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Extending the Lifespan of Garments Globally through Local Upcycling: A Multimethod Approach

Hester Vanacker[a,b], Andrée-Anne Lemieux[b], Kirsi Laitala[c], Michelle Dindi[d], Samir Lamouri[a], Sophie Bonnier [e]
a) UMRCNRS 8LAMIH, Arts et Métiers Sciences et Technologies, Institute of Technology, Paris, France
b) IFM-Kering Sustainability Chair, Institut Français de la Mode, Paris, France
c) Consumption Research Norway (SIFO), Oslo Metropolitan University, Oslo, Norway
d) Independent Researcher
e) Kering, Paris, France

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Abstract: Extending the lifespan of garments is considered a solution to counteract a culture that views them as disposable objects. However, how this is to be done in practice remains unclear. Using a multimethod approach, this study aims to investigate how garments can adapt to their local environment(s) and user(s) so that they can go through different life cycles. To this end, the authors combined data from semi-structured interviews conducted in five different countries and enriched them through triangulation with available literature. We discovered that the durability of garments is dynamic in nature, and that upcycling is a method to extend their lifespans. Furthermore, how the materials of the garment are perceived locally, influences if it is considered eligible for upcycling. As local conditions have not been considered in the definition of the concept so far, we have defined local upcycling as: a process in which materials and garments that are considered worth discarding in their current state are transformed into a product of higher value that is suitable for the local environment, eliminating the need for a new product. Although the lack of field research at the organizational level is a limitation of this study, the authors view this as a potential avenue for future research.

Introduction

Upcycling is an integral part of modern fashion (Popa and Curteza 2024). The latter industry operates within a mass production system, where consumption depends on widespread acceptance and even enjoyment of exchangeability—replacing the old, the broken, and the out-of-fashion with the new. This serial replacement capacity leads also to the capacity to discard without concern (Hawkins 2001). The habit of discarding products after use (Paras and Antonela 2018) has increasingly extended to garments, with the textile industry generating 92 million tons of waste yearly (Abbate et al. 2024). While a common definition for textile waste remains ambiguous, the European commission has developed a set of end-of-waste criteria, forming the basis for its policy documents (European Commission 2023).

Textile reuse refers to various means of prolonging the practical service life of textile products by transferring them to new owners (Fortuna and Diyamandoglu 2017). Textile recycling primarily refers to the reprocessing of pre- or postconsumer textile waste for use in new textile or non-textile products (Sandin and Peters 2018). If a product from a recycled material has a higher value (or quality) than the original product, it is termed upcycling (Sandin and Peters 2018). Upcycling involves reusing clothing products that are no longer useful or have reached the end of their life cycle and converting them into new, value-added products (Popa and Curteza 2024). Over the last decade, the term “upcycling” has been introduced and integrated into the discourse on sustainability efforts, first appearing in William McDonough’s book “Cradle to Cradle” (McDonough and Braungart 2002). Sung (2015) observed that the concept has received increasing attention in recent years from numerous business practitioners, researchers, craft professionals, and hobbyists, a trend similarly noted by other authors (Agrawal and Bhatt 2020; Aus et al. 2021; Emgin 2012; Paras and Antonela 2018; Popa and Curteza 2024; Sung 2023).
Research findings show that the main goal of upcycling is to increase the lifespan of a product

and/or its materials (Paras and Antonela 2018), thereby enhancing its durability. The authors previously defined garment durability as the ongoing interaction between a garment and its changing environment(s) and user(s), enabling it to move through different life cycles via the practices of care, mending and repair. This definition was formed via a literature review (Vanacker et al. 2023) and later confirmed in the field through semi-structured interviews. These interviews were organically initiated during a field visit to the Kantamanto market in Ghana, where Authors 1 and 2 engaged in a range of exchanges with actors who were part of the local value chain.

As one of the largest second-hand clothing markets worldwide, the Kantamanto community succeeds in recirculating approximately 25 million garments monthly (The OR Foundation 2021). Learning from these initial conversations led to their continuation with other communities worldwide, particularly in France, Indonesia, Norway, and South Africa. Consciously, these countries were positioned in both the Global North and Global South. Although the aim was to understand garment durability better, many participants naturally referred to upcycling. This led the authors to shift from a more global vision of garment durability to a focus on how upcycling has the potential to making garments last locally. Based on this, the following research questions are posited: (1) How are upcycling and garment durability interconnected? (2) Which materials are considered suitable for “upcycling”? (3) How do local conditions influence upcycling practices? To answer these questions, the data gathered from semi-structured interviews were combined with findings from a literature review, using a multimethod study design.

The remainder of this paper is organized as follows: First, the method is explained, and its relevance in answering the research questions is demonstrated. This section is followed by the findings and an interpretation of the findings in the discussion. Finally, the conclusions, including the study limitations and future research perspectives, are explained.

Methodology

Study design—Multimethod approach

Multimethod research involves combining any different methods (Hunter and Brewer 2015) and is an appropriate research response to understanding, explaining, and intervening for transformation (Cram and Mertens 2015).

Data gathering through semi-structured interviews

Semi-structured interviews enable researchers to understand the actors’ behaviors and interactions and capture their voices (Daniels and Cannice 2004; Denzin and Lincoln 2011). The study was conducted in five countries: France and Norway in the Global North and Ghana, Indonesia, and South Africa in the Global South. This selection enabled the analysis of different sociocultural, economic, and political landscapes. Furthermore, each country was accessible to at least one of the interviewers. Many global challenges, such as climate change and economic inequality, affect northern and southern regions differently. Including both perspectives is crucial when studying these challenges. This allowed for comparisons across diverse communities and helped identify universal patterns and context-specific nuances.

In total, 73 participants were selected through purposive sampling based on their technical and strategic knowledge of the design, production, use, reuse, sorting, repurposing, and recycling of garments and textiles which they have obtained through their work as a designer, activist, brand owner, second-hand vendor, student, tailor, upcycler or sorting center. The interviews were conducted between January and May 2024 and lasted for an average of 45 min. Approximately half of these occurred in person, whereas the other half were conducted online. The transcripts were made available to each participant, who had the opportunity to provide feedback. This step was crucial to ensure that the principles of participatory research, which are rooted in collaboration (Kindon, Pain, and Kesby 2007), are adhered to and that the results are used and interpreted in a way that is representative of the interviews.

Data analysis

The available literature on upcycling was reviewed prior to the interviews, building upon two extensive literature reviews conducted by the authors on garment durability (Vanacker et al. 2023; Vanacker, Lemieux, and Bonnier 2022). The data analysis from the interviews was conducted using inductive coding, which is exploratory in nature and enables themes to

emerge organically. During the data analysis stage and given the iterative nature of a qualitative approach of interviews in multimethod research, we revisited the literature at different points to help contextualize the research findings within a broader framework. Furthermore, the literature referred to evolved throughout this process, as the focus of the research did as well (Hesse-Biber 2010).

Value-informed evaluation framework

This study employed a qualitative research methodology rooted in a value-based evaluation framework that describes and understands rather than predicts or controls (Streubert and Carpenter 1999). Participatory Action Research (PAR) is characterized by its participatory and action-oriented nature (Kindon et al. 2007). PAR assumes that "those who have been most systematically excluded, suppressed, or denied possess particularly insightful knowledge" (Cammarota and Fine 2008). Multimethod research helps to counteract this oppression as it enables the inclusion of indigenous research to reinforce the importance of respectful research relationships that strengthen connectedness and knowledge (Cram and Mertens 2015). Therefore, the authors deliberately chose to conduct the interviews in 5 different countries with a cultural insider for each region. Furthermore, the literature analyzed includes sources from both Native and Western science.

Results

The findings of the data analysis were organized according to the three research questions. First, the relationship between garment durability and upcycling was investigated. Second, we assessed the types of materials suitable for upcycling, and finally, we examined how upcycling was defined.

The link between garment durability and upcycling

As mentioned in the Introduction, the primary goal of upcycling is to increase the lifespan of a product and/or its materials (Paras and Antonela 2018), thereby enhancing its durability. Both concepts were confirmed to be closely linked during the interviews. A key trend emerging from the data was that durability is "dynamic," as opposed to "static," which resists any changes. The authors believe that this concept can be defined by the relationship created by the wearer and that it continuously evolves through cycles of wear, care, repair, and remanufacturing. A French upcycling brand explains that the different cycles a garment undergoes to make it last do not necessarily result in it remaining in the same condition. Participants mention the aspect of change, but also the aspect of use. A product can remain the same, but it can also be used differently. An upcycling designer in Ghana perceives this as changing the destiny of garments. Since "change" is perceived as a key characteristic of durability, it suggests that transforming a garment's appearance through remanufacturing or upcycling can contribute to enhancing its durability. This contradicts the conventional definition of durability, which typically implies that a product can withstand any type of change (Vanacker et al. 2022).

Materials appropriate for upcycling

While a conventional design process begins with a design from a fabric, in upcycling, the creative process most often begins with an already-made garment. Its elements, such as pockets, trims, belts, and other details, inspire designers and are often preserved to make the garments even more attractive. This creates an increased need for creativity, which most designers identified as stimulating during the interviews.

Creativity in this context involves taking existing materials and adding value to them. As one designer explained: This suggests that what may be seen as restrictions by certain designers can become a source of inspiration for others in the upcycling design process. For example, adaptations such as smaller pattern pieces or the use of standardized designs offer greater flexibility in fabric and color combinations and substitutions (J. Han, Seo, and Ko 2017). However, this flexibility has its limitations, as respondents from all regions reported that upcycling with low-quality (multi) synthetic materials, primarily from fast fashion garments, is not feasible. In Ghana, for example, communities struggle to integrate polyester garments into their local value chains as it is not comfortable to wear in the local climate and the value of the material is perceived to be extremely low. The latter perception was confirmed by a large-scale upcycler in France, which also does not include low-quality materials in its remanufacturing process.

One upcycling brand shared that after initially accepting garments with all types of fibers, they now only work with denim, preferably 100% cotton, to extend the life of a material that has an environmentally damaging production process. It is understandable that certain materials are either too damaged or of insufficient quality to be upcycled successfully. However, several designers have questioned whether it is appropriate to dismantle an entire garment for upcycling when it is still in perfect or near-perfect condition. Other participants countered that if a particular garment can no longer be used in its current form, or its look is not desirable, design in the sense of upcycling acts as a tool of transformation, reintroducing what was once considered waste back into society. This opposes the theory that an object is considered "dead" once it is disposed of (Han, Seo, and Ko 2017; Zhuo 2014) and supports the idea that upcycling can give it a second life.

The materials considered suitable for upcycling, as noted by both the participants and the literature, vary greatly and include "used materials," "waste materials," "obsolete materials," "discarded materials," "available materials," "useless materials," "textile waste," "leftovers," or simply "waste" (Agrawal and Bhatt 2020; Cumming 2017; J. Han et al. 2017; Sung 2015). This suggests that upcycling can only be performed with materials that have already been used and are of no or low value; hence, this is why a person discards them or is on the verge of doing so (Harris, Roby, and Dibb 2015; Heiskanen and Jalas 2003).

In contrast, certain studies claim the greatest success in translating upcycling to mainstream retail is by using post-industrial (or pre-consumer) waste, as these textiles provide more consistent quality and reliable supply as source materials (J. Han et al. 2017). They support this vision by claiming that working with postconsumer clothing on a larger scale is more challenging and comes with more restrictions, especially regarding the availability and reliability of materials with controlled quality in terms of composition and impurities (J. Han et al. 2017; Zhuo 2014).

The influence of local conditions on upcycling

Local conditions, such as the climate, customs or culture, influence garment durability (Vanacker et al. 2023); thus, communities also adopt this approach regarding upcycling. Upcycling involves a combination of individuals, knowledge, ideas, needs, and creativity. Therefore, there is no identical upcycling process or result for each product produced (Parung and Viviany 2022). These practices in product (re)creation with used materials at the individual level are claimed to be deep-rooted collective human behaviors. However, how they have evolved over time and how they can be harnessed at the household level to make bigger impacts have not been investigated (Sung 2015).

Bramston and Maycroft (2013) suggested that upcycling practitioners gain an opportunity to develop an inherent understanding of objects, merge disciplines, cultures, and experiences, and create subjective and individual beauty while maintaining the sentimental value of a used product. The interviewed designers share the latter perspective, as they believe that upcycling offers the opportunity to add value to the already existing value of a garment. One sorting center in South Africa believes that products are ideally upcycled in the communities or areas where they are worn. This upcycling also supports economic localization by utilizing locally sourced materials, workforce, and skills, in addition to the development of local communities by engaging with the public through activities connected to sustainable consumption, skills sharing, and education (Sara. Han et al. 2017).

In South Africa, a few brands utilize local scraps and leftovers to create upcycled products, which they redistribute within the same community. This approach reduces the need for transport, minimizing the carbon emissions and enhancing the positive impact of upcycling. However, one small upcycling brand mentioned the difficulty of keeping the local aspect in mind when sourcing similar-looking materials, mostly garments, to achieve certain production volumes, knowing that these garments often travel long distances before reaching the production facility. Across the five regions studied, upcycling involves some kind of transformation, but the desired outcome

depends on local skills, style, infrastructure, culture and demand.

Discussion

In this section, we interpret the above findings to identify the contributions of this study. Garment durability and upcycling are intrinsically related. Through the interviews, garment durability was determined to be "dynamic," as opposed to "static," and upcycling is a method of increasing the durability of garments, which can be in various forms. However, a clear definition of upcycling is lacking. An upcycler from France summarized very concisely the concept's ambiguity: "The meaning of upcycling is not very precise and is interpreted in different ways by many people." However, certain elements continue to serve as building blocks for defining the concept, which is considered the second contribution of this study.

Upcycling involves transforming materials to have a higher value at the end of the process than at the beginning, differentiating it from downcycling and recycling. The goal of upcycling is to avoid wasting valuable materials by providing them with a new purpose or second life. The authors identified a clear gap, notably after connecting upcycling with garment durability, in consideration of how local conditions affect its meaning. Where a garment is worn influences how the wearer(s) will make it last, as upcycling is influenced by individuals, knowledge, ideas, needs, and creativity.

Based on this, the authors describe local upcycling as follows: a process in which materials and garments that are considered worth discarding in their current state are transformed into a product of higher value that is suitable for the local environment, eliminating the need for a new product. This suggests that discarded or soon-to-be-discarded materials are no longer labeled as waste, as they still have value. In addition, local conditions were considered to ensure that the craftsmanship and cultural appropriateness developed by the local community were honored. Third, the authors identified that materials fit for upcycling have ambiguous labels, and the criteria for distinguishing them are lacking. This issue also extends to sorting centers, which lack transparency regarding how garments are separated and where they ultimately end up.

Conclusions

This study used a multimethod approach to investigate the value of local upcycling to increase garment durability. Based on the findings, there are several contributions to the field. First, we identified garment durability as a dynamic concept involving upcycling, which adapts and transforms garments based on the user and environment. This contradicts the conventional understanding of the concept of durability as resistance. Second, because upcycling primarily does not begin from the fabric, the imposed restrictions are deemed a source of inspiration. While this stimulates greater creativity, the respondents found it unfeasible to upcycle low-quality (multi) synthetic materials, mainly from fast fashion garments. Hence, we identify the restrictions on this concept. Third, the study identified the need to stop referring to upcyclable materials as waste, as they still have enough value for certain people to be reused, even if others consider them worth discarding. This also includes the need to consider the recipient communities when sorting materials. Finally, keeping local conditions in mind, the authors defined upcycling as a process in which materials and garments that are considered worth discarding in their current state are transformed into a product of higher value that is suitable for the local environment, eliminating the need for a new product.

This study has two main limitations. First, only English-language literature was included in the analysis; therefore, valuable sources published in other languages were not considered. Second, although the authors conducted field research in the form of interviews, they did so only at the actor level and not at the organization level.

The authors have identified a gap in the available studies that address how upcycling practices can be effectively implemented. This gap could be explored by establishing a local upcycling hub. This could help to clarify the criteria for the effectiveness of this hub and investigate how its impact can be measured. This could ultimately lead to the development of a set of indicators that will help create a replicable model for local upcycling hubs that enable communities around the world to make garments last a lifetime

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