections could be realized together by providing a smartphone app that contains information about product care and the possibility to share tips on product care within an online community. In addition, the app can remind the consumer when it is time to conduct certain product care activities, thereby serving as a trigger.

One limitation of this study is that it is hard for consumers to imagine how these strategies could work in practice. Another limitation was the fact that we discussed the strategies in a hypothetical way. Both limitations could be addressed by actually designing products according to our strategies and evaluating the effectiveness of the strategies in real life.

Conclusions

The findings show that the effectiveness of the design strategies for product care is highly dependent on the product itself, but also on the consumer and the environment. Although the latter can hardly be directly influenced through design, our insights are still interesting when developing appropriate design strategies for different consumers, also taking into account different social and physical contexts. Especially, combining different strategies may be an effective approach that should be evaluated in future studies.

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Pre-Print