**Psychologically Durable Design — Definitions and Approaches**

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**ABSTRACT:** This paper provides a definition of ‘psychologically durable design’ and clarifies its relationship to ‘emotionally durable design’. Psychologically durable design, not the least in the form of ‘emotionally durable design’, has emerged as an important means to ensure more sustainable designs, since many types of consumer products are often replaced before their physical function is compromised. However, there are still no exhaustive answers as to how to create more psychologically durable products, nor detailed definitions of psychologically durable design. To address this issue, this paper provides such a definition in terms of durable instrumental, hedonic and symbolic value. On this basis, the paper defines four types of durable product relationships, of which only two are related to ‘emotional durability’.

Keywords: psychologically durable design; emotionally durable design; design experience; sustainability; product longevity

**Introduction**

In November 2017, a paper signed by more than 15,000 scientists, published in the journal, BioScience, issued a warning to humanity that ‘a great change in our stewardship of the earth and the life on it is required, if vast human misery is to be avoided and our global home on this planet is not to be irretrievably mutilated’ (Ripple et al. 2017). To change this negative development, multiple means for increased sustainability need to be employed. One such means is to make products more durable, thereby reducing the use of resources and the pollution associated with the production of new products.

Since consumer products are often replaced long before their physical function is compromised, psychological durability has received increased attention in the design
literature (Cooper 2004; van Nes and Cramer 2005; Chapman 2009; Fletcher 2012; Hebrok 2014; Haug 2017). The literature includes several explanations of why well-functioning consumer products are replaced as well as a range of design strategies to increase product longevity. There are, however, still no exhaustive answers to these questions (van Nes and Cramer 2005; Chapman 2009). In this context, one of the most discussed perspectives in recent years is ‘emotional durability’ (Chapman 2005 2009). However, as the studies by Mugge et al. (2006) suggest, an emotional bond to a product does not necessarily result in a long-lasting relationship with the product, which they explain as being related to fashion trends that may be short- or long-lived and thus cause consumers to be attached to products for shorter or longer periods of time. Furthermore, as discussed later in this paper, there are other ways to create long-lasting product relationships than through emotional bonds, namely by ensuring that products keep providing different types of value for a longer period of time.

The design of more psychologically durable products may be promoted by a better understanding of the concept. However, as demonstrated by the literature review in the subsequent section, the existing literature is unclear on this matter. Thus, this paper provides a definition of ‘psychologically durable design’ and clarifies its relationship to ‘emotionally durable design’.

The remainder of the paper is structured as follows. First, literature related to psychologically durable design is reviewed. On this basis, the paper defines psychologically durable design through three durable value dimensions, each of which is illustrated by a set of empirical examples. Next, the paper clarifies the link between psychologically durable design and emotionally durable design, after which psychologically durable relationship types are linked to the three dimensions of psychologically durable value. Finally, conclusions are drawn.
Literature review

To understand psychologically durable design, a place to start is to look at why products are replaced. In this context, an overall distinction can be drawn between absolute and relative obsolescence (Granberg 1997, p. 17). Absolute obsolescence occurs when a product from a physical perspective no longer can perform its functions, while relative obsolescence occurs when products are replaced for other reasons than its functioning. More specifically, relative obsolescence occurs when a user no longer finds a product attractive or when new products with more desirable features emerge, e.g., by being more fashionable or technically advanced. Several authors have provided classifications of the reasons for product obsolescence, some of which are summarised in Table 1.

Table 1. Causes of product obsolescence

<table>
<thead>
<tr>
<th>Source</th>
<th>Dimensions</th>
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<tbody>
<tr>
<td>Bayus (1991, 43)</td>
<td>1) Style; 2) Features and technological advantages; 3) Price and sales promotions; 4) Changed family circumstances; 5) Improved financial situation</td>
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<tr>
<td>Mowen (1995)</td>
<td>1) Technical condition; 2) Style; 3) Price and sales promotions; 4) Previous decisions; 5) Changed circumstances and aspirations; 6) Changes in financial situation; 7) Aging; 8) Physical or psychological changes</td>
</tr>
<tr>
<td>Heiskanen (1996)</td>
<td>1) Failure; 2) Dissatisfaction; 3) Change in consumer needs</td>
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<tr>
<td>Creusen (1998)</td>
<td>1) Practical function; 2) Ergonomic function; 3) Hedonic function; 4) Symbolic function</td>
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<tr>
<td>Van Nes et al. (1999)</td>
<td>1) Technical obsolescence; 2) Economic obsolescence; 3) Ecological obsolescence; 4) Aesthetic obsolescence; 5) Feature obsolescence; 6) Psychological obsolescence</td>
</tr>
<tr>
<td>Van Nes and Cramer (2005)</td>
<td>1) Wear and tear; 2) Improved utility; 3) Improved expression; 4) New desires</td>
</tr>
<tr>
<td>Mugge et al. (2005)</td>
<td>1) Performance decrease (function and appearance); 2) Technological obsolescence; 3) Legislation change; 4) New features/technology; 5) Fashion; 6) Family/financial circumstances</td>
</tr>
<tr>
<td>Burns (2010, 45)</td>
<td>1) Aesthetic; 2) Social; 3) Technological; 4) Economic</td>
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</table>
As the classifications in Table 1 show, there are many ways of categorising causes for product obsolescence. In relation to the purpose of this paper, in particular, the classifications from van Nes et al. (1999) and Cooper (2004) are interesting, as they explicitly deal with ‘psychological obsolescence’. Van Nes et al. (1999) defined ‘psychological obsolescence’ as occurring when ‘a new product has greater emotional value (e.g., present/gift or inheritance) or the present product has a negative emotional value’. In other words, they seem to equate ‘psychological obsolescence’ with ‘emotional obsolescence’. On the other hand, with a reference to Packard’s (1960, pp. 58-59) definition of ‘psychological obsolescence’, Cooper (2004) described the phenomenon as occurring when ‘a product that is still sound in terms of quality or performance becomes ‘worn out’ in our minds because a styling or other change makes it seem less desirable’. Thus, Cooper’s (2004) definition of psychological obsolescence is broader than the one by van Nes et al. (1999).

When addressing product obsolescence, it should be noted that it is not always desirable for products to have as long a lifetime as possible. More specifically, there are situations in which extended lifetime does not imply an environmental improvement —
for example, if a new product is significantly more energy-efficient than an existing one (Baynes et al. 2001). In this context, it should also be noted that some authors point out that longer product lifespans can have a negative impact on economic development (van Nes and Cramer 2005). For most products, however, lifetime extension is desirable from an environmental point of view (van Nes and Cramer 2005), which is the focus of this paper.

As well as causes for product obsolescence, several researchers have defined means to address this. While means to prevent absolute obsolesce are, to a large extent, a topic related to engineering research, means to prevent relative product obsolescence are often particularly interesting from an industrial/fashion design perspective. There are several literature streams concerning strategies to increase product longevity, scattered across different areas of research, i.e., engineering design, industrial design, fashion design, and marketing. This is illustrated in Table 2, which shows different classifications of such strategies.

Table 2. Classifications of design for product longevity

<table>
<thead>
<tr>
<th>Source</th>
<th>Focus</th>
<th>Dimensions</th>
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</table>
As seen in Table 2, the classifications identified in the literature have different focuses; some focus on product longevity from an overall perspective, while others focus on particular forms of product longevity. Furthermore, none of the classifications explicitly use the term ‘psychological durability’. Closely related, however, is ‘emotionally durable design’, which aims to increase product longevity through stronger emotional bonds to products (Chapman 2005-2009). Furthermore, several of the other classifications also include dimensions related to psychologically durable design, for

<table>
<thead>
<tr>
<th>Chapman (2009)</th>
<th>Emotionally durable design</th>
<th>1) Narrative; 2) Detachment; 3) Surface; 4) Attachment; 5) Enchantment; 6) Consciousness</th>
</tr>
</thead>
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<tr>
<td>Fuad-Luke (2010, p.147)</td>
<td>Approaches to extending product-user relations</td>
<td>1) Quality, reliability, upgradability and maintainability; 2) Sharing products; 3) Co-design and co-production with users; 4) Retention of narrative and aesthetic appeal; 5) Creating personal narratives; 6) Increasing sensorial variety; 7) Making social connections</td>
</tr>
<tr>
<td>Walker (2011)</td>
<td>Longer lifetimes for electronic products</td>
<td>1) Evolve continuously; 2) Accommodate change; 3) Local maintenance, repair, and upgrade; 4) Foster more considered, less distracting use patterns; 5) Internalise impacts</td>
</tr>
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</table>
B) Timelessness: 5) Long-lasting fashions/styles; 6) Inherent aesthetic focus; 6) Exclusivity; 7) Limited editions; 8) Luxury  
D) Design process: 14) User-centred design; 15) User involvement in the design process; 16) Pre-purchase personalisation  
example: aesthetic durability (van Nes et al. 1999); meaningful product relationships (Batterbee and Mattelmäki 2004); design for product attachment (van Nes and Cramer 2005); symbolism (Odom et al. 2009); extending product-user relations (Fuad-Luke 2010, 147); less distracting use patterns (Walker 2011); and extrinsic durability/resilience-building means (Haug 2017).

Finally, it should be noted that, besides the classifications mentioned above, there is also literature that touch upon particular aspects of design that can promote product longevity, for example, sustainable interaction design (Blevis 2007; Blevis and Stolterman 2007), meaningful product relationships (Walker 2006), product aesthetics (Rams 2001; Cooper 2005), and exclusivity (Brown 2001; Balachander and Stock 2009).

The literature review on psychological durable design showed that the focus has mainly been on defining means for achieving this. On the other hand, literature dealing with this topic in a detailed manner at a more conceptual level was not identified. Thus, there does not seem to exist a clear definition of ‘psychologically durable design’, nor of its relation to emotionally durable design.

**Defining psychologically durable design**

This paper defines psychologically durable design as a design strategy with the purpose of increasing the period of time between the acquisition of a product and its replacement for reasons other than absolute or technological obsolescence. Thus, psychologically durable design concerns the durability of the product’s value. Such value may be understood in terms of instrumental (or utilitarian), hedonic, and symbolic dimensions (Mimouni Chaabane and Volle 2010).

Instrumental value refers to the value of objects, not as ends in themselves, but as means (or instruments) for achieving something else. While instrumental value most
often concerns fairly measurable attributes, hedonic value concerns more intangible aspects (Kahnx et al. 1997). Hedonic value refers to the capacity of objects to evoke pleasure, where ‘pleasure’ should be understood in a broad sense. More specifically, psychological hedonists tend to understand ‘pleasure’ to include all positive feelings or experiences, such as joy, satisfaction, ecstasy, contentment, bliss, and so forth (Bruton 2008). Symbolic consumption concerns the acquisition of products not for their functional benefits or capacity to elicit positive emotions, but for the culturally shared and idiosyncratic meanings they convey (Millan and Reynolds 2014). Therefore, symbolic consumption can be seen as an act of communication between the consumer and other members of society, as well as between the consumer and him/herself (Noth 1988). In such contexts, possessions function as symbols of one’s position in the social hierarchy (Carr and Vignoles 2011) and are used to construct individual meanings pertinent to identities, life circumstances, and aspirations (Elliott and Wattanasuwan 1998). The symbolic value of a product is often closely related to its brand, and, as argued by Millan and Reynolds (2014), in today’s marketplace most brands, even low-involvement brands, are typically promoted with image oriented promotional messages.

Based on the discussion above, the three dimensions of psychologically durable design are illustrated in Figure 1 and further clarified in the subsequent subsections.

Figure 1. Psychologically durable design
Instrumental psychologically durable design

In this paper, ‘instrumental psychologically durable design’ is defined as an approach aimed at designing products that for a relatively long period of time are perceived to have satisfactory instrumental value in spite of what may seem to be more functionally advanced products emerging.

Psychological instrumental value can be hard to separate from physical instrumental value, i.e., durability in relation to absolute and technical obsolescence. Physical durability from an instrumental perspective concerns the durability of actual product performance. However, although a product may continue to perform at a level similar to when it was acquired, at some point, the user may become dissatisfied with its performance, for example, if new, better-performing products emerge. Designing products that avoid being replaced in such situations, on the other hand, concerns psychological durability. So why would anyone keep a product when what appears to better performing products emerge? One motive may be an appreciation for how the product works. This is, for example, the case for mechanical watches, which have not been rendered obsolete in spite of being less accurate and durable than quartz watches (Kirkland 2011). Such appreciation is closely related to hedonic pleasure, but the distinction here is, as mentioned, that instrumental value relates to a product being a means to achieve something, while hedonic pleasure relates to the pleasantness of observing or interacting with the product. Thus, from a hedonic perspective, a watch may be pleasant to look at and feel pleasant on the wrist, while its instrumental value concerns its value as a means to tell time.

Appreciation of the way in which a product functions may be perceived as being an intrinsic perspective on instrumental value, i.e., a focus on what goes on inside the product. However, a product’s instrumental value may also be understood in an
extrinsic perspective, which concerns the way in which it interacts with its surroundings, in particular, how it is operated by its users. This is, for example, the case for manual espresso machines, which, despite the emergence of automatic espresso makers, are still believed by many to be superior, as they offer a higher degree of user control over the espresso-making process or are perceived to represent a more authentic way of making espresso (Rodricks 2016). Obviously, some people may also derive pleasure or status from the longer and more elaborate process required by manual espresso machines, but in some cases, they prefer it mainly because they perceive it as a better or more authentic way of making coffee.

To exemplify instrumental psychologically durable design, Table 3 shows possible means and empirical examples are shown for five of the durable design dimensions found in the literature review. The choice of only and exactly these five dimensions is based on these being among the most commonly mentioned, and because including examples for all the dimensions found in the literature would be unnecessarily extensive for this illustrative purpose. Furthermore, it should be noted that the examples included also involve hedonic and/or symbolic aspects, but that the point of the examples here is to demonstrate the relevance of instrumental durability, not to identify cases in which this is the only relevant dimension.

Table 3. Instrumental psychologically durable design

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Example of means</th>
<th>Empirical example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timelessness</td>
<td>Designing with a focus on simple or mechanical functionalities that are appreciated despite the emergence of more efficient functionalities.</td>
<td>Although, in many regards more efficient, automatic espresso makers have emerged, many still believe that manual espresso machines make better coffee (Rodricks, 2016).</td>
</tr>
<tr>
<td><strong>Ageing well</strong></td>
<td>Designing products that maintain or even improve their performance through use.</td>
<td>Used musical instruments are often considered to be better at producing the desired sound (Grayck and Kania, 2011).</td>
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<tr>
<td><strong>Personality</strong></td>
<td>Designing products that perform tasks in an appreciated manner, making the user more forgiving of lower performance.</td>
<td>Mechanical watches are still highly appreciated and produced, although (in many regards) more efficient watch technologies have emerged (Kirkland, 2011).</td>
</tr>
<tr>
<td><strong>Exclusivity</strong></td>
<td>Designing products that provide exclusive performance for a technology of this kind, for which they may be appreciated, even if new technologies emerge.</td>
<td>Many of the exclusive turntables from the 80s and 90s are in high demand today, as it is also the case for other high-quality vintage hi-fi (Bee, 2013).</td>
</tr>
<tr>
<td><strong>Personalisation</strong></td>
<td>Designing products that focus on particular user preferences in relation to function, rather than focusing on maximal performance.</td>
<td>Some bicycle retailers offer pre-purchase customisation to enable a better match with customer characteristics and preferences (Zhang et al., 2015).</td>
</tr>
</tbody>
</table>

Finally, it should be noticed that some products are even perceived to become better over time with regard to their instrumental value, for example, musical instruments that become better sounding (Gritten 2011). Musical instruments are, obviously, also related to hedonic value, in the sense that they may be pleasurable to operate, and the sounds produced may be found pleasurable. However, as the name suggests, a musical instrument is an ‘instrument for making music’, rather than the end that is enjoyed, i.e., the music.

**Hedonic psychologically durable design**

In this paper, ‘hedonic psychologically durable design’ is defined as an approach aimed at making designs that for a relatively long period of time are perceived to have satisfactory hedonic value. Hedonistic psychological durability may also be seen from
intrinsic and extrinsic perspectives in relation to the use process, in the sense that there is one type of user experience inside the use process, i.e., when using the product, and another type of user experience outside the use process, i.e., when merely observing the product. Thus, hedonic psychologically durability is related to a product’s use and appearance.

With regard to hedonic use value, the challenge concerns preventing a diminishment in the pleasure produced by the use process over time. Such problems may, for example, occur for products that offer user-friendly guidance throughout the use process (e.g., televisions, smartphones, cameras, etc.). Although such user instructions provided by the product may initially be perceived as helpful (and more pleasant than having to read a manual), after some time, as the users learn how to operate the product, the guidance may become annoying (Quesenbery 2003, p. 89). One solution to this problem, obviously, is to allow the user to turn the help functions off.

Another type of problem related to short term versus long-term product pleasure occurs for products that are aimed at providing a pleasant surprise, stemming from their special appearance or way of functioning. In this regard, studies have shown that the appreciation of some products’ surprise qualities is often lost after a short period of time, as the surprise element diminishes (Ludden et al. 2006). Thus, in many cases, designing for surprise-related pleasure would not be a good strategy if the goal is to ensure psychological durability.

With regard to hedonic appearance value, some product designs are more resistant than others. This, for example, may be explained by simple, functional, and well-crafted appearances. An example of a product with an appearance that seems to have maintained its attraction over time is the ‘super-elliptical table’ from 1968,
designs by Danish mathematician, inventor, designer, author, and poet Piet Hein and produced by Fritz Hansen (Øllgaard 1999).

To illustrate hedonic psychologically durable design, Table 4 shows a collection of possible means and empirical examples (in the previously used five categories of durable design). It should be noted that many of the examples also involve instrumental and/or symbolic durability aspects, but that the point of the examples is to demonstrate the relevance of hedonic durability, not to identify cases in which this is the only relevant dimension.

Table 4. Hedonic psychologically durable design

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Example of means</th>
<th>Empirical example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timelessness</td>
<td>Designing products with relatively fashion- and technology-independent characteristics.</td>
<td>Furniture with the mid-century modern look (roughly 1933 to 1965) regained popularity in the 1980s, and this popularity continues to increase to this day (Fenton, 2015).</td>
</tr>
<tr>
<td>Ageing well</td>
<td>Designing products that develop an appreciated patina and/or become more comfortable through use.</td>
<td>Worn jeans are often enjoyed more than new ones (Robinson et al., 2015, p. 71).</td>
</tr>
<tr>
<td>Personality</td>
<td>Designing products to which the user to some extent attributes personality or consciousness, thus making them more than a product.</td>
<td>Wegner is said to have been inspired by the paintings of Pablo Picasso when he created the Ox Chair, which has an appearance that sparks associations to a bull (Eleish and van Breems, 2013, p. 45).</td>
</tr>
<tr>
<td>Exclusivity</td>
<td>Designing products for which the exclusiveness aspect makes users enjoy and treasure the products more.</td>
<td>Steve McQueen made the sunglass ‘PO 714’ model by Persol iconic. In 2010, Persol re-launched the model in a limited edition (Persol, 2010).</td>
</tr>
<tr>
<td>Personalisation</td>
<td>Designing products that allow for personal customisation, which may make users enjoy the products more.</td>
<td>Several of the big sportswear producers allow their customers to design their own shoes based on a basic model (e.g., Nike and Adidas).</td>
</tr>
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</table>
Finally, it should be noted that products may even increase their hedonic value over time. For example, to some, a pair of jeans becomes better looking with signs of wear and more comfortable after being used and washed repeatedly (Robinson et al. 2015, p. 71).

**Symbolic psychologically durable design**

In this paper, ‘symbolic psychologically durable design’ is defined as an approach aimed at making designs that for a relatively long period of time are perceived to have satisfactory symbolic value. Symbolic value can also be seen from an intrinsic and an extrinsic perspective, namely personal symbolic value (e.g., personal expression and support of personal identity) and cultural symbolic value (e.g., social acceptance and status).

In relation to personal symbolic value, a challenge is that it may be lost over time due to the user changing ideals, preferences, or similar. Thus, the task for the designers of such products, in seeking to avoid this development, is to make products that are aimed at longer-lasting ideals and preferences. Donald Norman’s (2002) descriptions of his teapots may be seen as an example of personal symbolic value. More specifically, one teapot is described as being ‘so ugly that it is appealing’, while another is, in a special sense, practical, as it can be tilted to separate the leaves from the brew when the tea has steeped enough. The uncommon features of these two products are, to a large extent, decoupled from changing fashions or technological developments, while they may be seen as symbols of creativity, originality or humour. In other words, such products may serve as ‘symbols or icons for our lifestyles’ (Verbeek and Kockelkoren 1998).

With regard to cultural symbolic value, a challenge is that it may be lost over time due to changing fashions or new technologies. To address such challenges, one
approach is to focus on relatively fashion-independent characteristics and simple functional principles that have demonstrated their capacity to maintain symbolic value in spite of technological developments in this area. With regard to the first, an example of such a product is the ‘Windsor dining chair’ by Ercol, which was designed to be some 70 years ago, but has still not gone out of fashion (Goodhart 2015). The chair was designed to be practical and cheap, and its minimalist design looks both solid and comfortable (Goodhart 2015). This basic design focus, as opposed to more fashion-dependent characteristics, may be a central explanation for its relevance here 70 years later.

To illustrate symbolic psychologically durable design, Table 5 shows a set of possible means and empirical examples (in the previously used five categories of durable design). It should be noted that many of the examples also have instrumental and/or hedonic symbolic durability aspects, but that the point of the examples is to demonstrate the relevance of symbolic durability, not to identify cases in which this is the only relevant dimension.

Table 5. Symbolic psychologically durable design

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Example of means</th>
<th>Empirical example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timelessness</td>
<td>Designing products that focus on symbols with long-lasting positive meanings.</td>
<td>After 70 years, the ‘Windsor dining chair’ by Ercol, designed to be practical and cheap, is still considered fashionable (Goodhart, 2015).</td>
</tr>
<tr>
<td>Ageing well</td>
<td>Designing products with symbolic aspects that improve over time, such as quality and authenticity.</td>
<td>The patina of, for example, a leather sofa may be seen to tell a story about ‘life well lived’ (Hubbel, 2015).</td>
</tr>
<tr>
<td>Personality</td>
<td>Designing products that are attributed personality characteristics with long-lasting symbolic value.</td>
<td>Philippe Starck’s citrus squeezer, Juicy Salif, from 1990, is not a particularly efficient citrus presser, but its special appearance has made it appreciated for more than 25 years (Rosenbak, 2015).</td>
</tr>
<tr>
<td>Exclusivity</td>
<td>Designing products that provide status due to their exclusivity.</td>
<td>Some so-called ‘supercars’ are so exclusive and popular that prospective buyers face long waiting lists (Halvorson, 2007).</td>
</tr>
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<td>-------------</td>
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<td>-----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Personalisation</td>
<td>Designing products with personalisation aspects to support the user’s desired self-image.</td>
<td>In some segments, customised motorcycles are highly desired objects (Lavrinc, 2013).</td>
</tr>
</tbody>
</table>

Finally, some products even increase their symbolic value over time. Returning to the aforementioned example of musical instruments, for some instruments, this also has a strong symbolic side. That is the case with electric guitars, for which many of the designs produced during the 1950s are still some of the most widespread models today, such as Fender’s Telecaster and Stratocaster and Gibson’s Les Paul. In this regard, for some musicians, a guitar that shows clear signs of wear is preferable to a shiny new one, for which reason some guitarists even distress their guitars to give a more used look, a practice known as ‘relicing’ (Pinch and Reinecke 2009, p. 152). One explanation for this phenomenon is that the visible wear and tear of a guitar makes it symbolise a “more ideal past” (Pinch and Reinecke 2009, p. 153).

**Dimensions of psychological durability value**

As touched upon in the discussions in the previous sections, several of the dimensions of psychologically durable design can be involved at the same time and affect one another. This is illustrated in Figure 2. The subsequent section discusses the relationship to ‘emotionally durable design’.
The link to emotionally durable design

The discussion of the three dimensions of durable product value in the previous sections touched upon different types of user-product relationships. To clarify these relationships, two distinctions can be made, one between emotion-based and non-emotion-based durability, and one between product instances and product types. Hereby, four distinctive types of durable product relationships can be defined, as shown in Figure 3 and subsequently discussed.
As seen in Figure 3, the vertical dimension employs a distinction between ‘product instance’ and ‘product type’. The importance of this distinction is that it points to two very different types of psychological product durability, which designers need to address in different ways. This can be illustrated by a situation in which a consumer has an emotional bond to a particular shoe model (e.g., Air Jordan V), but replaces these whenever they lose their newness look. These shoes cannot be said to be psychologically durable, since the emotional bond to the shoe model did not result in longer product lifetime. On the other hand, a consumer may instead have an emotional bond to particular product instance of some shoes, for example, because of having had some good experiences related to these particular shoes. In this case, the consumer would be more inclined to keep the shoes, although they lose their newness appearance, since the emotional bond to these particular shoes will not be replaced by other shoes of the same model.

Emotional relationships with product types can in many cases also be psychologically durable. More specifically, if a product type is valued by several consumers, such products would in many cases be sold to other consumers when current

<table>
<thead>
<tr>
<th>Product instance</th>
<th>Emotion-based durability</th>
<th>Non-emotion-based durability</th>
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<tr>
<td></td>
<td>Emotion-based durable product instance relationship</td>
<td>Non-emotion-based durable product instance relationship</td>
</tr>
<tr>
<td>Product type</td>
<td>Emotion-based durable product type relationship</td>
<td>Non-emotion-based durable product type relationship</td>
</tr>
</tbody>
</table>

Figure 3. Types of durable product relationships
owners decide to depart from them, as is also the case, to a large extent, for products such as exclusive watches, cars and furniture. Thus, the durability of product instances and product types are different matters, and designers need to employ different approaches to address these kinds of durability. To address product instance durability, approaches such as personalisation and involvement of consumers in design processes would be relevant, but if to address product type durability they are not, as the product’s special value pertains only to the particular user who was involved in the design process or for whom the product was personalised. On the other hand, if to address product type durability, approaches such as durable aesthetic qualities or limited editions would be relevant.

The horizontal dimension in Figure 3 distinguishes between ‘emotion-based durability’ and ‘non-emotion-based durability’. In this context, the question is, ‘Why would a user refrain from replacing a product when more technologically advanced or more fashionable products emerge if the user does not have an emotional relationship with the product?’ The answer can be formulated in terms of the previously described dimensions of psychologically durable design, i.e., durable instrumental, hedonic and symbolic value. More specifically, the decision to keep a product which in some way seems to be outdated may spring out of rational thinking, ideals, beliefs or similar concerning the value that the product can create, as opposed to being an emotion-based decision. Thus, even if no emotional bond exists, a product may still be psychologically durable if, for a relatively long time, it is perceived to: perform functions in a manner that is considered to have qualities (e.g., the clockwork of a mechanical watch); provide pleasure; or be a means to get recognition from others or to express a desired identity.

In this context, the overlap with Chapman’s (2009) ‘detachment’ should be noted. More specifically, ‘detachment’ describes a situation in which users feel no
emotional connection, have low expectations, and perceive the product favourably because it makes few demands. Instrumental psychologically durable design includes this type of situation, but it is a broader category. More specifically, instrumental psychologically durable design include situations in which a product is appreciated because operating it involves few demands, but it can also include situations in which the opposite is the case, for example, in the case of manual espresso makers, where the user appreciates a higher degree of involvement in the espresso-making process (as compared to automatic espresso makers) in spite of the higher demands for operating it.

Based on the discussion above, the three dimensions of durable product value may be connected to the four overall types of psychologically durable design, as shown in Figure 4. Here it is illustrated that a product has different levels of durability-producing value in its instrumental, hedonic and symbolic dimensions, which together constitute the product’s value-related psychological durability. This durability gives rise to user-product relationships of different strengths in the four relationship dimensions, which together constitute the product’s psychological durability. In other words, a user may form several of the four types of durable relationships, some of which will be more determinant for psychological durability than others. In this context, it should be noted that future-oriented estimates of a design’s psychological durability are hard to make, since predictions of such developments are associated with much uncertainty. However, as the elements of the model contribute to better understanding this matter, analysing designs with this perspective may reduce some of this uncertainty.
Conclusions

Summary

Through a literature review, this paper showed that the existing literature has tended to focus on the means to achieve psychological durability, as opposed to defining the nature of psychologically durable design. For such reasons, psychologically durable design is not clearly defined in the existing literature. This issue was addressed through three main contributions.

First, the paper provided a definition of psychologically durable design in terms of durable instrumental, hedonic and symbolic value. Each of these dimensions of psychologically durable design were divided into intrinsic and extrinsic sub-dimensions: (1) instrumental psychologically durable design concerns function and operation; (2)
hedonic psychologically durable design concerns appearance value and use value; and (3) symbolic psychologically durable design concerns personal value and cultural value. Based on five of the most relevant durable design strategies identified in the literature, the paper provided five empirical examples for each durable value dimension.

Second, the paper clarified the connection between psychologically durable design and emotionally durable design by identifying four types of durable product relationships. These were identified by distinguishing between ‘product instance’ and ‘product type’, as well as ‘emotion-based durability’ and ‘non-emotion-based durability’ (Figure 3). Here it was argued that relationships to product instances and types could be of both an emotional and a non-emotional character. More specifically, a product may be treasured for what it does, and for this reason be kept for a longer period of time, even if no significant emotional bond to it develops. This kind of durability is, therefore, related to rational thinking, ideals, beliefs and similar, for which reason it involves other design strategies than when designing for emotional durability, namely strategies with a greater focus on producing more concrete durable value in instrumental, hedonic and symbolic dimensions.

Third, the three dimensions of durable product value and the four types of durable product relationships were connected in a common model (Figure 4). As shown by this model, the durability in the four durable product relationships can be seen as a result of the durability in the three durable product value dimensions.

**Implications for future research**

In relation to the first contribution, in particular, the definition of instrumental psychological durability stands out in comparison to the existing literature. More specifically, durable instrumental value is normally associated only with absolute or technological obsolescence (see review by Haug, 2017), but as shown through
argumentation and references to empirical examples, products may also be appreciated and kept, even if new products that in many ways are technologically superior emerge. This kind of durability is related to the appreciation of the way such products function or are operated, as illustrated by, for example, mechanical watches and manual espresso makers, respectively. The framework thereby highlights a dimension of psychological design, which needs further exploration.

In relation to the second contribution, the paper showed the importance of distinguishing between product instances and product types, as these are associated with different types of psychological durability and need to be addressed by different design strategies. More specifically, an emotional bond to a product instance can, for example, be a result of the product being a reminder of a personal positive event or that it has been customised for the particular user. Since such emotional bonds concern particular product instances, another product of the same type would not be able to replace it. On the other hand, some product types have a more general emotional appeal, for example, because of their exclusivity (e.g., watches, cars and furniture). When a user decides to give up such a product, it would often be sold to others, in which case these are emotionally durable from a product type perspective. Therefore, the design strategies for addressing durability of relationships to product instances and types differ. More specifically, design strategies for addressing durability of relationships to product instances, for example, include personalisation and involvement in design processes, while the design strategies for addressing durability of relationships to product types, for example, include exclusivity and timelessness. This distinction has not been emphasised in the existing literature on durable design, although it is crucial to consider in relation to design strategies. Thus, this paper provides a frame for future discussions and studies of psychologically durable design.
In relation to the third contribution, the framework demonstrated that the four durable product relationships can be seen as a result of the durability in the three durable product value dimensions. More specifically, based on the user’s experience of product value in the three dimensions, the user may form several of the four types of durable relationships, some of which will be more determinant for psychological durability than others. Thus, the framework provides a link between design value and product relationships, which represents a more nuanced explanation of psychological durability.

As compared to exiting frameworks involving psychological durable design, the framework developed in this paper provides a clear definition of the concept of ‘psychological durable design’. However, as recognised by the paper, other concepts in the literature have some overlap, not the least design for attachment (Odom et al. 2009), emotionally durable design (Chapman 2009), and extrinsic durability- and resilience-building means (Haug 2017). A major difference between these classifications and the framework proposed by this paper is that the existing classifications focus on means for creating psychological durability, while the proposed framework goes deeper by providing explanations for why such means can produce psychological durability. As described above, this is done through definitions of product value durability and durable product relationships. Thereby, the framework contributes with a more overall frame in which concepts and classifications from the existing literature can be positioned.

**Implications for practice**

The definition of psychologically durable design, as provided by this paper, may be used by design practitioners as a framework for the design of longer-lasting products. More specifically, designers may use the defined three types (and six subtypes) psychological durability (Figure 2) and the four durable relationship types (Figure 3) as
an overall guide for incorporating psychological durability into their designs.

In this context, it should be noted that the three dimensions of psychologically durable value are obviously not directly transferable to all other consumer products. For example, the appreciation of products because of the way they work or are operated (e.g., mechanical watches or manual espresso machines), even if they are less efficient than numerous other products in many, may seem difficult to transfer to other electronic products, such as laptops, smartphones, and similar. However, in some cases, it should not necessarily be dismissed. Presently, for example, some people are discarding their smartphones and returning to simple ‘old-school' mobile phones to avoid the stress that may be associated with the many functions offered by a smartphone (Zolfagharifard 2014; Smith 2015). Another potential with regard to longer lasting smartphones is to allow for functional upgrades, as exemplified by modular smartphones (Bolluyt 2016), where it is possible to replace only the parts with which the user is not satisfied, as opposed to replacing the entire product. An example related to changing fashions concerns furniture; as previously mentioned, mid-century modern furniture regained popularity in some cultural contexts during the 1980s and has continued to increase in popularity to this day (Fenton 2015). This, if nothing else, demonstrates that it is, in fact, possible to design furniture with high psychological durability. With regard to clothing, it should be noted that, in recent years, sustainability has become a key concern, and producing ethical fashion is becoming more of a priority for many brands (Claire 2016). In this regard, besides opting for more eco-friendly materials and production processes, psychological durability may also be used as a means to achieve increased sustainability.

Finally, it should be noted that it is not always sustainable for products to have as long a lifetime as possible, for example, if new significantly more energy-efficient
products can be introduced. Thus, designers should consider this aspect before engaging in psychologically durable design strategies. Furthermore, longer product lifespans imply fewer products sold, which raises some challenges for product producers. The central challenge here is to make consumers willing to pay more for products that are of higher quality and last longer, thereby reducing the environmental impact of our consumption. This may be seen as a step towards more meaningful consumption. As formulated by Walker (2006), ‘only by attempting to make our material culture meaningful that we can hope to contribute to a sustainable future’.

References


