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Title

Driving reuse: sustainability and ethics in product life extension.

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Abstract

Waste reduction has become a key priority for UK waste policy (Defra, 2013) and a necessary strategy alongside recycling in a circular economy (Ellen MacArthur Foundation, 2015; EC, 2015), suggesting that reuse and repair will have growing significance in public policy. The reuse of household bulky waste (European Commission, 2011), particularly Waste Electronic and Electrical Equipment (WEEE), have been identified as key areas to address (Defra, 2013). Excessive waste is a key motive for reuse and recycling, but another concerns energy use and climate change. Resource extraction and subsequent manufacturing are often energy-intensive processes and all manufactured products contain embodied carbon (Wyckoff & Roop, 1994; Wiedmann & Minx, 2008). Short-lived products made from the most carbon-intensive materials - steel, aluminium, cement, plastic and paper - are of particular significance (Allwood and Cullen, 2012) because of the impact they have on the carbon footprint of households.

The term 'reuse' covers a variety of different routes to a second home for unwanted household items, including car boot sales, charity shops, vintage shops and online auction and exchange sites. This variety of sources and outlets makes it difficult to quantify the number of items involved (Hibbert *et al*, 2005) or develop one single strategy that would improve reuse. Reuse takes place through the work of various actors, including charities, social enterprises and community groups. The routes unwanted items take include reuse/resale, designated collection facility (includes Local Authority kerbside collections and Household Waste Recycling Centres), producer compliance schemes (includes in-warranty return and retail take back of electrical items), residual waste (Zero Waste Scotland, 2010; WRAP, 2011b) and indirect collections.

Reuse processes may have an ethical dimension. For example, Gregson (2007) describes donors to charity shops as "responsible consumers" removing items from their household to prevent excess clutter and enabling objects to continue to be used by new owners. Likewise, Lovatt (2015) concludes

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that when charity shops provide people with an outlet for unwanted items such as books, CDs or unwanted kitchenware, the opportunity to extend the life of objects is not just convenient but 'moral'. By contrast, in the case of car boot sales the objectives vary for different actors; sellers are often concerned with receiving value from objects, while buyers may be attracted by the culture of thrift, consuming more for less. Gregson (2013) argues that this motivation may have little to do with environmental concern. Another outlet for reusable items, vintage shops, have seen a rise in popularity in recent years, influenced by values ranging from a wish to express individuality to a desire to address environmental concerns (Cassidy and Bennett, 2012).

Retailers have been encouraged to accept responsibility for waste. Thus the Furniture Reuse Network (FRN) has a partnership with a group of retailers involving 'take-back' schemes through which furniture previously destined for waste treatment (most probably landfill) is diverted into reuse. The environmental benefits are both waste reduction and increasing a product's lifetime towards optimum usage (Williams & Curran, 2010). This service-based model meets the needs of the retailer by reducing waste disposal costs.

From a local authority perspective, the bulky waste stream (typically items too large for standard waste collections such as furniture and large appliances) offers potentially valuable opportunities for reuse (Curran, 2010). However, this is not always recognised by people disposing of items: it is estimated that between 20% and 70% of these discarded items could potentially be reused or recycled but in practice only 2% are (WRAP, 2009). Some attempts are made to reuse items taken to the household waste recycling centres (also known as civic amenity sites) with these often sold by third sector organisations acting in partnership with local authorities (WRAP, 2012).

With recent crises in major economies and the rise of austerity measures, an interest in the overlap between sustainable consumption and environmental benefits has emerged (Evans, 2009). Therefore, greater recovery of items for reuse might be achieved by working with consumer culture to put in place interventions that make it easier for consumers to do the right thing, considering the complexities of how things move and are consumed and recreated in the home (Gregson, 2007), or taking into account the temporal, social and economic patterns to consumption practices (Barr *et al*, 2013).

Past research has highlighted the difficulties involved with large scale reuse, notably with regard to electrical items (Cooper & Mayers, 2000; WRAP, 2011a). This paper critically reviews different approaches currently being taken to reuse in order to explore its potential to extend the operational lifetime of household items. It then reports on ongoing research that explores various routes to reuse through a series of case studies in order to identify potential opportunities to increase reuse.

The process whereby consumers decide which routes to use for unwanted items is complex; our research examines consumers' attitudes and behaviour to reusing items at the point at which they discard them. By exploring the motivations behind donating and purchasing reused items, current levels of repair and reuse can be explained and barriers to (and opportunities for) increasing product lifetimes through these means identified. Attitudes towards donating or purchasing second hand items vary; they may be prompted by social values that encourage thrift and motivate support for charitable ventures or by environmental values (Corraliza & Berenguer, 2000). Attitudes that motivate reuse (Zorpas & Lasaridi, 2015) may be very different from the factors that drive participation in recycling collections (Barr *et al*, 2013).

Understanding the complex decision-making processes of consumers is needed to help waste managers and other actors to improve the performance of the reuse and repair sectors and optimise environmental outcomes.

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The research identifies the benefits of understanding consumer decisions at the point of discarding household items and suggests strategies to encourage the necessary behaviour change in order to improve the operation of existing reuse and repair ventures. Increased understanding could also inform future policies aimed at increasing the incidence of reuse and repair and assist local authorities, industry and third sector organisations in their implementation.

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