Alleviating consumers' negative emotional responses to really new products: The potential of product metaphors

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Abstract Although adopting product innovations could be beneficial for consumers, consumers often show negative emotional responses to innovations. An important reason for these negative emotions is that consumers experience difficulty when learning about really new products (RNPs) because the knowledge required goes beyond consumers' stored knowledge and using RNPs is difficult to imagine. To alleviate consumers' negative emotional responses, this paper conceptually proposes that using product metaphors during designing RNPs could be a promising way to facilitate consumers' learning. Specifically, this paper explores the potential of applying product metaphors in the design of RNPs to facilitate consumer learning through functional and experiential analogies.

Keywords *Negative emotions, Product metaphors, Really new products*

Introduction

Adopting product innovations can be beneficial for consumers because product innovations can provide them with new and important benefits. Based on the innovativeness level of the novel elements, product innovations can be classified into incrementally new products (INPs) and really new products (RNPs) (Garcia & Calantone, 2002). INPs refer to product innovations that are based on current technology to provide incremental improvements of product performance. A new vacuum cleaner that provides more suction power can be considered an INP because it is based on incremental improvements of the current technology. RNPs adopt new technology that enables consumers to do things they could never do before. An example of a RNP is "SmartThings" of Samsung, which is a smart home system (see Figure 1). The smart home system contains a hub and multiple smart devices that are connected it. The smart devices collect various information of the home, such as energy consumption, the presence of family members, door locks, and entry movement. Through an app, people can access this information and make changes, allowing them to monitor and control their home from a distance, which is something they were not yet able to do.

Figure 1. "SmartThings" of Samsung (https://www.smartthings.com/).

Although RNPs provide significant benefits for consumers and can make their life more efficient and interesting, consumers often show negative emotional responses to them, such as anxiety and stress (Mick & Fournier, 1998). These negative emotional responses are mainly caused by consumers' difficulty related to learning what the product is and what it can offer (Wood & Moreau, 2006). For instance, when encountering "SmartThings", consumers may be uncertain of the benefits the various home monitoring possibilities can provide and be worried about how to use the system at home. These negative emotions can hinder consumers' usage and adoption of RNPs. Thus far, prior research has concluded that emotional responses are important for the successful adoption of RNPs (Wood & Moreau, 2006). However, we lack an understanding of how designers can help to alleviate consumers' negative emotional responses to RNPs. This paper aims to explore the role of product design. More specifically, this paper conceptually proposes that using product metaphors during designing RNPs could be a promising way to alleviate consumers' negative emotional response to RNPs through facilitating consumers' learning.

Product metaphors

According to Lakoff and Johnson (1980), a metaphor is defined as "understanding and experiencing one kind of thing in terms of another" (p. 5). A metaphor relates two entities: target and source. Based on the shared similarities, the properties of a source are selected and assigned to a target, to express certain characteristics of the target. A specific kind of metaphors is the product metaphor, which is defined as product designs that "intentionally reference the physical properties of another entity for specific,

expressive purposes" (Hekkert & Cila, 2015, p.199). Product metaphors not only relate the product and the source conceptually in terms of certain meaning associations, but also translate these conceptual associations into tangible forms (Forceville, Hekkert, & Tan, 2006; Hekkert & Cila, 2015; Van Rompay, 2008). As product metaphors relate a source and a product both conceptually and physically, it has the potential to facilitate consumers' learning when product metaphors are used in RNPs. When encountering a product metaphor in a RNP, consumers interpret it through recognizing the physical resemblances between the RNP and the source, identifying the source, and relating the RNP and the source. Then, their knowledge of the source and its specific characteristics can help to understand the RNP through relating this RNP to the source conceptually. An example is the portable Bluetooth speaker "SSSSSpeaker" of the brand aiia (see Figure 2) that can connect with a smartphone to play music outdoors. To highlight its function of portability, the metaphor of a foldable cup for tourists is involved, aiming to help consumers understand the benefit of the speaker.

Using product metaphors can be driven by different design intentions. First of all, designers can use product metaphors for experiential intentions to trigger rich and meaningful product experiences. Designers can also have pragmatic intentions by using product metaphors to provide clues for 1) identification and 2) use and product operation (Cila, Hekkert, & Visch, 2014b; Hekkert & Cila, 2015). As noticed by Hekkert and Cila (2015), the pragmatic intentions of using product metaphors is relevant for launching new products because product metaphors can assist consumers in identifying the product category to which the new product belongs and/or communicate how a product should be used. For example, to help consumers identify that e-book is used for reading, the design of an e-book resembles an actual book, which can help people transfer their knowledge of how to use a book to how to use an e-book. In this case, in order to help consumers learn the new functions of an e-book, the product metaphor of a book is selected due to its most salient quality: reading. In other words, when involving product metaphors in RNPs, it is important to consider the most salient quality of a source because it is easiest for consumers' retrieval and identification. While designing INPs, designers could select some non-salient quality of a source to create sophisticated and interesting product experience (Cila, Hekkert, & Visch, 2014a). We build on and extend these insights by exploring that the pragmatic potential of product metaphors goes beyond assisting in identification and operation. Specifically, we conceptually explore how product metaphors can help consumers to learn and understand the *unique and differentiating* benefits of RNPs (rather than its similarity with corresponding product categories as in identification). Uncovering the effects of product metaphors on consumer response to RNPs is important because it has the potential to facilitate consumers' learning and thereby alleviate negative emotional responses to RNPs. More importantly, as designers are responsible for selecting the sources and mapping them into tangible products

Figure 2. "SSSSSpeaker" of aiia (http://enjoy-aiia.com/)..

(Hekkert & Cila, 2015), it is essential to equip designers with an understanding of these effects.

The potential of product metaphors in RNPs

To discuss the possible effects of product metaphors on consumers' learning of RNPs, we will focus on how product metaphors are associated with RNPs through functional and experiential analogies.

A metaphor relates two entities conceptually (Lakoff & Johnson, 1980). When the source is a familiar concept and the target is an unfamiliar one, the metaphor can thus help to explain the unfamiliar target through relating it to the familiar source. This process of relating unfamiliar and familiar concepts is similar to analogical learning, which refers to knowledge transfer from the source to the target domain (Gregan Paxton & John, 1997). Prior research in the field of advertising has demonstrated that when describing a RNP with an analogy in an advertisement, consumers' comprehension of RNPs will increase because consumers will transfer important characteristics from the source to the target (Houssi, Morel, & Hultink, 2009). Correspondingly, we propose that a product metaphor can help in understanding RNPs. Specifically, when a product metaphor is used in a RNP, the conceptual association between the source and the RNP is built when consumers interpret the product metaphor. Thus, consumers' learning is facilitated through mapping and transferring the knowledge from the source domain to the RNP. It has been proposed that successful analogical learning starts from the identification of the source domain, which is the precondition for activating the knowledge in the source domain. More importantly, visible similarities between source and target can be helpful for consumers' identification (Forbus, Gentner, & Rattermann, 1993). As product metaphors include physical resemblances to express the conceptual associations, product metaphors are equipped with the visual cue for consumers to identify the source domain and further activate the relevant knowledge. Then, consumers can map and transfer the knowledge to learn about certain characteristics and benefits of the RNP, leading to enhanced comprehension of the RNP. For example, in the case of "SSSSSpeaker", the unique benefit is the portability. The product metaphor that is used to build a functional analogy and communicate this benefit is that of a foldable cup for tourists. In order to integrate this conceptual

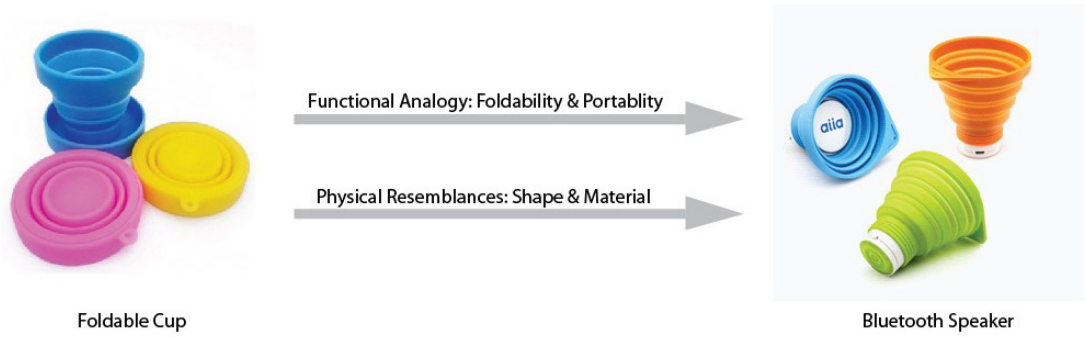

Figure 3. Product metaphor from foldable cup to Bluetooth speaker.

association into physical product appearance, the shape and material of foldable cups are also used in the design of the speakers, as shown in Figure 3. Thus, when seeing the speaker, consumers will identify the physical similarities between the speaker and a foldable cup. Next, they are more likely to transfer the characteristic of foldability, and the consequent portability, from the cup to the speaker.

In addition to a functional analogy, it is possible to build an experiential analogy between a source and a target. With an experiential analogy, the knowledge base used for the comparison centers experiences (e.g., first kiss), rather than different products, such as in the 'SSSSSpeaker' example (Goode, Dahl, & Moreau, 2010). Consumers gain various experiences of events in daily life. The emotions that gleaned from consumers' daily experiences can be stored in their memory, which is called emotional knowledge. Similar to functional knowledge, emotional knowledge can also be activated, mapped and transferred to create expectations of how targets will be experienced (Comblain, D'Argembeau, & Van der Linden, 2005). In other words, experiential analogies can transfer emotional knowledge. Prior research demonstrated that providing an experiential analogy can improve consumers' preferences of the product described in the advertisement when the provided base experience is preferred (Goode et al., 2010). The inclusion of illustrating a past experience (e.g., "like hot tubbing after an intense day on the ski slopes") leads to the enhanced preference of the product because the emotional knowledge related to the past experience is activated and transferred to the target product.

As consumers have no relevant experiences with RNPs, imagining how to use these products challenges them. It has been demonstrated that helping consumers to think of specific experiences in an advertisement (e.g., Picture yourself…) can ease this difficulty and lead to enhanced evaluations of RNPs (Zhao, Hoeffler, & Dahl, 2012). We propose that product metaphors in RNPs can also ease consumers' difficulty of imagining relevant usage activities, through building an experiential analogy between the source and the RNP. Specifically, when encountering RNPs with product metaphors, consumers are likely to transfer their past experiences with and the emotional knowledge of the source to the RNP. Through activating and mapping this knowledge, consumers can more easily imagine experiences relevant to using the RNP and how this would make them feel. In this way, the difficulty of imagining relevant usage situations of RNPs will reduce and consumers' learning of RNPs is facilitated. For instance, "Mother" (see Figure 4a) is a smart home system similar to "SmartThings" (see Figure 1). Different from "SmartThings", the product metaphor of a mother is used in the design of this smart home system. This product metaphor is likely to trigger experiences related to asking one's own mother for specific information regarding the home (e.g., location of devices, presence of people). Consumers can thus build the experiential analogy from their experiences with their own mother to the smart home system, as

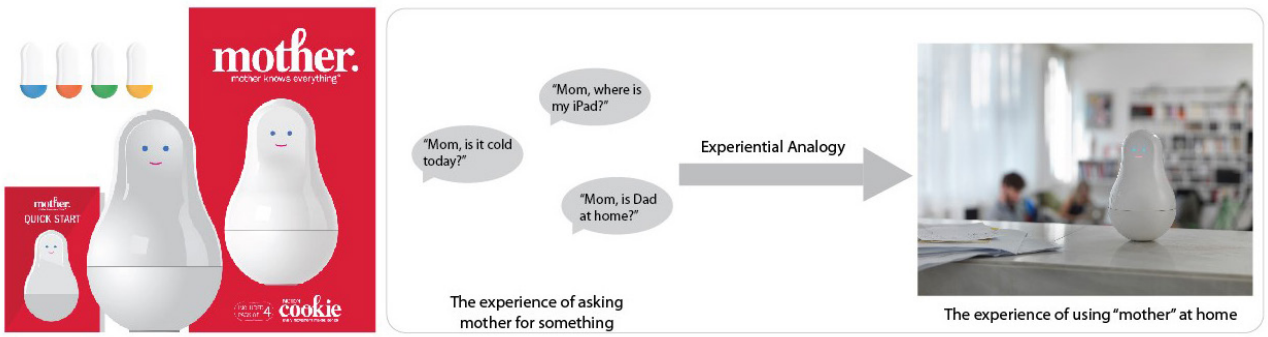

Figure 4a. The smart home system: "Mother" (https://sen.se/mother/). Figure 4b. Experiential analogy from personal experiences to the usage experience of "Mother".

illustrated in Figure 4b. As a result, consumers can more easily imagine how they could use the product "Mother" at home. Consequently, the difficulty of imagining how to use RNPs could be reduced by involving product metaphors.

Discussion

When encountering RNPs, consumers often have negative emotional responses because they experience difficulty when learning about these products. Building on prior research on how designers use product metaphors (Cila et al., 2014b; Hekkert & Cila, 2015), this paper conceptually proposes and explores the potential of using product metaphors in RNPs to facilitate consumers' learning through building functional and experiential analogies. To validate these proposed effects, we plan to conduct several empirical studies in the near future to examine the effects of product metaphors on consumers' learning and consumers' negative responses to RNPs.

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