



Aalborg Universitet

AALBORG UNIVERSITY
DENMARK

Consumers' repair practices and acquisition of new and used products identify the dynamics of resource flows in a society

Jørgensen, Michael Søgaard; Lindeburg, Alexander; Remmen, Arne; Dorland, Jens

Published in:

PLATE Product lifetimes and the environment: PROCEEDINGS 5th PLATE Conference Espoo, Finland 31 May – 2 June, 2023 Aalto

Creative Commons License
CC BY-NC-SA 4.0

Publication date:
2023

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):

Jørgensen, M. S., Lindeburg, A., Remmen, A., & Dorland, J. (2023). Consumers' repair practices and acquisition of new and used products identify the dynamics of resource flows in a society. In K. Niinimäki, & K. Cura (Eds.), PLATE Product lifetimes and the environment: PROCEEDINGS 5th PLATE Conference Espoo, Finland 31 May – 2 June, 2023 Aalto (pp. 993-996). Aalto University School of Art and Design, Helsinki, Finland.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy

If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

5th PLATE 2023 Conference

Espoo, Finland - 31 May - 2 June 2023

Consumers' repair practices and acquisition of new and used products identify the dynamics of resource flows in a society

Michael Soegaard Joergensen^(a), Alexander Lindeburg^(a), Arne Remmen^(a), Jens Dorland^(a)

a) Department of Planning, Aalborg University, Copenhagen, Denmark

Keywords: Product lifetime; Product repair; Product re-use; Product attachment.

Abstract: In order to collect knowledge about Danish citizens' practices with purchase of new versus used products, and repair needs and experiences, a survey was carried out October 2020 in the Capital Region of Denmark among a representative sample of 1005 citizens based on an electronic questionnaire with a focus on citizens' experiences 2019-2020 with the repair and reuse of electrical and electronic products, clothing and footwear, and furniture. The main reasons across the three product types for buying a new product instead of a used product is a wish to get the newest model of product and not believing a used product will have a long lifetime. The main reason for buying a used product is a lower price comparing to buying a new product. For footwear, sport clothes and beds, the main reason for not buying a used product is reluctance buying used products that is used close to the body. A lower cost for repair compared to buying a new product is the reason for having an electronic product repaired. For some types of clothes and furniture attachment to the product is an important reason for having such products repaired. The two main reasons for not having a not-functioning product repaired is a higher price for repair compared to buying a new product or product repair not being possible. Thus, prevention of waste is not the main reason for having a product repaired but it plays a role for some citizens. Lower repair costs and the ability to disassemble products could increase the number of repairs of electronic products. Re-design for disassembly seems especially to be able to increase the number of repairs of kitchen equipment like toasters, water kettles, etc.

Introduction

In the current system of production and consumption, products are disposed by the citizens even though the products might still be functioning or have defects that could be repaired. This phenomenon can be related to technical, material, or functional obsolescence (Jaeger-Erben et al., 2021).

Life cycle assessments show the importance of prolongation of product life time through repair and reuse compared to recycling of products.

Analyses of consumers' repair needs and experiences and their purchase of new versus used products is therefore important as part of analyzes of a society's characteristics as a linear and/or a circular economy. By including different product groups in a survey, similarities and differences among product groups can be identified and contribute with knowledge about the dynamics of resource flows in a society.

In a Danish project about waste and resource flows in the Capital Region of Denmark, a survey was carried among a representative sample of 1005 citizens based on an electronic questionnaire with a focus on the citizens' experiences with the repair and reuse of electrical and electronic products, clothing and footwear, and furniture (Jørgensen 2021).

Theoretical background

The developed survey is based on a social practice approach, which "tends to emphasize the way individuals embrace and stabilize existing practices" (Halkier et al., 2011). This perspective is relevant "for studying stability in practices but also for gaining insight into how social change occurs." (Halkier et al., 2011). This theoretical background implies that a person's practice is seen as shaped by interactions between the person's values, the involved technologies and the person's competences.

Methodology

The questionnaire is made up of a number of standard demographic questions about the gender, age, education, household income and geographical "belonging" of the anonymized respondents in the form of postcode and municipality respectively.

The product-specific part of the survey is made up of three parts with a focus on electrical and electronic products, clothing and footwear, and furniture. For each of the three product groups, questions are asked regarding 6-8 specific product types with regard to the practices of the respondent's household during the period as well as the background of these practices:

- Whether a product has been acquired
- Whether the product was new or used - and the background for this choice, where one or more reasons are chosen from a number of possible reasons and a category "Other")
- Whether there has been a need to have such a product repaired
- The age of the product when the need for repair arose
- Whether the product was repaired, expected to be repaired or not being repaired – and the background for this, chosen from a number of possible reasons and a category "Other")
- Who repaired the product

The specific product groups within each of the overall product types in the survey were:

- Electrical and electronic products: Mobile phone, computers, TV set, refrigerator and freezer, washing machine and tumble dryer, dish washer, kitchen equipment, and tools.
- Clothes and footwear: Coats and jackets, sweaters and cardigans etc., pants, dresses and skirts etc., shirts, sportswear and swimwear etc., and shoes and boots.
- Furniture: Sofa and armchair etc., cabinet and chest of drawers etc., shelves and racks, dining table and dining chairs etc., office desk and office chair etc., and bed.

Since the survey asked about the practices of the whole household responding to the questionnaire and not the practice of specific household members, it has not been possible to analyze how gender and age influence the role of used products and the repair needs and experiences.

Results

Acquisition of new versus used products

The product group most frequently acquired is clothing, followed by two groups of electronic products - mobile phones and kitchen equipment. The frequency of acquisition is lowest for white goods, and desks and office chairs. Acquisition covers both purchased products and products, which the respondents received as a gift or a donation.

The product group where used products play the biggest role (i.e. where the share of used out of the share who bought a new or used product) is furniture with almost 45% of the acquired dining tables being used (with the lowest reuse rate for furniture seen for beds (around 25%)).

The lowest reuse percentages within clothes and electrical and electron products are seen for kitchen equipment, sportswear, swimwear etc. as well as shoes and boots, where the most frequent reason for buying a new product is that the citizen does not want to acquire a product, which others have used.

Repair needs and repair experiences

Across product groups, office furniture is oldest when the need for repair arises, with only 18% of the need for repair occurring on products that are less than 5 years old. Within electrical and electronic products, refrigerators and freezers are the oldest when the need for repair arises with 26% of the repair needs on products less than 5 years old. Within clothing, the need for repair appears in most cases before the product is 5 years old, with shirts as the group of clothing that is the youngest with approximately 60% of the repair needs before the product is 5 years old.

The products that are youngest when a need for repair occurs are mobile phones with 32% of the repair needs occurring when the phone is

less than 2 years old, and 88% occurring on mobile phones less than 5 years old. Similarly, footwear has a high frequency of repair needs for footwear on products less than 5 years old (78%).

For furniture, shelves and racks are the product group that has the lowest product age when a need for repair occurs, with 48% of repair needs on products that are less than 5 years old.

The problem with short product lifetime is biggest for mobile phones and footwear, as the repair needs for the two product groups have the highest frequency with 18% and 27% of the households experiencing a need for these repairs each year, respectively, while the corresponding figure is only 2% for shelves.

The problem with the lifetime of mobile phones and footwear is worsened by the fact that only 38% of the "broken" footwear is repaired (or expected to be repaired) and only 45% of the "broken" mobile phones are repaired (or expected to be repaired). Furthermore, a high frequency of repair needs and a high percentage abandoned repairs is a problem within electrical kitchen equipment.

It is mostly economic considerations about the costs of repair compared to the acquisition of a new product that most often determine whether a consumer decides to have product repaired. If it is cheaper to have a product repaired than to acquire another product (new or used), the product is repaired and otherwise it is discarded. However, for some groups of clothing and furniture, attachment to the product is the most frequent reason why a product has been repaired. Environmental considerations play a relatively small role, but for some groups of electronics and for beds, the desire not to create waste by disposing of a product is given as the second most frequent reason why a product has been or will be repaired.

Who is doing the repairs?

For a number of product groups, it is the household itself that most frequently has repaired the product. For some groups of electronic products, the repairs were carried out through a retailer within the warranty period and at a repair company that the citizen himself has contacted also play a significant role and are indicated as the most frequent or second most frequent actor who has repaired. The same is

seen for sofas and armchairs and for footwear. The only product group where repair cafes play a relatively large role as a repair actor is mobile phones, where such cafes are listed as the second most frequent repair actor. However, there might be a misunderstanding behind these answers. "Repair café" might be understood a mobile repair shop.

Conclusions

The main reasons across the three product types for buying a new product instead of a used product is a wish to get the newest model of product and not believing a used product will have a long lifetime. The main reason for buying a used product is a lower price comparing to buying a new product. For footwear, sport clothes and beds, the main reason for not buying a used product is reluctance buying used products that is used close to the body. A lower cost for repair compared to buying a new product is the reason for having an electronic product repaired. For some types of clothes and furniture attachment to the product is an important reason for having such products repaired. The two main reasons for not having a not-functioning product repaired is a higher price for repair compared to buying a new product or product repair not being possible. Thus, prevention of waste is not the main reason for having a product repaired but it plays a role for some citizens.

Lower repair costs and the ability of products being disassembled could increase the number of repairs of electronic products. Within electronic products, re-design for disassembly might especially be able to increase the number of repairs of kitchen equipment like toasters, water kettles, etc. because the main reason for not having a not-functioning product repaired was that the product could not be repaired.

If manufacturers and retailers would agree to lower the repair costs after end of the warranty period, more products would be repaired and the manufacturers would get valuable information about vulnerable product components, need for more detailed user guidance, etc.

A warranty period for used products would probably increase the percentage of reused products being acquired. For mobile phones, backwards compatibility of new software would

probably increase the product lifetime of these products.

Future perspectives

If the survey was carried out as a nationwide annual survey every year, it could contribute with significant knowledge to national development and evaluation of strategies and plans within climate and circular economy. Researchers, national and local authorities, retailers, manufacturers as well as consumer and environmental organizations would be able to follow changes in the social practices of households and assess the effect of various efforts such as the introduction of differentiated waste fees, extended producer responsibility, cheaper repair options, new business models, establishment of more civil society repair cafes etc.

Analyses of similarities and differences among the region's various municipalities and neither the role of education and household income has not yet been carried out. These analyzes can enable the more specific development of local and national strategies for repair and the parts economy, including the need for focus on social justice.

Acknowledgments

The survey and the analyzes of the data from were funded by The Capital Region of Denmark and Department of Planning, Aalborg University. The questionnaire was developed in cooperation with other members of the project group on "Waste and resources across the Capital Region of Denmark" in collaboration with the survey company Norstat.

References

Halkier, B., Katz-Gerro, T., & Martens, L. (2011). Applying practice theory to the study of consumption: Theoretical and

methodological considerations. *Journal of Consumer Culture*, 11(1), p. 3 - 13.

Jaeger-Erben, M., Frick, V., & Hipp, T. (2021). Why do users (not) repair their devices? A study of the predictors of repair practices. *Journal of Cleaner Production*, 286, 14.
<https://doi.org/10.1016/j.jclepro.2020.125382>

Jørgensen, M.S. (2022). Experiences of citizens in the Capital Region with repair and recycling of electrical and electronic products, clothing and furniture, The Waste and Resources Project in the Capital Region of Denmark, 34 pp.