Understanding roles of care in the design process for sustainable behaviour: commitment and responsibility in packaging reuse

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Abstract: Care practice often relates to provoking an emotional or affective response from users, satisfying emotional needs and thus encouraging care for the product. Care practice in the process of promoting feelings of responsibility and commitment towards products, services and the environment to users also encourages sustainable behaviour. However, there is little formal interpretation of the pragmatic approach of care in the context of the design process for sustainable behaviour – essentially, how we adapt this meaning of care to the process of design for sustainable behaviour. Reuse is a form of sustainable behaviour; eliciting such behaviour requires a good understanding of forms of care that involve responsibility and commitment during the design process, as these encourage users to care about the situation and take care of objects in order to sustain their condition, or, where this is not possible, to reduce obsolescence by returning objects to manufacturers (or shops), or recycling them. This paper explores the formal role of forms of care involving responsibility and commitment in the design process. The blueprint for a design process for reuse behaviour was developed with six packaging design professionals, confirming that providing a feeling of responsibility and commitment to users should be considered at an early stage. The adapted design process was applied in two packaging reuse design studies, providing a better understanding of the role of these forms of care to designers as a means to create meaningful interaction and thus a better user-object relationship. Promoting reuse behaviour to users by considering user responsibility and commitment as an essential basis of design enables conscious decision-making and attitude change in users, triggering and motivating behaviour and subsequently enabling lasting behaviour change.

Introduction

Care is about a relationship with a subject in need, and it always involves others, but also particular circumstances (Rodgers et al., 2019). It is delivered by understanding the care-receiver's needs, their situation, their requirements and the translation of that consideration into an act, object or gesture that attempts to answer or meet those needs (Dilnot, 2017). Care is "persuasive and persuades someone to do something that changes their behaviour" (Carleklev, 2017). Good care practice combines certain activities, attitudes, and knowledge of the care-receiver and the situation (Gastmans, 2006), and is exhibited when the care-giver is competent, aware of the receiver's needs, has knowledge, and is responsive and respectful (Lachman, 2012). Care is a reciprocal practice, occurring within the framework of a relationship between the care-giver and care-receiver (Gastmans,

2006). A feedback cycle between the care-giver and the care-receiver, by providing meaningful responses between the two parties, makes the continuous caring process and caring relationships unique (Mayeroff, 1971). Good design should set out to connect people, things and situations and build a relationship through helping care-receivers, which requires listening deeply, looking closely, and being responsive to the care-receiver's context and expressed needs (Rodgers et al., 2019).

Bubeck (1995) argues that the caring relationship does not necessarily involve or invoke any specific emotional attachment. Within the literature of design for sustainability, a pragmatic approach, focused less on emotional responses around responsibility or a commitment to objects' use and end of use, has been offered to promote caring behaviour in users. Caring behaviour is as much about maintaining or mending subjects (that is,

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patients) as it is about ways to "let things go gracefully" in nursing practice (Watson 1985, p.7). The process aims to sustain a subject's condition, or, where this is not possible, to reduce the pain and distress of the inevitable to help them "let go peacefully" (Watson 1985, p.7). This resonates with the requirements for sustainable user behaviour. Sustainable users wish to own high-quality objects while keeping their accumulation of goods to a minimum, and they tend to practise a certain detachment towards the objects they own, to deal with the issue of obsolescence (Marchand, 2003). Within the field of design for sustainable behaviour (Lockton et al., 2008; Lilley et al., 2005; Rodriguez and Boks, 2005; Elias et al., 2007; Bhamra et al., 2008; Wever et al., 2008), designers have the opportunity to take these potential behaviour change opportunities into account, and take responsibility for them in the design process (Niedderer, 2018). Considering the care relationship during the design process helps the process respond to and promote the requirements of sustainable behaviour in users.

Reuse is an innovative model in the sustainable packaging design field which offers an opportunity to deliver sustainable behaviour, enabled by a caring relationship and conscious decision-making. In this study, we attempt to provide a better understanding of the potential role of the pragmatic approach of care in the design process for reuse behaviour, and its implication for design that enables sustainable behaviour

Research methodology
In Action Research methodology, the researchers take action by setting themselves within the practice and involve themselves by creating or promoting change (Lewin, 1946). This research takes the Action Research approach of "learning by doing" (Mills, 2003) to explore a real situation.

Responsibility and commitment in the packaging design process
In order to provide the designer with a better understanding of how care in the forms of responsibility and commitment facilitates the design process for sustainable behaviour, this study first identified how instilling the feeling of responsibility and commitment in users best fits into the design process. This was established by conducting in-depth interviews with six

design professionals who have worked in the packaging industry for at least two decades. The experts confirmed that users' behaviour in relation to responsibility and commitment was considered at an early stage of the design process. They confirmed that designers tend to analyse the drivers for object maintenance or material circulation in users' behaviour as one of the key decision-making factors. Designers tend to aim to encourage responsible use and disposal in users by considering durable and reusable structures and providing relevant recyclable materials and environments.

Design process for reuse behaviour
To identify the formal place of user responsibility and commitment at an early stage of the design process, this study adapted a sketch of the design process for sustainable behaviour by Zachrisson et al. (2011) and developed a packaging design process for reuse behaviour. Figure 1 shows this sketch of the design process adapted for reuse behaviour, developed with packaging design professionals for application to further design studies.
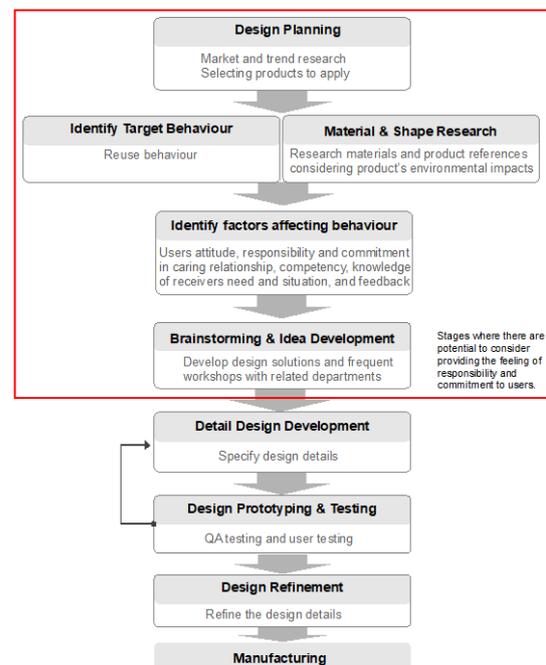

Figure 1. An adapted sketch of the design process for reuse behaviour.

Design planning: the stage at which designers conduct market research and identify a potential product brand and design that can

promote responsibility and commitment in users.

Identifying target behaviour: the stage at which designers explore reuse behaviour.

Material and shape research: the stage where material and structure are researched, along with a design that can promote responsibility and commitment in users.

Identifying factors affecting behaviour: the stage at which users' attitude, competency, the knowledge of care-receivers' (products/environments) needs and situation, and viable feedback loops are identified. Users' attitude and competency were analysed and users categorised into three types: attentive users, cautious participants and careless consumers (Choi, 2020). The needs and situations of care-receivers are dependent on the context and the types of product involved. This study identifies care-receivers' (products') needs as 'to be reused', and different design briefs were set by designers to apply in the design process.
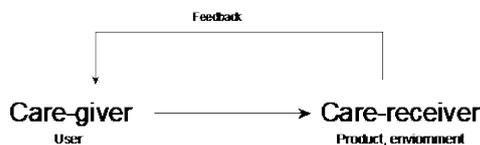

Figure 2. Feedback cycle between care-giver and care-receiver

To offer the designer a better understanding of the carative factors that encourage responsibility and commitment in users, these were extracted through the process of translating caring factors from nursing practice to design using metaphor, and translated to a user-object context with phrases more applicable to the process of design (Choi, 2018). The factors selected aim to provide feedback about care-givers' actions towards the product, aiming towards a continuous caring process (Figure 2).

Brainstorming & Idea Development: the stage at which designers start generating ideas to promote responsibility and commitment in users.

Caring themes and carative factors

Figure 3. **Carative factors for sustainable disposal behavior: Reuse, Return and Recycle.**

The word "carative" in caring science is defined as "love and charity", and is seen as the motive for all caring. The factors enabling the caring process aim to sustain and maintain (or enhance) a subject's condition, or, where this is not possible, to reduce obsolescence to enable them to be disposed sustainably. (Watson, 1985, p.7). Such a caring process influences the user's view of an object's value during the use phase and end-of-use stage, and aims to encourage users' commitment to, and responsibility for, preserving the value of the product's current condition for other positive opportunities. Thirty-five influential factors that were found during the research had a direct impact on creating original carative factors for influencing caring behaviour. A collection of inspirational factors was categorised within three themes, namely *responsibility, commitment*, and *empathy* (Blustein 1991; Tronto, 1993; Shaw et al., 2016), in a card format to inform the design process (Figure 3). *Empathy* indicates empathic emotions in the user towards other potential users, or the creation of an appropriate environment in which to elicit the emotional "desire to do good" response in users that supports the promotion of responsibility and commitment to deliver care action (Tronto, 1993).

Workshop and design study
The aims of the workshop and design study were twofold: to provide a critical research environment to enable designers to better understand the role of care in the packaging design process in order to adapt the process for reuse behaviour, and to develop a design process to produce case-specific design knowledge to address the concept of care in the design process.

Design workshop: Reuse

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A workshop was held with five designers for research, idea generation and discussion. During the first session, the participants conducted market and trend research and identified opportunities to encourage responsibility and commitment in the use and disposal of lipstick packaging and shampoo containers (Figure 4). The participants were then asked to generate an image board, focusing on materials and structural design to encourage reuse behaviour (Figure5). Participants were then grouped into pairs to generate design concepts using a Carative Factors Inspirational Cards Toolkit', exploring the how the design process could encourage reuse behaviour in users. (Figure 6).
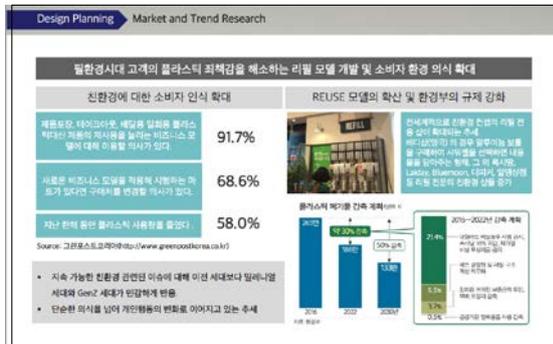

Figure 4. Market and trend research.

Figure 5. An image board, focusing on materials and structural design to encourage reuse behaviour.

Figure 6. Workshop idea generation session using carative factors.

This also enabled them to expand the caring approach and review the benefits of the Toolkit. The concepts are summarised according to user type and the three carative themes (Table 1). The final session discussed whether the designers understood the role of forms of care that involve responsibility and commitment by following the design process adapted for reuse behaviour using the toolkit.

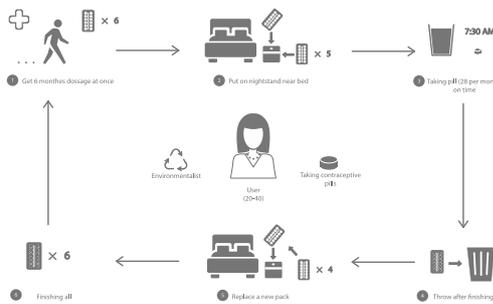|		Attentive users	Cautious participants	Careless consumers
Group 1	Empathy	Apply a cute design and provide a final destination.		
Group 1	Responsibility	Provide information on packaging on how to dispose of the product.	A lipstick cap made of distinctive recyclable material.	
Group 1	Commitment	Create an inner divider that is easy to disassemble, made of paper-based material, to dispose of lipstick separately. Services to personalise the cap then return to the shop. These are washed and reproduced to be used by the same user. Reward points scheme when the used lipsticks are returned to the shop. Inform users of the remanufacturing process of the returned cosmetic products. Inform users about what the product will become once they return lipstick packaging to the manufacturer		Reward coupon or discount scheme when reusing lipstick packaging. Deposit scheme – user pays deposit and gets it back when it is returned.
Group 2	Empathy, Responsibility, Commitment	Inform users about the environmental impact they are creating. Create visible graphic information on how to dispose of shampoo bottles. Provide information about the return and reward scheme on the pack. Apply a different colour to each part to make a connection with the location to send it to. Part of the product price is a charity donation. Users will be informed how their donation has been used once they return the bottles. Apply different points to each part of the returned items and award points accordingly.		

Table 1. Generated ideas during the workshop.

Group 1 explored new design ideas around lipstick packaging to promote refill behaviour for responsible use. Prompted by the carative factors, the resulting concepts included a new ease-of-disassembly structural design for

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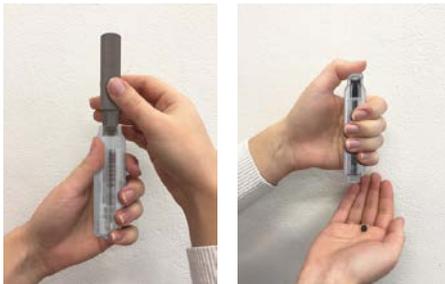commitment and responsibility in packaging reuse

lipstick, providing visible graphical information on the pack giving instructions for refilling and returning the packaging to shops for responsible and decisive disposal at the end-of-use phase. Group 2 explored the new ideas around shampoo container design to encourage users to refill them. By using the Inspirational Carative Factors Cards during the idea generation process, one strong, solid concept was created: refillable shampoo packaging that resembles the structure and finish of a ceramic vase, to appeal to attentive users. Each part of the item can be returned at different points, and earn points for the user accordingly.

Design study

Figure 7. The concept generated by designer 1.

Designer 1 explored the problem of a wasteful attitude towards pharmaceutical products and packaging. During the first part of project, the participant first conducted research into the current market and trends. Next, research into materials and structure and design precedents was conducted with reuse behaviour set as a target. Finally, the designer explored ideas around how the design could be improved to encourage users towards reuse behaviour by using the Carative Factors Inspirational Cards.

Figure 8. Selected cards applied during the early design process.

The designer explored new ideas around a refillable contraceptive pills dispenser. A local pharmacy offers click-and-collect prescriptions, which are packed in recycled and recyclable paper cartridges (Figure 7). Prompted by the suggestions on the Carative Factors Cards, such as "notify the amount of use time left; inform users about the impact and result of their behaviour", the design idea promoted the responsible use of dispensers (Figure 8). The dispenser is connected to a smartphone application that helps users to manage their contraceptive pill consumption, gives notice of expiry dates, provides information on how and when to take the pills and where to dispose of pharmaceutical waste and cartridges, aiming to encourage responsible and decisive disposal of cartridges at the end-of-use phase.

Findings

By instilling responsibility and commitment in users, the designers focused on creating a relationship between users and objects by proposing ways to handle the product with care during the use phase and the responsible and decisive disposal of these objects at the end-of-use phase. Overall, the designers reported that the Toolkit helped them to understand the factors that are influential for behaviour involving responsibility and commitment. According to Designer 1, following the process expanded the range of approaches to the

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caring relationship, enabling the consideration of the whole lifecycle of the product, particularly the end-of-use phase, at an early stage of the design process. Promoting reuse behaviour by considering user responsibility and commitment allows designers to identify opportunities for design intervention at multiple stages. Refilling, returning packaging to the manufacturer/shop and recycling were explored to postpone product replacement or increase material circulation, thus consuming fewer resources.

Discussion

Previously, the role of care in design has been widely seen as providing an opportunity to establish an emotional bond or attachment between user and product (Chapman, 2005; Walker, 2006; Schifferstein & Zwartkruis-Pelgrim, 2008) within the process of design for sustainable behaviour. This study shows that care has an additional role to play in providing a responsibility and commitment-oriented relationship between users and products that, together with associated practices of care, can promote sustainable behaviour, thus helping to sustain and extend product lifetimes.

Considering the influential factors for care in the form of responsibility during the design process enables designers to explore ways to provide a moral obligation in users to do what is virtuous and "the right thing". The designers in Group 2 attempted to use durable materials and provide visible graphical information about the refill and return process to encourage responsible use and decisive end-of-use disposal in users.

Promoting reuse behaviour by considering care in the form of commitment enables designers to explore ways to support users in making conscious decisions based on their own ethical beliefs, and in acting with motivation influenced by that belief (Blustein, 1991). The IoT-based refillable contraceptive pill dispenser encourages users to make conscious decisions by providing notification of expiry dates and information on how and where to dispose of pharmaceutical waste. Design intervention has the potential to produce certain social norms and shared intentions among group members (Shaw et al., 2015), encouraging both a motivation to act and behaviour habits that result in lasting behaviour change,

Furthermore, forms of care involving responsibility and commitment have a role in providing a continual feedback cycle between care-giver and care-receiver. Through appropriate reminders given to users by the

product itself, or users being informed through design that responds to their behaviour, the relationship with the product creates meaning, value and experience, and the caring role in the design process becomes stronger, potentially promoting sustainable behaviour.

Last, considering how to motivate the user towards responsibility and commitment during the design process provided an opportunity for designers to explore ways to move towards a better future. Designers tend to consider and provide sustainable materials and structures more specifically, and to encode these into the configuration of the product with an enhanced level of knowledge and understanding of its users (Dilnot, 2017).

It should be noted that the study was based on a limited sample. Moreover, the actual behavioural impact on the environment has not been taken into account. Nevertheless, despite these limitations, this study has demonstrated that a good understanding of care in the forms of responsibility and commitment in the design process has the potential to promote sustainable behaviour by enabling conscious decision-making, allowing products to have a longer lifespan.

Conclusions

This exploratory study attempted to understand the formal positioning of where care in the forms of responsibility and commitment should be considered in the design process to promote sustainable behaviour. The toolkit that was used was designed to offer caring factors from human care theory, metaphorically translated to object care, as a useful aid for designers to understand the relationship of design and care during a design project and workshop. The potential benefits of considering responsibility and commitment as an element in the design process were established and its positive effects on promoting sustainable behaviour, lengthening packaging lifespan and increasing material circulation were demonstrated. This study will contribute to the growing field of design for sustainable behaviour.

Acknowledgments

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