



Sustainability: Science, Practice and Policy

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/tsus20>

Doing laundry in consumption corridors: wellbeing and everyday life

Laurence Godin , Senja Laakso & Marlyne Sahakian

To cite this article: Laurence Godin , Senja Laakso & Marlyne Sahakian (2020) Doing laundry in consumption corridors: wellbeing and everyday life, Sustainability: Science, Practice and Policy, 16:1, 99-113, DOI: [10.1080/15487733.2020.1785095](https://doi.org/10.1080/15487733.2020.1785095)

To link to this article: <https://doi.org/10.1080/15487733.2020.1785095>



© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group on behalf of the University of Geneva.



Published online: 22 Jul 2020.



Submit your article to this journal [↗](#)



Article views: 176



View related articles [↗](#)



View Crossmark data [↗](#)

Doing laundry in consumption corridors: wellbeing and everyday life

Laurence Godin^a , Senja Laakso^b  and Marlyne Sahakian^c 

^aAgri-Food Economics and Consumer Sciences Department, Laval University, Québec City, Québec, Canada; ^bCentre for Consumer Society Research, University of Helsinki, Helsinki, Finland; ^cInstitute of Sociological Research, University of Geneva, Geneva, Switzerland

ABSTRACT

In this article, we explore the possibilities for a transformation toward more sustainable energy usage by engaging with mundane activities, such as doing the laundry. Across European households, laundry practices rely on social norms and material arrangements, which makes these practices rather “sticky” and resistant to change. Through the lens of consumption corridors, and accounting for wellbeing in relation to the basic needs of participation, health, and autonomy, we study laundry practices and their transformation in 73 Finnish and Swiss households that took part in a challenge to reduce their weekly wash cycles by half over a four-week period in autumn 2018. By using both qualitative and quantitative data, we analyze how participants defined minimum and maximum standards for cleanliness and convenience, for themselves and for others, over the course of the challenge period. Specifically, we consider how the sequencing of tasks associated with “doing the laundry” changed, as well as the significance of social relations and sensations in representations of social norms. The participants’ experiences helped uncover how setting limits toward consumption corridors can be achieved, whereby reductions in consumption can result in sustainable wellbeing.

ARTICLE HISTORY

Received 12 September 2019
Accepted 16 June 2020

KEYWORDS


Social practices; household-energy use; consumption corridors; sufficiency; wellbeing; laundry

Introduction

What could be more mundane than doing the laundry, a chore that most households do on a regular basis? Cleaning clothes and linens uses different material and energy resources, such as water, electricity, washing machines, and detergents. It is also a social practice held together by social norms established over time and sustained through its ongoing performance, facilitated by the ubiquitous washing machine. Laundry is organized around notions of hygiene and cleanliness, in relation to personal and social standards, acquired through trans-generational forms of learning and heavily influenced by the advertising industry (Jack 2018). Usually a gendered chore, laundry is also a highly routinized form of activity based on a sequence of actions such as sorting, filling machines, and folding clothes and linens to store away. Yet there are also differences in how, when, and why these actions are performed by different people, even within the same household. In this respect, we can apprehend laundry as a “sticky” practice (Maller and Strengers 2013) in that it has a strong grip on performers and may be difficult to change as part of efforts to reach the

normative goal of reduced energy usage in the home. In this article, sticky practices are those undertakings that are enacted repeatedly and consistently within households, without much reflexivity on why this is the case. Thus, while doing laundry may not be the most significant consumption domain when it comes to environmental impacts, it is an interesting case study for understanding how a socially-embedded practice can be changed and energy consumption reduced without compromising personal wellbeing.

Reducing energy usage is linked to the notion of sufficiency, an emerging body of research (Toulouse et al. 2019) that builds on earlier deliberations around absolute reductions in consumption patterns (Akenji 2014). For this article, we seek to understand how doing the laundry relates to the concept of “consumption corridors,” or setting upper and lower limits to consumption while accounting for wellbeing (Di Giulio and Fuchs 2014). Determining the upper and lower limits to consumption corridors is conceptually discussed as requiring a societal process, and yet how such limits might be set in practice remains to be explored – whether in relation to resources, impacts, sectors, or

CONTACT Laurence Godin  laurence.godin@fsaa.ulaval.ca  Agri-Food Economics and Consumer Sciences Department, Laval University, Québec City, Québec, Canada

This Special Issue is sponsored and supported by the University of Geneva.

© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group on behalf of the University of Geneva.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

consumption domains. One critical aspect of consumption corridors is the necessity to relate consumption maxima and minima to notions of wellbeing, defined as meeting human needs – aiming for what has been termed “sustainable wellbeing” (Gough 2017). Within consumption corridors, people should be able to meet their “objective needs” and experience the good life, without infringing upon the ability of others to do the same. We draw on Doyal and Gough (1991) to define basic need satisfaction in terms of *participation*, *health*, and *autonomy*. We demonstrate that even a consumption domain as mundane as laundry can have consequences for wellbeing, understood in relation to social relations, social norms, and sensations, as well as the organization of daily life and mental labor.

This article is based on the results of a European research project that aimed to understand how reduced energy usage related to heating and laundry could be achieved in eight countries and among approximately 300 households through a living lab approach. As part of the living labs, which involved participatory action research in a bounded space and time, households were invited to take on the challenge of reducing the number of weekly laundry cycles by half over a four-week period, during which they were engaged in a participatory process that involved reflexivity and deep deliberations around social norms and how they relate to everyday activities. In the following pages, we present and discuss the results of the laundry challenge among 37 Finnish and 36 Swiss households. Our aim is to understand how sticky laundry practices and the underlying notions of *participation*, *health*, and *autonomy* can change through a short-term initiative organized around reducing consumption. We share results across the two countries, to understand how everyday practices relate to the notion of sustainable wellbeing and consumption corridors.

We begin by presenting our conceptual framework for exploring social change in relation to stickiness and social practices. More precisely, we adopt a needs-based approach to discuss sustainable wellbeing as a potential result of consumption corridors. We then turn to changes in laundry practices in Finnish and Swiss households, discussing how these transformations relate to the reorganization of everyday life and mental labor in an initial section, and to cleanliness standards, social relations, and sensations in a subsequent section. We conclude with a discussion around challenging sticky practices, as well as what we learned in relation to the process of setting limits to consumption – and how this can further support the usefulness of

consumption corridors as a concept and practice toward sustainable wellbeing.

Conceptual framework

How social change might be understood in relation to everyday practices is a growing body of literature, which recognizes that practices contain the “seeds of constant change” (Warde 2005). Building on Pantzar and Shove (2010) and Rau and Grealis (2017), we interpret practices as comprising different elements, among them material arrangements and objects, social norms and symbolic meanings, bodily and cognitive knowledge, competencies, and skills. In the case of laundry, material arrangements are the “stuff” used by practices, including interior room configurations, types of washing machines, or articles of clothing. Social norms and symbolic meanings hold together when and how practices are performed, involving expectations of what should or ought to be when carrying out laundry-related actions. These activities are performed by people possessing a set of skills and competencies, but also are sensory bodies which derive their understanding of cleanliness from feelings of bodily comfort, pleasing smells, or visual appearances (Sahakian et al. 2019a).

A practice theoretical approach to social change differs from what Keller, Halkier, and Wilska (2016) called “mainstream paradigms,” focusing on values, attitudes, or “technological fixes.” These approaches often fail to address the broader social and cultural factors that influence people’s energy use and shape their practices, as well as the habitual, routinized nature of daily consumption (Heiskanen et al. 2019; Martiskainen 2007; Sweeney et al. 2013). Although personal motivations and values are undeniably important factors in changing energy consumption, they are nonetheless a result of social processes and relationships (Laakso 2017a, 2017b). Still, how practices evolve remains to be theorized. For some, time plays a role in configuring practices (Shove, Trentmann, and Wilk 2009), while for others it is the repeated performance of practices and their coherence which leads to their normalization (Rouse 2007; Sahakian 2019). In Sahakian and Wilhite (2014), changing more than one element of a practice can lead to an overall change while for Spurling et al. (2013) practice elements or inter-linked practice configurations can be reorganized into new configurations. In this literature, the role of ordinary people in coming together collectively to agree on changes, to set targets, and to engage in practicing change is also less discussed.

Recent developments in practice theory have introduced the notion of “stickiness” in relation to

practices that might be harder to change than others (Maller and Strengers 2013). For instance, Maller and Strengers suggest that some “practices may be ‘stickier’ in that they persist for longer, have a stronger grip on their performers, and have greater powers of persistence than previously articulated.” Aro (2017) refers to practices as familiar, normalized ways of doing and thinking that are prone to persist as matters of course. This stickiness may hold a practice together even in cases of disruptions, for example in its material conditions (Laakso 2017a). For Rininen (2015), stickiness relates to practices being co-located in space and time, becoming codependent and forming sticky complexes in which the performance of any one practice depends on the performance of others. In Hansen (2018), the notion of stickiness is applied to changes in practices from childhood to early adulthood, suggesting that certain ways of doing that were performed at a young age will continue to be performed in similar ways through adult life, even if the settings of consumption and associated resources might change. Material arrangements such as washing machines and routinized ways of using them, which are linked to strong, intergenerational social norms and symbolic meanings around hygiene and cleanliness, also impair change and contribute to making practices sticky.

In relation to the normative goal of absolute reductions in energy usage, the main question is: given the stickiness of routinized, everyday practices, can doing laundry be reduced without infringing upon human wellbeing? As Guillen-Royo and Willhite (2015, 310) have put forward, the habits of everyday life need to be taken seriously to reduce consumption itself or its environmental impact, which “involves leaving behind unfruitful associations between growth, individualistic behavior, and wellbeing and focusing on the social, physical, technical, and natural contexts in which both consumption and wellbeing are created.” Reducing energy usage can be done in different ways. For instance, in energy-transition strategies emphasis is placed on increasing renewable energy sources, as well as introducing more efficient technologies, such as washing machines with high-efficiency ratings. Efficiency can also relate to how people use their machines, opting for more efficient wash cycles, for example, which use fewer resources, including energy and water. However, as noted by Lorek and Spangenberg (2018, 14), efficiency is always a relative concept as larger, more powerful, and more functional products tend to use proportionally more energy but can still be labeled as efficient compared to similarly sized and designed products. This situation leads to “more, bigger, better” trends when it

comes to appliance usage, with a contested understanding of efficiency normalized as being “better” (Sahakian 2019). Moreover, rebound effects often “eat up” the technical savings potential, which means that an absolute reduction in energy demand in modern societies can hardly be achieved solely on the basis of efficiency strategies (Santarius 2015; Shove 2018).

Another way of addressing energy usage in the home is around sufficiency, which is usually understood as a reduction in energy usage that goes beyond technological efficiency. This understanding reflects notably on how human needs can be met with less energy, in relation to energy services, urban systems, social norms, and consumption habits (Toulouse et al. 2019). There is an increasing body of literature that calls attention to the need to change everyday routines and cultural conventions for achieving overall reductions in energy usage (Seidl, Moser, and Blumer 2017). When applied at its fullest, energy sufficiency – including changes to practices and routines, infrastructure, and political frameworks – has been shown to have the potential of more than doubling the savings rendered possible by energy efficiency alone (Brischke et al. 2016). Energy sufficiency is thus necessary to overcome the shortcomings of energy efficiency. To unfold its potential, the sufficiency approach should overcome the marginalized image of voluntary simplicity, and instead be integrated in the general socio-technical environment of energy use, challenging the escalating standards and norms of energy consumption, which are becoming the “new normal” in a society already in an energy- and carbon-intensive condition (Lorek and Spangenberg 2018). Social change for sufficiency is then “an intentional, targeted reconfiguration or new combination of social practices, motivated by and in the confines set by formal institutions, economic situations, and personal values which are in return influenced by the social practices and the changes they undergo” (Spangenberg and Lorek 2019, 1075). Based on Sahakian, Wallenborn, and Godin (2019b), we define sufficiency as not only reducing energy usage, but also recognizing that consumption corridors might be necessary – which involves establishing both upper and lower limits to consumption and grappling with the transformations in habits and routines necessary for living in such corridors.

Consumption corridors have emerged in recent years as a result of a research program on sustainable consumption (Blättel-Mink et al. 2013). The goal of consumption corridors is to support a societal transformation which would ensure respect for planetary boundaries (e.g., Rockström et al. 2009) while meeting fundamental needs and promoting

social justice. It also involves a more qualitative reading of sufficiency as “enoughness,” or what are deemed to be socially acceptable levels of energy services for meeting people’s basic needs (Darby and Fawcett 2018). Within consumption corridors, individuals are able to live a good life without compromising the ability of others to do the same, today and in the future (Di Giulio and Fuchs 2014). The concept of consumption corridors relates to Raworth’s “doughnut economics” (2017) and the notion of “environmental space” as conceptualized by Spangenberg (2002), including studies that tackle upper and lower limits to consumption (Laakso 2012; Lettenmeier et al. 2014). We posit that living in consumption corridors can lead to sustainable wellbeing. While consumption corridors are discussed conceptually as requiring jointly defined and negotiated maxima and minima levels of consumption (Di Giulio and Fuchs 2014), how such societal deliberations might play out in practice remains to be discussed.

For this article, we draw on the work of Doyal and Gough (1991) for defining sustainable wellbeing as the fulfillment of basic human needs while respecting planetary boundaries, recognizing both the universality of need satisfaction and the cultural variability in how needs are met or satisfied. For these authors (see also Gough 2017), basic human needs include three core elements: *participation*, *health*, and *autonomy*. First, participation in social life involves social interactions with others, and being able to live a life through which one is able to derive value, which means setting goals, and understanding how they can be achieved in practice. Second, physical and mental health includes being able to complete a range of practical tasks in daily life thanks to manual, mental, or emotional abilities. Finally, autonomy is understood as the ability to make informed choices about what to do and how to go about doing it, which relates to critical autonomy, or the ability to “compare cultural rules, to reflect upon the rules... and work with others to change them” (Gough 2017, 44).

To ensure the satisfaction of human needs and to achieve sustainable wellbeing as defined by Doyal and Gough (1991), we argue that in their implementation, consumption corridors should be rooted in everyday dynamics, social relationships, and the sociocultural context of people, taking notions of power and vulnerabilities into account. While the study of human needs invites us to consider fundamental and far-reaching concepts such as “sustainable wellbeing,” their satisfaction is dependent on the mundanities of everyday life. To illustrate, our ability to take part in social life is conditional to the respect of social norms that

regulate our conduct on a day-to-day basis, including norms around bodily hygiene which relate to doing laundry. Historically, dirt and stains have been constitutive of processes of exclusion. In Europe, bodily odors are still objects of shame and a breach of social norms (Elias 1994 [1939]; Pickering and Wiseman 2019; Pickering, Wiseman, and Armstrong 2019), which impairs participation in society and directly impacts need satisfaction.

Looking at lower limits to consumption, literature on energy poverty has consistently shown how lack of access to energy services, such as washing laundry, can be linked to mental and physical health problems, and a general limitation on wellbeing (Liddell and Morris 2010; Thomson, Snell, and Bouzarovski 2017). In such studies, the focus of attention is on defining minimum access to energy (Middlemiss 2017) and how these lower-bound standards of living relate to energy justice (Walker, Simcock, and Day 2016). Discussing upper limits to energy usage in the home is less established, with only a few studies on elite households (e.g., Aro 2017; Sahakian 2018). By looking at laundry in relation to consumption corridors, or maxima and minima, we explore how the concept might be translatable to everyday activities in the home and more firmly rooted in people’s needs, within particular sociocultural contexts and social relationships. It is also an opportunity for thinking about maxima limits as contributing to all dimensions of sustainable wellbeing.

Accounting for human needs and wellbeing in relation to laundry and other activities of care (such as cooking) also means acknowledging the gendered dimension of such practices, and its negative impact on health and autonomy. Historically, housework has been mostly accomplished by women, and laundry is no exception to that general characterization. It is part of overlapping domestic tasks that have been known to take a toll on women’s mental health, through unequal gender dynamics (Offer 2014). The concept of mental labor, or mental work, has been developed to account for the invisible work linked to the “thinking activity performed for family goals” (Robertson et al. 2019, 196), most often in the context of mothering, and how it impacts women’s wellbeing. Robertson (2017) describes how organizing and managing laundry is part of the mental work of “dressing the family,” which includes thinking about what clothes to purchase and how to coordinate laundering in a timely way, to protect garments, and to work within the daily schedule. As each of these actions relate to need satisfaction, all of them brought together make laundry one small piece of the larger puzzle of

establishing sustainable wellbeing in a world of environmental constraint.

In the following discussion, we posit that to pin down the possibilities for change toward lower energy usage while accounting for wellbeing, mundane activities should be considered through the lens of consumption corridors. This means taking seriously everyday practices like laundry, by definition habitual and routinized, which makes them particularly sticky and difficult to change. In this respect, we explore how the introduction of a relative upper limit, or target to reduce laundry cycles in the home, induces change in a sticky practice by leading people to question and transform their personal standards of cleanliness and the related everyday habits. We interpret these standards – or thresholds of what is acceptable – in relation to basic needs. This allows us to reflect on how the possibilities for implementing consumption corridors are related to processes of social change and everyday life.

Methods

Our study is based on ENERGEISE Living Labs, in which 306 households in eight European countries challenged themselves to change their practices in two domains of daily consumption: home heating and laundry. This article focuses on the challenge outcomes in Finland and Switzerland. Thirty-seven households in two Finnish cities, Helsinki and Porvoo, participated in the project, along with 36 households from the Swiss canton of Geneva (see [Appendix 1](#) for a description of the participating households). In the living lab approach, researchers and other actors work together in close collaboration and in real life to co-create knowledge and solutions for a particular societal problem (Laakso, Heiskanen, and Matschoss 2017; for more information about the living labs and their results, see Vadovics and Goggins 2019). Regarding laundry practices, households were encouraged to reduce their laundry cycles by half or to a target they set for themselves. In the process, participants were invited to question their representations of how to successfully perform mundane activities such as laundry while developing and experimenting with new ways to achieve the preferred level of cleanliness. The main focus of the study was not on whether or not households reached the reduction target, but on understanding how practices are performed and how they change.

Participating households were recruited in the summer of 2018. Access to a private laundry machine was a criterion for selection and, while participants knew they were joining an energy-

related initiative, they did not have any prior experience being involved in an energy-saving program (a disqualifying criterion). They were also unaware of what would be asked of them (to reduce laundry cycles by half). Members of the research team visited them in their homes in August–September 2018 to introduce the living lab approach and the challenge, and to establish a baseline through the installation, when possible, of electricity meters for washing machines; water usage was not captured. Prior to the start of the challenge, households also monitored their washing, drying, and ironing for a four-week period by keeping diaries and recording the electricity consumption of their washing machine.

In each country, households were approached in two ways: either as individual households and through interviews with household members; or through groups of households in a community of place, for which research teams organized focus group discussions.¹ For the latter, the group dynamics contributed to collective discussions around social norms in particular. For all households, this deliberation phase involved understanding existing habits and routines in relation to social norms, skills and competencies, and material arrangements supporting the performance of laundry practices. We envisioned this deliberation phase as a rupture, in that we explicitly focused on contesting social norms and symbolic meanings tied up with laundry practices. For example, through photo-elicitation, or using visuals as a basis for talking about social norms (Meyer 2017; Sahakian and Bertho 2018), we discussed standards around bright white clothes and linens in advertising, and laundry as a task with no end. During these meetings, each household also received a “challenge kit” that included tips and materials to support them in the challenge, such as aprons, stain removers, and hangers (see [Appendix 2](#)).

The laundry challenge began in October 2018 and lasted four weeks. After the challenge, the research team again interviewed the households either at home or through focus-group discussions. The aim was to provide the participants with an opportunity to reflect on their experiences and for us to gain a closer understanding of how change happened. The living labs employed several strategies identified as successful intervention methods by previous studies, such as goal-setting and feedback (e.g., Martiskainen 2007) or creating spaces for joint reflection and for sharing ideas and experiences (Lorek and Spangenberg 2018; Sweeney et al. 2013). The combination of various interventions has been shown to be especially effective in reducing energy use (Abrahamse et al. 2005). Even if households were working individually to reach their target

of reduced laundry cycles, there was a sense of taking part in a collective endeavor that was not solely limited to the focus-group discussions; all participants knew that they were among over 300 households across Europe attempting the same challenge at the same time.

This study is based on both qualitative and quantitative data collected during the living labs. Qualitative data consists of interviews and focus group discussions organized before and after the challenge. All interviews were conducted following a guide that included predefined themes related to changes in routines, learning new skills and competencies, adjustments in material arrangements, and representations of social norms (Laakso, Matschoss, and Heiskanen 2019). The semi-structured interviews and group discussions were recorded and transcribed, and structured notes were taken during the group discussions. A summary form was completed for each interview and group discussion, following the themes of the interviews. Quantitative data included four surveys: recruitment survey, baseline survey filled in before the challenge, closing survey filled in right after the challenge, and follow-up survey sent to households three months after the end of the challenge. In addition, weekly diaries and surveys supported the data collection by enabling researchers to monitor the change in routines and electricity use, as well as how participants were feeling in regard to changing their habits. Surveys also supported households in the self-observation of their routines before and during the challenge.

Results

In the following section, we share general results on what changes took place among Swiss and Finnish households and then discuss how the challenge affected a reorganization in the sequence of doing laundry, as well as changes in cleanliness standards that were inexorably linked to social relations and sensory experiences. We conclude by showing what links changes in laundry-related practices to the notion of sustainable wellbeing.

General findings: changes in doing the laundry through the ENERGISe challenge

The practice of washing laundry, the material arrangements, and the changes due to the challenge were very similar in both Finland and Switzerland. Households in the two countries had private laundry machines and, in some instances, access to a shared laundry room in their residential building.² During the challenge, most households managed to significantly and durably reduce the number of

laundry cycles they launched each week. Before the challenge, Finnish households would commence on average 3.7 cycles each week, while Swiss households would wash 2.9 cycles. Three months after the challenge, Swiss households launched one cycle less each week, and the Finnish participants did 1.3 fewer weekly cycles. As illustrated in [Appendix 3](#), in both countries, household size mattered: single-person households and households with four people or more were the two categories where the highest percentage of change was achieved. On average, Swiss households in the study were larger than Finnish households, which means that the averaged quantitative differences we observed cannot be pinned down to the number of people producing laundry, but rather to sociocultural differences and eventual discrepancies in social norms and material constraints, among other possibilities. In both countries, participants who had been washing laundry every day or most days of the week reduced the number of cycles the most, whereas participants who were launching relatively few cycles felt that reducing was more challenging – irrespective of household size.

The main reason for washing clothes and linens changed during the challenge. At the beginning, people tended to assess cleanliness through a more mechanical and non-sensorial approach, most often based on the length of wear: worn once, put to wash, for example. Other reasons mentioned by participants for washing were that clothes were wrinkled or “felt” worn, a feeling which participants did not define; in many households, the smell of clothes was already a factor for washing, prior to the challenge. For bedlinens, the main criteria for washing was the length of use, and most of the households reported that they washed their sheets on a regular interval, be it every week or every month. Three months after the end of the challenge, a sensorial approach based on smell was the most common criterion used by Swiss and Finnish households, while the more mechanical approach based on length of wear had significantly declined (see [Appendix 4](#)). The main changes in practices included washing fuller loads, washing at lower temperatures, reducing or entirely stopping the sorting of clothes, using the eco-program of the machine when available, storing slightly used clothes instead of putting them through the wash (this also included creating a storage space for these clothes, such as a rack or a dedicated shelf in the closet), airing out clothes, changing clothes when arriving home and allowing “home clothes” to become dirtier, wearing an apron, and removing stains by hand to avoid washing the entire article of clothing. Most of these new practices allowed participants to wear the same clothes for longer, without compromising on cleanliness.

Reorganizing sequences in the practice of “doing the laundry”

Laundry comprises routinized and automated habits, and reducing the amount of laundry means reorganizing sequences that make up the practice. For many participants, the laundry cycle begins by simply putting the clothes worn during the day to wash without actively thinking about it – what we describe as a more mechanical approach. As described by a Finnish female participant, “if I had [the piece of clothing] on for the whole day, or even a few hours it goes, everything goes directly to the washing machine.” As for washing the laundry per se, it could be done when there was time for it, or when the laundry basket was full. Halving the weekly wash cycles as part of the challenge made visible to participants the series of routinized actions that come between wearing a piece of clothing for the first time and putting it in the washing machine, making transparent and questioning what is considered a “proper” way of doing things (Lorek and Spangenberg 2018). Through the challenge, some participants developed new sorting strategies to lower the number of wash cycles at the set target. Others bought new clothes that were easier to take care of, for example not requiring ironing or acquiring an odor so quickly. Some households just stopped sorting clothes, giving up on a previously well-established habit. In one Swiss family of five, the mother, who was responsible for all the laundry, used to launch one cycle a day, doing many small loads, wearing clothes only once, and separating everything – colors, darks, and whites; baby clothes from adult clothes; and bedlinens and towels. During the challenge, she realized how there is no need to sort clothing and linens so much, or to wash items that were not really dirty. For a Finnish mother of one, this more relaxed attitude in regard to laundry also spread to other household chores.

You have so much more free time when you’re not washing laundry. But our house was also a bit, quite a lot messier. Because my habit was to put the laundry in the machine and I start cleaning other things. But now that I’m not doing it, somehow at home I’m just not doing that many other chores either. It means that it’s quite messy at home, and the pile of laundry is quite big too!

In other families, the challenge put old rules in plain sight, as illustrated by this Swiss mother of four, with one child still living at home:

I’ve continued to follow a rule that I put in place 20 years ago: this idea of changing clothes every second day. It’s true that when they were... when they [her children] were all between 4 and 10, at that age they get dirty really quickly, and they don’t want to shower, or to... and then at some point, I

said, “This is what we’ll do,” it’s easier... and then, in the end, we got stuck with that.

Reducing wash cycles also made visible the material dimension of routines and how they are linked to emotions. For most households (58% in Finland and 52% in Switzerland), the challenge led to washing fuller loads. This was also related to learning to cohabit with dirty laundry: “To be able to wash fuller loads, you need to be patient,” said one Finnish participant. For some, getting a full machine meant dealing with an empty wardrobe, especially for households of one or two persons. In relation to learning to wait longer and “be patient,” another Finnish participant, a mother of three, described how she experienced a “strong emotional reaction” and realized how she had “a phobia of dirty laundry,” making it hard for her to deal with piles of unwashed clothes. In such cases, getting extra hampers to put the laundry “out of sight, out of mind” was a strategy to alleviate stress and disrupt routines.

In some households, changing laundry routines felt hard at first but in the end, participants did manage to establish new habits, as described by a Swiss woman who lives with her husband and two children under three years old: “At the start it was really hard, because I was doing almost one washing every second day. And then near the end we got into a routine, where we... well it took a while to stick, but then we didn’t wash things, we aired our clothes more and put them on again more often.”

Gender is a central element of how and when laundry practices are performed. In households with both male and female adults, women were the main person responsible for washing clothes in 70% of Swiss and 77% of Finnish cases. These results are generally consistent with trends on the share of household duties between men and women in the two countries (Pääkkönen and Hanifi 2011; Swiss Federal Statistical Office 2019). In some instances, women would either work part-time or from home, thus conceivably having more time available for housework. Sometimes women maintained that men simply did not have the skills to do laundry properly and risked causing “catastrophes,” to use the words of one Swiss female participant. In other families, respondents said the housework had simply been separated this way – women did the laundry, and men were responsible for other chores like vacuum cleaning. As such, changing routines was facilitated by rethinking the distribution of household work. During the challenge, female participants were often surprised to see how other family members developed newfound interest in domestic chores. Men aired out their shirts and washed the stains from collars, children learned to decide for

themselves whether their clothes were dirty or not and to put them in the laundry basket. Some teenagers even started to do their own laundry, relieving adult women of some work.

In both countries, during the first interview and focus-group discussion, participants claimed that they did laundry when they found the time, or when synchronized with other household tasks. During the challenge, the reduced number of cycles meant that people could wash mainly on weekends, making evenings during the week more relaxed. Participants started noticing how laundry was not just about putting clothes in the machine and letting it do the work, but also about collecting and sorting clothes and linens, hanging them to dry, folding them, and in some households, ironing. This sequence of tasks became more apparent during the challenge, allowing the participants to reflect on how much time they actually invested in laundry, for some almost every day.

Indeed, 48% of the Finnish respondents reported that they saved up to two hours per week by washing less laundry, even though they might not have previously considered laundry to be a time-intensive activity. The time saved was used for sports and outdoor pursuits (33%), social activities (29%) and other housework (25%), among other things. In Switzerland, 30% of participants noticed a gain of two hours or less per week and 9% a gain of three or four hours per week. However, the time gain was not seen as the most significant advantage of the new practices. Many women explained that they felt freed of the stress created by the never-ending piles of dirty clothes and relieved of “mental labor” which often goes unnoticed (Robertson 2017; Robertson et al. 2019). Young mothers felt especially liberated by the challenge, as was the case for a female Swiss respondent: “For me it takes a load off, a mental load, I didn’t really notice whether or not I saved time, but not having a huge pile of laundry stressing me out because it needed to be done made me feel freer.” However, this was not the case for everyone. In one Swiss family, the mother of two young children said she managed to reduce the number of weekly laundry cycles by two, but found it stressful and time consuming, especially handwashing stains. Another Swiss mother felt that she played the “laundry police” during the challenge and that it created tensions in her relationship with her daughters.

Cleanliness standards, social relations, and sensations

Notions of “clean” and “dirty” are highly subjective. Their definition depends on relationships, everyday

dynamics, and the sociocultural context through which social norms are interpreted. The concepts also depend on diffuse “feelings” such as shame, embarrassment, or discomfort, which point to the boundaries that should not be transgressed in relation to hygiene. During the challenge, the norms around cleanliness stayed the same, but minimal standards around how to achieve cleanliness were most often lowered. Two elements contributed to this transformation, namely the volatility of sensations of clean and dirty, and the social relationships and representations of social norms. In this regard, the interviews and group discussions before the beginning of the challenge provided households with an opportunity to openly discuss laundry and cleanliness and to evaluate their practices against the practices of others, especially for people taking part in group discussions. The focus groups were an opportunity to share understandings of what is “normal,” to contest the normality, and in some instances challenge dominant representations promoting cleanliness standards that were (too) high, often coming from the media (Jack 2018). Such media discourses can be experienced as oppressive, as one Finnish participant described:

There was an article in the evening paper about “yuck, don’t you wash your pillow cover every week?” or something, whatever it is, how disgusting it is and I think like, okay, I’ve never thought that it was disgusting, but articles like that are really harmful because they make people think that.

For the Swiss participants who were recruited in the same building, which had a shared laundry facility, the laundry room also became a space for exchange and discussions around ways of doing laundry. For example, one participant prepared a home-made laundry detergent and made it available to the other residents, along with a recipe on how to make your own. Some of the Finnish participants also shared their experiences when they met in neighborhood events and in social media.

For participants, sensations of cleanliness and their threshold were linked to actual observations – wrinkled clothes, smell – but also to the knowledge of how the clothes were handled, meaning that standards of cleanliness also apply to washing techniques, including water temperature. In Switzerland and Finland, people expressed reluctance to reduce the frequency and temperature at which they clean their bedsheets, without providing a clear reason for it. One Finnish woman said: “I don’t know, it might be a kind of outdated way to think. Somehow it just feels right that [the sheets] are washed at 60°C.” Similarly, freshly washed clothes that are stained are not considered clean. White fabrics were especially problematic and yellow armpits and collars were

considered disgusting. Many people avoided buying white clothes for this reason. Some participants who were aware that a water temperature of 30 °C or 40 °C is enough for getting most clothes clean still resisted the idea of washing at lower temperatures, as they simply did not manage to “feel” clean this way. For some, knowing that a piece of clothing was already worn also induced unpleasant sensations. To get around this and “cheat” themselves, people would put used clothes back in their closet, to have the feeling they were fresh when they wore them again a few days later. For one Swiss woman, “The fact that you put them back in the wardrobe gives you the impression you’re taking out clean clothes: you forget you haven’t washed them!”

The establishment of a minimal standard, linked to feelings of clean and dirty, relies strongly on how we think other people perceive us and interpret social norms. Minimum standards can be higher or lower at different moments for the same person, depending on the context and everyday interactions. The world of work seems to have the most influence on laundry practices. In Switzerland, only 17% of respondents talked about the laundry challenge at their workplace and often explained during interviews how they tried to hide the fact that they were wearing clothes for a second time, for example. By comparison, 35% of Swiss participants talked about the challenge with their neighbors and 39% with their friends. In Finland, 39% of respondents discussed the challenge with coworkers and 73% with friends.

The majority of participants went through the challenge without negative consequences in the workplace and realized that norms around how to dress might not be as strong as they initially thought. This was the case for one Swiss woman, who said, “I did think about it because at work, well, now I put on the same things two days in a row, and there aren’t that many of us at work, but then I thought to myself ‘what was my colleague wearing yesterday?’ and to be honest I couldn’t remember at all.” However, some people still had to deal with the occasional shaming when wearing the same clothes two days in a row. Participants working with the public, such as teachers, also felt that wearing the same clothes two days in a row was more problematic, but wearing them twice in the same week did not seem to be an issue. For people working messy jobs, such as cooks or construction workers, dirt and stains were seen as a normal part of their professional life.

Teenagers had much stricter cleanliness standards than adults, which seems to be linked to social norms in specific social contexts and the risks of transgressing them. Parents explained that their

teenagers’ high standards were due to peer pressure. A Swiss father recalled, “Well, my daughter thought that yes, at school [in reference to middle school], everyone looks at each other’s appearance so much that if you wear the same clothes two days in a row you’ll stand out, you’ll get a bad rep, but that’s utter rubbish, I don’t believe that for a second.” For this specific group, the stakes of laundry and cleanliness were perceived as higher than for others. By contrast, getting older, and especially going into retirement, appeared to loosen standards, and older participants wore the same clothes much longer than younger ones, which they explained by the evolution in their daily interactions brought about by leaving the world of work.

In general, standards were especially low in contexts where people tended to worry less about how they were seen by others, for example parents of young children. With young children at home, stains are said to be inevitable and therefore more readily accepted, inside and outside the house. Participants were also quite tolerant of dirty “home clothes” used only inside and in private and some of them even worked more from home during the challenge to lower the amount of dirty laundry. In this spirit, one Finnish mother asserted “the right to” wear dirty clothes at home: “I mean at home I use even shabbier clothes than before. I already said it last time that I walk around in dirty ones but now they’re even a lot dirtier.”

Relating doing the laundry to sustainable wellbeing

The notion of sustainable wellbeing relates to meeting human needs while accounting for environmental and social considerations and is an important normative goal in the conceptualization of “consumption corridors.” Within consumption corridors, human needs are being met without infringing on the possibility for others to do the same, for now and future generations. While laundry is not the most significant domain in terms of environmental impacts, reducing cycles by half can lead to some compelling results. In Switzerland, for example, one less laundry cycle per week per household for a year represents a saving of around 13 million cubic meters (m³) of water, 10 million liters of laundry products, and the equivalent annual electricity consumption of 90,000 households. At the same time, one less laundry cycle per week is estimated to save around one hour of domestic work per week. For the ENERGISE participants, this freed up time for other types of activities, but also lightened the “mental load,” and diminished stress related to housework. As such, reducing the

intensity and frequency of this chore may lead to direct reductions in resource usage, but also a positive rebound effect in terms of wellbeing and its three pillars, namely participation, health, and autonomy.

Household management of laundry is relevant to participation in society as it is tied to a complex set of social norms which are rooted in intimate lives, the most important of them concerning bodily hygiene. Doing the laundry relates to health with regard to bodily hygiene, but also women's mental load – or reducing the need to plan, to organize, and to execute multiple domestic chores, particularly the sequence of tasks required for doing laundry. As for critical autonomy, the challenge provided a unique space and time for people to experiment with new ways of doing, by examining how they make decisions about their everyday life, their own standards around cleanliness, and the gendered dimension of domestic work. In terms of sustainable wellbeing, the challenge also showed that an absolute reduction in consumption could promote both ecological and social aims that work in synergy. Notably, at the household level, changes in laundry practices have only small impacts on total water and energy use, or related carbon emissions, as compared to heating ever-larger homes, for example. But, if expanded to the overall population of a country or a region, the reductions in ecological terms can be significant.

However, the challenge did not come about without some tensions. In the process of reducing laundry cycles, people had to learn new ways of doing and to put some thought into how they might change their habits and routines. In some instances, reducing laundry cycles led to disagreements between household members; in the case of Switzerland and in the focus-group discussions, teenagers were particularly resistant to washing less. For people more sensitive to peer pressure or to how they might be considered by others, lowering standards, even if it did not lead to departing from the norm, was deemed socially perilous. This demonstrates the importance of considering socioeconomic status, and other visible or invisible factors of exclusion, when thinking about social change toward more sustainable forms of consumption, for the sake of autonomy and participation as basic needs.

Conclusion

Efforts to reduce energy usage in the home, toward maximum and minimum consumption levels, should be rooted in people's everyday life, accounting for the contextual nature of consumption practices. In relation to this, social norms and rules, as

well as clothing items and washing machines, have an impact on the ways upper and lower standards of wellbeing are understood and negotiated. Through their participation in the living labs, participants to the laundry challenge induced significant transformations in their everyday practices, highlighting the various degrees of stickiness of their different components. Among the stickier aspects, habits and rules about how to wash, learned during childhood and implemented over several years, were difficult to change: certain water temperatures or time intervals for washing bedlinens just “felt right.”

Family dynamics and the share of domestic work have also proven to be very sticky. Women were responsible for laundry in a large majority of the households under study. While children and teenagers started participating more in laundering during the challenge, this change initiative did not significantly alter the way household chores were distributed among household members. As such, wellbeing as part of everyday life should be considered in relation with family and gender dynamics. Material stickiness was also important in relation to the amount of clothes, either to be washed or waiting in the closet, the availability of hampers for keeping dirty clothes out of sight, and the size of the washing machine. Filling bigger machines led to problems in terms of clothing volumes and space for drying, especially in smaller apartments.

Dressing up appropriately is based on fixed norms in the workplace and other social environments and people resist breaking established conventions. These are forms of social stickiness in relation to the symbolic meanings of cleanliness and social representations, in the home or in public settings such as the workplace. These elements of a practice define the minima related to laundry, as not respecting them would impair participation. However, personal standards – or the conditions under which people feel they conform to the norm – were to some degree easier to transform than participants expected. During the challenge, people experienced how they could lower their standards – wearing the same clothes more than once, washing at lower temperatures – while still conforming to the norms they deal with in different spaces. In other words, while norms are sticky, their performance is not – up to a certain point.

What remains to be seen is how such a “laundry challenge” might be expanded to a broader population, or what the implications might be in relation to policy making and urban development. Given that the living lab approach as employed in this study reached a limited number of people, policy interventions informed by its results could focus on questioning escalating expectations and standards

on a wider scale, for example through initiating public discussion on gender roles in the home, the idea of “more, bigger, better” when it comes to household appliances, or excess in washing linked to a disjunction between cleanliness and hygiene. Here, media partners become important catalysts for change, in broadcasting live experiments or bringing into public debate the question of limits in relation to wellbeing. In such an effort, in Switzerland, a television crew followed one household before and after the challenge, with an appearance in a daily news segment.³ In addition, building developers, architects, and public authorities might further reflect on how to integrate the findings from this project in the design of interior spaces in homes, such as providing storage facilities for “used” clothing for example. Schools, the workplace, and other communities of interest are also spaces where reductions in consumption patterns could be discussed in relation to everyday life, social norms, and social relations.

What does this mean for negotiating, defining, and implementing consumption corridors in relation to maxima and minima? Through the critical reexamination of the mundane, sticky practice of doing laundry, households were able to significantly reduce their laundry cycles. While participants in Finland and Switzerland may have been adhering individually to a set target (halved laundry cycles), they did so as part of an effort involving over 300 households across Europe. In all countries, people were able to renegotiate their standards through a highly reflexive process, set within a specific time-space configuration: four weeks in the home. In this specific setting, the consumption corridors did not need to be imposed, but were agreed upon by the participants and then became the basis for experimentation. For some people more reliant on the views of others, washing laundry more frequently was still desirable, while for others, washing less did not change their own expectations around cleanliness and hygiene, or their everyday interactions. This observation demonstrates how, in any definition of a corridor, diversity in practices must be accounted for, so long as the goal of sufficiency is to allow a varied group of people to meet their basic needs within limits. And yet, limits are not “out there” – in relation to planetary boundaries, for example, or imposed by some higher order: they must emerge from a societal process and account for questions of social justice (Kallis 2019). The living lab experiment showed that setting limits toward consumption corridors can be achieved when people come together, freely, in a change initiative and when reducing consumption is compatible with sustainable wellbeing.

Notes

1. In Geneva and Helsinki, the households were recruited in a “community of place.” In Geneva, all respondents lived in the same building while in Helsinki the households resided in six buildings in the same neighborhood.
2. The ENERGISE project did not capture whether certain machines had “smart” technology features such as weighing laundry for reduced water and energy intensity. In both Switzerland and Finland, washing machines were fairly similar and of a high energy rating. Dryers were less common, and in a few buildings, a special heated room for drying clothes was available.
3. To watch the segment (in French), see <https://www.rts.ch/info/suisse/10064763-le-defi-energise-pour-sensibiliser-a-sa-consommation-d-energie.html>.

Acknowledgments

We are grateful to all the households who participated in this study, as well as our consortium partners for fruitful discussions and exchanges. We also thank the Swiss and Finnish research teams for contributing to data gathering, specifically Laure Dobigny, Eva Heiskanen, Kaisa Matschoss, Eeva-Lotta Apajalahti, Jari Kolehmainen, Jenni Happonen, Liisa Kallio, and Siiri Söyrinki. Laurence Godin was affiliated with the University of Geneva when she undertook the research on which this article is based.

Disclosure statement

No conflict of interest was reported by the authors.

Funding

The European Network for Research, Good Practice and Innovation for Sustainable Energy (ENERGISE) was supported by the European Commission in the framework of the H2020 program under grant number 727642 for the years 2016–2019.

ORCID

Laurence Godin  <http://orcid.org/0000-0001-8639-7931>
 Senja Laakso  <http://orcid.org/0000-0002-9156-4252>
 Marlyne Sahakian  <http://orcid.org/0000-0003-0196-7865>

References

- Abrahamse, W., L. Steg, C. Vlek, and T. Rothengatter. 2005. “A Review of Intervention Studies Aimed at Household Energy Conservation.” *Journal of Environmental Psychology* 25 (3): 273–291. doi:10.1016/j.jenvp.2005.08.002.
- Akenji, L. 2014. “Achieving Absolute Reductions in Material Throughput and Energy Use in Society.” *Journal of Cleaner Production* 65: 1–2. doi:10.1016/j.jclepro.2013.11.033.
- Aro, R. 2017. “Living Standards and Changing Expectations: Investigating Domestic Necessity and Environmental Sustainability in an Affluent Society.”

- Doctoral dissertation, University of Jyväskylä, Jyväskylä, Finland.
- Blättel-Mink, B., B. Brohmann, R. Defila, et al. 2013. *Konsum-Botschaften: Was Forschende für die gesellschaftliche Gestaltung nachhaltigen Konsums empfehlen (Consumption Messages: What Researchers Recommend for the Social Organization of Sustainable Consumption)*. Stuttgart: S. Hirzel.
- Brischke, L.-A., L. Leuser, M. Duscha, et al. 2016. *Energiesuffizienz: Strategien und Instrumente für eine technische, systemische und kulturelle Transformation zur nachhaltigen Begrenzung des Energiebedarfs im Konsumfeld Bauen (Wohnen Endbericht) (Energy Sufficiency: Strategies and Instruments for a Technical, Systemic and Cultural Transformation for a Sustainable Limitation of Energy Demand in Building and Living Consumption Areas, Final Report)*. Heidelberg: Institute for Energy and Environmental Research. https://www.ifeu.de/wp-content/uploads/energiesuffizienz_endbericht.pdf.
- Darby, S., and T. Fawcett. 2018. *Energy Sufficiency: An Introduction. A Concept Paper for the European Council for an Energy Efficient Economy*. Oxford: University of Oxford, Environmental Change Institute.
- Di Giulio, A., and D. Fuchs. 2014. "Sustainable Consumption Corridors: Concept, Objections, and Responses." *GAIA* 23 (3): 184–192. doi:10.14512/gaia.23.S1.6.
- Doyal, L., and I. Gough. 1991. *A Theory of Human Need*. Basingstoke: Palgrave Macmillan.
- Gough, I. 2017. *Heat, Greed and Human Need: Climate Change, Capitalism and Sustainable Wellbeing*. Cheltenham: Edward Elgar.
- Elias, N. 1994 [1939]. *The Civilizing Process: Sociogenetic and Psychogenetic Investigations*. Oxford: Blackwell.
- Guillen-Royo, M., and H. Wilhite. 2015. "Wellbeing and Sustainable Consumption." In *Global Handbook of Quality of Life*, edited by Glatzer, W., Camfield, L., Möller, V. and Rojas, M., 301–316. Dordrecht: Springer.
- Hansen, A. 2018. "'Sticky' Energy Practices: The Impact of Childhood and Early Adulthood Experience on Later Energy Consumption Practices." *Energy Research and Social Science* 46: 125–139. doi:10.1016/j.erss.2018.06.013.
- Heiskanen, E., K. Matschoss, S. Laakso, and E.-L. Apajalahti. 2019. "A Critical Review of Energy Behaviour Change: The Influence of Context." In *Energy and Behaviour: Towards a Low Carbon Future*, edited by Lopes, M., Antunes, C. and Janda, K., 391–417. New York: Academic Press.
- Jack, T. 2018. "Negotiating Conventions: Cleanliness, Sustainability and Everyday Life." Doctoral dissertation., Lund University, Lund, Sweden.
- Kallis, G. 2019. *Limits: Why Malthus was Wrong and Why Environmentalists Should Care*, Palo Alto, CA: Stanford University Press.
- Keller, M., B. Halkier, and T. Wilska. 2016. "Policy and Governance for Sustainable Consumption at the Crossroads of Theories and Concepts." *Environmental Policy and Governance* 26 (2): 75–88. doi:10.1002/eet.1702.
- Laakso, S. 2012. "Hyvinvoinnin Sosiaaliset ja Ekologiset Rajat (The Social and Ecological Boundaries of Well-Being)." *Hyvinvointikatsaus*, 4: 29–35.
- Laakso, S. 2017a. "Giving up Cars: The Impact of a Mobility Experiment on Carbon Emissions and Everyday Routines." *Journal of Cleaner Production* 169: 135–142. doi:10.1016/j.jclepro.2017.03.035.
- Laakso, S. 2017b. "Creating New Food Practices: A Case Study on Leftover Lunch Service." *Food, Culture and Society* 20 (4): 631–650. doi:10.1080/15528014.2017.1324655.
- Laakso, S., E. Heiskanen, and K. Matschoss. 2017. *ENERGISE Living Labs Background Report*. ENERGISE (European Network for Research, Good Practice, and Innovation for Sustainable Energy), Deliverable No. 3.2. Accessed 23 April 2020. http://www.energise-project.eu/sites/default/files/content/ENERGISE_D3.2_141117_FINAL_0.pdf.
- Laakso, S., K. Matschoss, and E. Heiskanen. 2019. *Online Tools and User Community for Scaling up ENERGISE Living Labs*. ENERGISE (European Network for Research, Good Practice, and Innovation for Sustainable Energy), Deliverable No. 3.6. Accessed 23 April 2020. http://www.energise-project.eu/sites/default/files/content/ENERGISE_D3.6_FINAL.pdf.
- Lettenmeier, M., S. Lähteenoja, T. Hirvilampi, and S. Laakso. 2014. "Resource Use of low-income households-approach for defining a decent lifestyle?" *Science of the Total Environment* 481: 681–684. doi:10.1016/j.scitotenv.2013.11.048.
- Liddell, C., and C. Morris. 2010. "Fuel Poverty and Human Health: A Review of Recent Evidence." *Energy Policy* 38 (6): 2987–2997. doi:10.1016/j.enpol.2010.01.037.
- Lorek, S., and J. Spangenberg. 2018. *Stocktaking of Social Innovation for Energy Sufficiency*. EUFORIE (European Futures for Energy Efficiency), Deliverable No. 5.3. Accessed 23 April 2020. https://sites.utu.fi/euforie/wp-content/uploads/sites/182/2019/05/649342_EUFORIE_D5.3.pdf.
- Maller, C., and Y. Strengers. 2013. "The Global Migration of Everyday Life: Investigating the Practice Memories of Australian Migrants." *Geoforum* 44: 243–252. doi:10.1016/j.geoforum.2012.09.002.
- Martiskainen, M. 2007. *Affecting Consumer Behaviour on Energy Demand: Final Report to EdF Energy*. Sussex Energy Group, Science and Technology Policy Research. Accessed 23 April 2020. <https://core.ac.uk/download/pdf/2720647.pdf>.
- Meyer, M. 2017. *La force (é)vocative des archives visuelles dans la situation d'enquête par entretiens: Une étude par photo-élicitation dans le monde ambulancier (The evocative force of visual archives in interview surveys: A photo-elicitation study in the world of paramedics)*. Accessed 23 April 2020. <https://rfmv.fr/numeros/1/articles/la-force-evocative-des-archives-visuelles-dans-la-situation-d-enquete-par-entretiens/>.
- Middlemiss, L. 2017. "A Critical Analysis of the New Politics of Fuel Poverty in England." *Critical Social Policy* 37 (3): 425–443. doi:10.1177/0261018316674851.
- Offer, S. 2014. "The Costs of Thinking about Work and Family: Mental Labor, Work-Family Spillover, and Gender Inequality among Parents in Dual-Earner Families." *Sociological Forum* 29 (4): 916–936. doi:10.1111/socf.12126.
- Pantzar, M., and E. Shove. 2010. "Understanding Innovation in Practice: A Discussion of the Production

- and Re-Production of Nordic Walking.” *Technology Analysis and Strategic Management* 22 (4): 447–461. doi:10.1080/09537321003714402.
- Pääkkönen, H., and R. Hanifi. 2011. *Ajankäytön muutokset 2000-luvulla* [Changes in Time Use in the 2000s]. Helsinki: Tilastokeskus.
- Pickering, L., and P. Wiseman. 2019. “Dirty Scholarship and Dirty Lives: Explorations in Bodies and Belonging.” *The Sociological Review* 67 (4): 746–765. doi:10.1177/0038026119854244.
- Pickering, L., P. Wiseman, and S. Armstrong. 2019. “Down the Pan: New Directions in the Sociology of Dirt.” *The Sociological Review* 67 (4): 743–942. doi:10.1177/0038026119854243.
- Rau, H., and E. Grealis. 2017. *Everyday Practices, Cultural Conventions and Energy Use: Researching New Opportunities for Reducing Domestic Energy Use in Europe*. ENERGISE (European Network for Research, Good Practice and Innovation for Sustainable Energy), Deliverable No. 1.2. Accessed 23 April 2020. http://www.energise-project.eu/sites/default/files/content/ENERGISE_D1.2_310717_Final_0.pdf.
- Raworth, K. 2017. *Doughnut Economics: Seven Ways to Think like a 21st-Century Economist*. White River Junction, VT: Chelsea Green Publishing.
- Rinkinen, J. 2015. “Demanding Energy in Everyday Life: Insights from Wood Heating into Theories of Social Practice.” Doctoral dissertation., Aalto University, Helsinki, Finland.
- Robertson, L. 2017. “Mothers and Mental Labor: A Phenomenological Focus Group Study of the Thinking Work Involved in Parenting and Household Management.” Doctoral dissertation., Biola University, La Mirada, California.
- Robertson, L., T. Anderson, M. Hall, and C. Kim. 2019. “Mothers and Mental Labor: A Phenomenological Focus Group Study of Family-Related Thinking Work.” *Psychology of Women Quarterly* 43 (2): 184–200. doi:10.1177/0361684319825581.
- Rockström, Johan, Will Steffen, Kevin Noone, Asa Persson, F. Stuart Chapin, Eric F. Lambin, Timothy M. Lenton, et al. 2009. “A Safe Operating Space for Humanity.” *Nature* 461 (7263): 472–475. doi:10.1038/461472a.
- Rouse, J. 2007. “Social Practices and Normativity.” *Philosophy of the Social Sciences* 37 (1): 46–56. doi:10.1177/0048393106296542.
- Sahakian, M. 2018. “Constructing Normality through Material and Social Lock-in: The Dynamics of Energy Consumption among Geneva’s More Affluent Households.” In *Demanding Energy: Space, Time and Change*, edited by Hui, A., Day, R. and Walker, G., 51–71. Basingstoke: Palgrave Macmillan.
- Sahakian, M. 2019. “More, Bigger, Better’ Household Appliances: Contesting Normativity in Practices through Emotions.” *Journal of Consumer Culture*, published November 26. doi:10.1177/1469540519889983.
- Sahakian, M., and B. Bertho. 2018. “Exploring Emotions and Norms around Swiss Household Energy Usage: When Methods Inform Understandings of the Social.” *Energy Research and Social Science* 45: 81–90. doi:10.1016/j.erss.2018.06.017.
- Sahakian, M., P. Naef, C. Jensen, et al. 2019a. *Challenging Conventions towards Energy Sufficiency: Ruptures in Laundry and Heating Routines in Europe*. ECEEE Summer Study, Hyères, France. Accessed 23 April 2020. https://www.ecee.org/library/conference_proceedings/ecee_Summer_Studies/2019/1-the-dynamics-of-limiting-energy-consumption/challenging-conventions-towards-energy-sufficiency-ruptures-in-laundry-and-heating-routines-in-europe.
- Sahakian, M., G. Wallenborn, and L. Godin. 2019b. *Report on the Analysis of ENERGISE Living Labs Data Across All Eight Participating Countries*. ENERGISE (European Network for Research, Good Practice, and Innovation for Sustainable Energy), Deliverable No. 5.2. Accessed 23 April 2020. http://www.energise-project.eu/sites/default/files/content/ENERGISE_D5%202260919_Final.pdf.
- Sahakian, M., and H. Wilhite. 2014. “Making Practice Theory Practicable: Towards More Sustainable Forms of Consumption.” *Journal of Consumer Culture* 14 (1): 25–44. doi:10.1177/1469540513505607.
- Santarius, T. 2015. “Energy Efficiency, Human Behavior, and Economic Growth: Challenges to Cutting Energy Demand to Sustainable Levels.” *AIP Conference Proceedings* 1652 (70): 70–81.
- Seidl, R., C. Moser, and Y. Blumer. 2017. “Navigating Behavioral Energy Sufficiency: Results from a Survey in Swiss Cities on Potential Behavior Change.” *PLoS One* 12 (10): e0185963. doi:10.1371/journal.pone.0185963.
- Shove, E. 2018. “What is Wrong with Energy Efficiency?” *Building Research and Information* 46 (7): 779–789. doi:10.1080/09613218.2017.1361746.
- Shove, E., F. Trentmann, and R. Wilk. 2009. *Time, Consumption and Everyday Life: Practice, Materiality and Culture*. New York: Bloomsbury.
- Spangenberg, J. 2002. “Environmental Space and the Prism of Sustainability: Frameworks for Indicators Measuring Sustainable Development.” *Ecological Indicators* 2 (3): 295–309. doi:10.1016/S1470-160X(02)00065-1.
- Spangenberg, J., and S. Lorek. 2019. “Sufficiency and Consumer Behaviour: From Theory to Policy.” *Energy Policy* 129: 1070–1079. doi:10.1016/j.enpol.2019.03.013.
- Spurling, N., A. McMeekin, E. Shove, et al. 2013. “Interventions in Practice: Re-Framing Policy Approaches to Consumer Behaviour.” *Sustainable Practices Research Group Report* 2013: 56. <http://www.sprg.ac.uk/uploads/sprg-report-sept-2013.pdf>.
- Sweeney, J., J. Kresling, D. Webb, G. Soutar, and T. Mazzarol. 2013. “Energy Saving Behaviours: Development of a Practice-Based Model.” *Energy Policy* 61: 371–381. doi:10.1016/j.enpol.2013.06.121.
- Swiss Federal Statistical Office. 2019. *Activité professionnelle, tâches domestiques et familiales*. (Professional Activity, Domestic and Family Tasks). Bern: Swiss Federal Statistical Office. Accessed 23 April 2020. <https://www.bfs.admin.ch/bfs/fr/home/statistiques/population/familles/activite-professionnelle-taches-domestiques-familiales.html>.
- Thomson, H., C. Snell, and S. Bouzarovski. 2017. “Health, Well-Being and Energy Poverty in Europe: A Comparative Study of 32 European Countries.” *International Journal of Environmental Research and Public Health* 14 (6): 584. doi:10.3390/ijerph14060584.
- Toulouse, E., M. Sahakian, S. Lorek, et al. 2019. “Energy Sufficiency: How Can Research Better Help and Inform Policy-making.” ECEEE Summer Study Proceedings,

Hyères, France. Accessed 23 April 2020. https://www.eceee.org/library/conference_proceedings/eceee_Summer_Studies/2019/.

Vadovics, E., Goggins, G. (eds). 2019. ENERGISE Living Labs: Methodology, Experience and Lessons Learned. ENERGISE (European Network for Research, Good Practice, and Innovation for Sustainable Energy), Deliverable No. 7.12. Accessed 23 April 2020. http://www.energiseproject.eu/sites/default/files/content/D7.12_ENERGISE_LivingLabs_spread.pdf.

Walker, G., N. Simcock, and R. Day. 2016. "Necessary Energy Uses and a Minimum Standard of Living in the United Kingdom: Energy Justice or Escalating Expectations?." *Energy Research and Social Science* 18: 129–138. doi:10.1016/j.erss.2016.02.007.

Warde, A. 2005. "Consumption and Theories of Practice." *Journal of Consumer Culture* 5 (2): 131–153. doi:10.1177/1469540505053090.

Appendix 1. Sociodemographic data of the participants

	Finland		Switzerland	
	Number	%	Number	%
Household size				
1–2	27	63	11	31
3–4	12	28	21	60
≥5	4	9	3	9
Age group of the contact person				
25–34	9	21	4	11
35–44	8	19	8	23
45–54	10	23	15	43
55–64	9	21	3	9
≥65	7	16	4	11
Gender of the contact person				
Female	33	77	20	54
Male	10	23	17	46
Employment status of the contact person				
Full-time	21	57	10	27
Part-time	1	3	17	46
Entrepreneur	7	19	3	8
Unemployed	0	0	0	0
Student	3	8	1	3
Retired	4	11	3	8
Other	1	3	3	8
Education level of the contact person				
Basic education	1	3	0	0
Secondary education	4	10	1	3
Vocational education/training	9	23	3	8
Higher education	24	62	31	84
Other	1	3	2	5

Appendix 2. Laundry challenge kits for Switzerland and Finland

The laundry challenge kits were distributed to every participating household during the deliberation interview, as the challenges were introduced. They included:

- An eco-friendly stain remover
- A brush-and-lint remover
- Over-the-door rack/hook
- An ENERGISE apron
- A brochure offering tips for energy efficient laundry and keeping clothes cleaner for longer

Picture 1. Swiss laundry challenge kit



Picture 2. Finnish laundry challenge kit



Excerpt from the brochure: TRY THIS!

Take a holiday from laundry! We tend to wear clothes for longer when on holidays – why not do the same at home? You could even pack a (small!) bag and only wear what's in that bag for a week or two.

Brush it off: some stains can be removed by brushing them off. Place the garment onto a flat surface and brush continuously in the same direction with firm strokes. No rotary movements, please, as they will rub the dirt deeper into the fabric.

Separate and fold: Create an area for every household member to store clothes that can be worn again. Hang or fold them to keep them crease-free.

Get comfy! Change into different clothes at home to keep clothes you wear at work or on special occasions clean and crisp for longer.

Switch roles: if you live with someone else, re-organize and re-distribute this household chore – and see what happens when others take care of gathering, washing, drying and folding the laundry.

If you have a dryer, pretend it is out of order!

TIPS & TRICKS FOR ENERGY-EFFICIENT WASHING

Here is a simple method for using your washing machine at maximum capacity without overloading: You

need to be able to fit your stretched-out hand held upright all the way through to the back wall of the machine drum.

Choose the temperature wisely:

- Washing at 40 °C instead of at 60 °C or at 30 °C instead of at 40 °C cuts electricity use of a laundry cycle in half.
- The temperature indicated on garment labels is the maximum, not the recommended temperature.
- Wash at 30 °C (or “cold”) as often as possible.
- Wash towels and bedsheets at 40 °C unless someone is ill or works in health care, in that case 60 °C is more recommendable.
- Wash at 60 °C about once every 2–3 months (e.g., tea towels or cleaning cloths) to keep your machine bacteria free!

Appendix 3. Average number of laundry cycles per household size before and three months after the challenge

	HH size	Number of laundry cycles per household		Reduction in laundry cycles		Number of laundry cycles per HH member		Reduction in laundry cycles	
		Baseline	Follow-up	Number	%	Baseline	Follow-up	Number	%
Finland	1	2.4	1.1	1.3	54.4	2.4	1.1	1.3	54.4
	2	3.3	2.6	0.7	20.5	1.6	1.3	0.3	20.5
	3	4.0	2.8	1.3	31.3	1.3	0.9	0.4	31.3
	4+	5.7	2.7	3.0	53.3	1.3	0.6	0.8	57.5
	All HHs	3.7	2.3	1.3	36.2	1.7	1.0	0.6	36.8
Switzerland	1	1.3	0.8	0.6	42.3	1.3	0.8	0.6	42.3
	2	1.6	1.4	0.2	11.6	0.8	0.7	0.1	11.6
	3	2.6	2.4	0.2	6.7	0.9	0.8	0.1	6.7
	4+	3.9	2.3	1.6	40.4	0.9	0.6	0.4	38.2
	All HHs	2.8	1.8	1.0	34.4	0.9	0.7	0.3	27.5

Source: Baseline and follow-up surveys

Appendix 4. Changes in criteria for deciding when items require washing

	Finland			Switzerland		
	Share of households using this criterion, %					
	Before the challenge	Directly after	3 months after	Before the challenge	Directly after	3 months after
Stains	15	11	18	23	24	9
Smell	31	50	61	37	41	70
Length of wear	49	33	21	37	31	17
Don't know or other	5	6	0	3	3	4

Source: Baseline, closing, and follow-up surveys