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fostering sustainable clothing via social marketing tools

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summary

Current clothing consumption behavior, with regard to what clothes to acquire, where to acquire it, how to use it, and how to discard it, is often unsustainable. While concerns about environmental impacts induced by clothing production and consumption are becoming increasingly important for consumers, and while an increasing number of consumers would like to consume clothing in a more sustainable way, such good intentions are still rarely translated into different real behavior change.

In this report, we discuss social marketing as one potential way offering support to consumers for changing their behavior. We describe community based social marketing (CBSM) as a specific and systematic social marketing approach. Each step necessary for developing a CBSM strategy is introduced, and a specific component of CBSM strategies, the selection of appropriate tools for behavior change, is elaborated in detail. We link the theoretical knowledge to the five consumer challenges (promoting environmentally friendly clothing products, supporting consumers´ use of alternative business models, prolonging use, optimizing use-phase handling of clothes, increasing recycling rates) and offer examples for which and how tools can be applied for fostering each.

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1. introduction

Transforming the current system of clothing production and consumption towards sustainability is necessary and requires change among all actors involved, including producers, retailers, governments, and consumers. While report D3.2.2.1 introduced policy recommendations, the current report focuses on communication strategies targeting consumers. Consumers can play an important role in this necessary transition — that relates to each life cycle stage of clothing — through their decisions of what clothes to acquire, how to use them and where to discard them.

1.1. summary of the last social marketing toolbox for the education sector (MFF I)

As part of Mistra Future Fashion I, we prepared a report called 'Future-fashion-alternatives.com – a social marketing toolbox to promote sustainable fashion alternatives' (Müller, Gwozdz & Gwozdz, 2015). In the following, we provide a short summary of 'Future-fashion-alternatives', as it serves as the backbone of this report. In summary, 'Future-fashion-alternatives' applied social marketing principles with two aims; firstly, to encourage students between 15-19 years to engage with topics of (un)sustainable fashion and secondly, to reflect on possibilities for changing their own fashion consumption behavior. It was designed as WebQuest – a specific type of web-based workshop method – and developed for an educational context with the aim of fostering behavior change.

For this report, sustainable consumption was defined as buying more environmentally friendly and socially fair produced clothing products (e.g., clothing made from certified organic cotton) and dealing with already possessed clothing items in a more responsible way (e.g., prolonging use, reselling or swapping). On average, all behavioral alternatives were rated positively. Theoretically, it was based on the Theory of Planned Behavior (Ajzen, 1991) and the Motivation-Opportunity-Ability-Behavior (MOAB) model (Thøgersen, 2010; MacInnis, 1991), both suitable to explain the mechanisms producing an intention to perform a particular behavior. As intentions do not always translate into behavior, the report included strategic planning (i.e., action planning with regard to when, where and how to perform the behavior), and coping planning (i.e., thinking about how to overcome potential barriers)—both derived from the Health Action Process Approach (HAPA) developed to foster health behaviors (Schwarzer, 2008).

Commitment, action knowledge and convenience were other strategies used in the WebQuest. An evaluation of workshops based on the WebQuest showed that especially social norms, both descriptive and injunctive, with regard to sustainable consumption options increased after as compared to before the workshops. This means that participants both more so perceived that others are using the alternative behavior and stronger social expectations to make us of the alternative behaviors. Potentially this can be explained through the group setting, which can foster the development of social norms. In a three-month follow up, both attitudes (e.g. swapping clothes is good or beneficial) and outcome evaluation (e.g. 'By using one of the four

alternatives… can I help to reduce the big amount of clothing waste.') were significantly more positive than before the workshop. At the behavioral level, participants significantly more reported reusing and DIY behaviors. For both norm variables, however, the rating decreased again at after the three-month period.

1.2. aim of the current report

Whereas the previous report focused on a very limited selection of tools and applied a full marketing strategy, the current report's aim is to provide a broader view of available social marketing tools and how they relate to behavior change.

Firstly, in addition to reviewing the social marketing literature, this report incorporates theoretical inputs from environmental psychology, such as theoretical approaches to explaining environmentally friendly behaviors and the steps towards behavior change. In doing so, we offer a broad picture of how to understand motivations for environmentally friendly behaviors and how to engage consumers in them.

Secondly, in this report, we delimit our focus to communication tools, and therefore do not discuss structural tools, which are tools that aim at changing the context in which consumer decisions take place (Steg & Vlek, 2009). We acknowledge, however, that in many instances successful interventions also require structural changes (e.g., changes in pricing, technology, policies) alongside communication strategies in order to reach meaningful and long-lasting behavior change.

Thirdly, we discuss potential approaches of how to apply the introduced communication tools in practice in the future. For this purpose, we use the 'five consumer challenges' as they are introduced in report D3.2.2.1 (Nielsen & Gwozdz, 2018) and highlight ideas how to foster these with different tools.

2. theoretical background

In the following the theoretical frame for this report will be set. We will discuss the 'five consumer challenges' as potential pathways for sustainable clothing consumption as well as the concept of social marketing.

2.1. the five consumer challenges

In report D3.2.2.1 (Nielsen & Gwozdz, 2018), five key consumer challenges were identified as critical for improving the environmental sustainability of clothing consumption. Below, we briefly summarize these challenges.

promoting environmentally friendly clothing products
The first challenge is *promoting environmentally friendly clothing products*, which to a large extent is based on the lack of information presented to consumers about the environmental impacts during production, and their resulting difficulty in making consumption decisions based on the actual environmental performance of products. Labels are a first step to help consumers, but currently many labels exist for clothing products with only little standardization. In order for labels to be effective, consumers need to be knowledgeable about existing labels (e.g., the Global Organic Textile Standard (GOTS)) and what they stand for. The labels often focus on different environmental or social problems, and the lack of standardized requirements, as well as the voluntary nature of many labels, can lead to a lack of trust in the labels (Iwanow et al., 2005). Furthermore, difficulties associated with the promotion of environmentally friendly clothing from niche to main market are often questions of availability, accessibility and affordability—and it is well-known that many other factors than information influence purchase decisions.

supporting consumers' use of alternative business models
The second challenge is *supporting consumers' use of alternative business models*, such as fashion leasing, clothing libraries and swapping markets. Similar to challenge one, a lack of information as well as availability and accessibility are the main characteristic of this challenge. In addition, the prevalence of resilient perceptions of, for example, how to consume clothing, ownership and hygiene can hinder the success of many alternative business models. Moreover, alternative business model can be challenged by the fact that they might not involve the same level of enjoyment as acquiring new clothing through conventional ways. But from a financial perspective, alternative business models can be cheaper for the consumer than buying new, especially environmentally friendly, clothing items.

prolonging use
The third challenge, *prolonging use*, deals with the constant increase in clothing items sold (near doubling in the number of items sold over the last 15 years). Research suggests that consumers actively use less than half of their possessed clothing and often forgot the diversity of clothes owned (Choo et al., 2014). In the light of these developments, one of the most promising strategies for reducing clothing's environmental impact is to reduce the acquisition of new products and prolong the use of existing clothes (Roos et al., 2016). In detail, such strategies could entail reflections on clothing needs, repair, wardrobe utilization and overall reduced consumption on the consumer side and improving quality and redesign for durability on the technical producer side. What make this behavior a challenge is the vast amounts of clothing items available at affordable prices, combined with extensive marketing efforts to promote ever-changing styles, all to motivate consumers to buy more.

optimizing use-phase handling of clothes
Optimizing use-phase handling of clothes is the fourth challenge identified and deals with an often-neglected part of clothing consumption – the use phase. The main factors influencing the environmental burden of clothing in the use phase are: how often consumers wash, at which temperatures and whether they use a dryer. Research suggests that consumers vary a lot in their behavior with regard to these factors, and not all behaviors have the same impact in each region of the world. With regard to the electricity usage, which is particularly high for dryers, changing behavior will have greater positive impact on the environment in countries reliant on fossil fuels for electricity production (e.g., Poland) as compared to countries using mostly renewable energy sources (e.g., Norway). Unlike other challenges, availability, accessibility and affordability are less of a challenge for more environmentally friendly use-phase behaviors. For example, saving energy and water through less frequent washing and washing at lower temperatures do not require access to any specific technology or product, and can be economically sensible, too.

increasing recycling rates
The fifth challenge is *increasing recycling rates* as the last resort if the previous ways – reduced consumption, redesign, reuse and repair, including second-hand and other alternative business models – are not feasible. A large amount of clothing is currently sent to landfill, often without energy recovery (United States Environmental Protection Agency, 2016). While it is unavoidable that certain clothing items will reach their end-of-life point, it is important to motivate consumers to make their unwanted clothes available for recycling. This, however, needs to be made easy for the consumer (e.g., through available and accessible collection points).

2.2. social marketing – changing behavior for the common good

Social marketing is a specific sub-branch in the field of marketing, which applies marketing techniques to social issues. The goal of social marketing campaigns, as opposed to traditional marketing, is to improve the well-being of communities and enabling effective social change where it is needed (Donovan & Henley, 2010). General speaking, the aim is not profits but the common good and fostering behaviors that benefit society as a whole. In order to reach this goal, social marketing is relying on traditional marketing tools to convince recipients of the conveyed message; for example, that reducing personal clothing consumption is a worthwhile goal to reduce environmental pressures.

Social marketing has a long-standing history in advising how to foster behavior change as one of the cornerstones to reach sustainability. It has, amongst other, been successfully applied to decreasing the use of plastic bags, reducing water use, and reducing emissions through anti-idling (McKenzie-Mohr, Lee, Schultz & Kotler, 2012). One specific form of social marketing is community based social marketing (CBSM) (McKenzie-Mohr, 2000). CBSM acknowledges that providing information alone is often not enough to overcome potential barriers for acting in more sustainable ways and truly promote behavior change (Prothero et al., 2011; Vermeir & Verbeke, 2006). CBSM combines important aspects of social marketing—including barriers and benefits analyses, and piloting of intervention programs—with behavioral insights from social and environmental psychology (McKenzie-Mohr & Schultz, 2014). The inclusion of 'community' rests mostly on the idea that initiatives at community level and personalized channels are more

effective (Schultz, 2014). However, not every CBSM strategy is solely based on community communication. What they all have in common is a communication approach that is more nuanced than large mass-media information campaigns with limited effectiveness (McKenzie-Mohr, 2011).

Interventions aiming to change behavior usually take considerable resources (time, money etc.). It is therefore vital to plan such interventions well and design them in order to maximize outputs given the resources at hand. The CBSM framework helps doing so by providing a useful step-by-step guideline on how to successfully change behavior. The included steps are:

- carefully selecting a behavior with a positive impact or benefit for the environment,
- deciding which segments to target and
- identifying barriers and benefits to the behavior for this segment,
- developing and pilot testing a strategy of communication tools to address these barriers and benefits
- and only then implementing the programs that showed successful on a broad scale.

In the following, each step is described very briefly. The individual steps are not the main focus of the current report, but included to give a complete overview over the CBSM approach. The main focus of the current report lies with the specific strategies for behavior change as discussed in the literature, and these will be explained more in-depth in the next section.

selecting behaviors and target groups

A goal can often be achieved by performing different behaviors. For example, reducing emissions associated with clothing consumption can be achieved by reducing consumption or by purchasing secondhand products instead of new products (see the five challenges in section 2.1., p.7). It is of utmost importance to identify the target behaviors that promise the greatest potential to reduce environmental impacts and focus the intervention on such 'high-impact' behaviors. In order to facilitate this process, a list with all possible behaviors contributing to the set goal should be made (McKenzie-Mohr, 2011).

These behaviors should fulfill two characteristics: First, they need to be non-divisible (i.e., referring to a single action that can be done by consumers). Examples would be buying every garment made from organic cotton or washing every garment at 30°C. The target behavior for a CBSM strategy needs to be defined precisely in order to be able to analyze barriers and benefits for each specific behavior. Second, the behaviors should define an end-state (i.e., ideally producing the desired environmental outcome). For example, prolonging the use of clothing items already in possession does not necessarily lead to reduced emissions, it is only in combination with the avoidance of new purchases that it becomes successful.

Once a list with non-divisible end-state behaviors is compiled, they should be analyzed with regard to the following characteristics: their impact on the goal at hand, their penetration rate and their probability. Most favorable behaviors to target will have a high impact, low current penetration rate and high probability of acceptance (e.g., due to high relevance or low cost; McKenzie-Mohr et al., 2012). Frequently, however, trade-offs between these characteristics are necessary.

If the aim is to encourage the performance of a single action, the behavior of choice should be the one that is rated highest when impact, penetration and probability are combined. If long-term behavior change of various behaviors is the aim, also other behaviors can become more suitable. For example, less impactful but highly probable behaviors can be a good choice for a first behavior to tackle. Successfully engaging in an easy first behavior can help consumers to take more substantive action subsequently. The choice of specific behavior(s) to tackle is therefore a process with many determinants, and can additionally be influenced by deliberations about certain target audiences available for interventions and those target audiences' specifics.

Based on one of marketing's core principles, CBSM assumes that successful communication strategies are ideally tailored to specific target audience. This is relevant for both finding impactful target groups (e.g., consumer with high levels of clothing consumption for a reduction intervention), analyzing which behavior is best tackled for the specific target group, and characterizing these target groups to adapt fitting strategies. Therefore, the three steps of tailored campaigns include:

1. dividing the total population of consumers into segments and characterizing these,
2. evaluating one or more segment(s) as target for the intervention (e.g., based on how often they perform the critical behavior that should be changed or how easily the would be willing to adopt new behaviors in this domain), and
3. developing a strategy that fits the characteristics of this segment (Donovan & Henley, 2010).

Thereby multiple strategies can be used to segment the target audience, e.g., based on demographics like age and gender, location, past behavior and psychometrics. Psychometrics refer to defining and addressing largely homogenous consumer segments—for instance with regard to attitudes, values or personality—which can help formulating clear messages matching these consumer segments. Another approach is to segment consumers according to how they relate to the behavior in question, i. e. depending on whether they never heard of it, whether they already consider doing it or whether they were already engaged in the behavior in the past but stopped (Bamberg, 2013). Tailoring communication can help providing information that suits the audience' needs and avoid conveying messages are a mismatch to the individual mindsets of the recipients (Klöckner, 2015).

barriers and benefits analysis

Each set of non-divisible, end-state behaviors has their own barriers and benefits (McKenzie-Mohr, 2000). One can easily imagine that it is a different set of barriers potentially hindering the purchase of second-hand clothing as compared to the mending and prolonged use of one's clothes. It is therefore crucial to understand what motivates or hinders consumers to engage in the specific target behavior chosen for an intervention strategy (Steg & Vlek, 2009). McKenzie-Mohr (2011) suggests an ideal process to identify barriers and benefits of a specific behavior, containing of the following steps: (1) literature review; (2) observation of people engaging in the behavior; (3) focus group interviews to detect (e.g., attitudes with regard to the behavior); and (4) survey research to confirm focus group results with a bigger sample of the target population.

Barriers and benefits can be of internal (e.g., hygiene concerns for washing at 30°) or external nature (e.g., absence of environmentally sustainable clothing products in accessible shops). While internal barriers are readily addressed with communication tools (see section 3 'Communication tools', p. 22) that change attitudes or motivation, external barriers often need

structural changes in choice environments, e.g., in order to make behaviors 'easy'. Examples for the latter are not part of this report, but are discussed to some extent as part of deliverable D3.2.2.1 (Nielsen & Gwozdz, 2018).

The analysis of potential factors that promote or inhibit sustainable behaviors greatly benefits from theoretical deliberations and, where possible, from insights of previous empirical results (Steg & Vlek, 2009). Multiple models have been proposed to explain consumer behavior in general, and environmentally friendly consumer behavior more in particular. They can serve as a starting point for a comprehensive and structured analysis of barriers and benefits. Among these are for example the Theory of Planned Behavior (Ajzen, 1991), the Norm Activation Model (Schwartz, 1977), the Value-Belief-Norm Theory (Stern, 2000) and goal-framing theory (Lindenberg & Steg, 2007). In the following, we will describe the Comprehensive Action Determination Model (CADM) (Klöckner, 2013b; Klöckner & Blöbaum, 2010) as an integrative framework, which includes variables from different theoretical perspectives based on both cost and benefits but also moral and normative concerns.

The CADM has first been introduced by Klöckner & Blöbaum (2010) and has more recently been published in a new adapted and extended version (Klöckner, 2013b). The CADM takes into consideration that normative motivations as personal norms or felt moral obligations to perform a specific behavior can interfere and compete with other non-moral motivational factors, e.g., personal cost-benefit comparisons. Non-moral motivational factors are attitudes towards the behavior, social norms (what others do and what others expect one to do) and perceived behavior control. Together both moral and non-moral motivational factors are direct predictors of intentions, which in turn are direct predictors of environmentally friendly behavior. Personal norms have to become activated in order to have an influence on intentions. This happens through a long chain starting with basic values that first find reflection within more environmental specific values and an environmental worldview. This worldview has an influence on the likelihood of becoming aware of the negative consequences of one's own behavior for the environment and the ascription of responsibility for these consequences to the self. Both awareness and responsibility ascription, together with social norms, form the basis for personal norm, which then mediated through intentions can have an influence on environmentally friendly behavior.

Research has shown both that moral norms can play a crucial role in the context of environmentally friendly behavior (de Groot & Steg, 2009; Fornara, Pattitoni, Mura, & Strazzera, 2016; He & Zhan, 2018) and that values only explain small amounts of consumer behavior (e.g., Stern, Dietz, Abel, Guagnano, & Kalof, 1999)This can be explained by the CADM, which shows that values are important factors, but distant from actual environmentally friendly behavior. They can have an impact on behavior, but mediated through various other influencing factors.
Another important factor included in the CADM and directly related to behaviors are habits. They are automatized behavior responses to environmental cues in stable situations (Klöckner & Matthies, 2004; Verplanken & Aarts, 1999) and can weaken the relationship between intentions and behavior, especially for frequent and repetitive behaviors. An example can be washing temperature, or wear before washing – another behavior that might reduce environmental impact in the use phase. Even if one forms an intention to try wearing items longer before washing, strong habits on when to place clothing items in the washing bin might interfere with this intention.

The CADM has been empirically tested and mostly confirmed with purchase of fuel-efficient cars (Nayum & Klöckner, 2014), prediction of self-reported recycling behavior (Klöckner & Oppedal, 2011) and installation of a wood pallet stove (Sopha & Klöckner, 2011). A meta-analysis across various behaviors, including energy use and conservation, car use and willingness to pay for green energy or green product purchase intention, supports the suggested model (Klöckner, 2013a). However, the impact of these variables on personal norm varies little, indicating that the linear assumption of the VBN theory cannot be confirmed.

While the strength of the CADM lies with its comprehensive inclusion of a vast array of psychological variables, some variables usually are more important than others in given specific contexts (Klöckner, 2013a). This again highlights the importance of preliminary research identifying these important variables for the specific behavior that an intervention wants to target.

At the core of each model discussed so far lies the relationship between intentions and behavior. Empirically, however, results show that there is often a gap between intentions and behavior, or between what people state as their goal and how they actually behave (Carrington, Neville, & Whitwell, 2014; Gollwitzer & Sheeran, 2006; Sheeran & Webb, 2016). Summarizing such research, it becomes clear that intentions, e.g., to change behavior towards a more environmentally friendly alternative, are an important first step that however does not guarantee behavior change. Therefore, the stage model of self-regulated behavior change (Bamberg, 2013) should be discussed as one additional model and 'the most comprehensive stage model that environmental psychology has to offer at the moment' (Klöckner, 2015).

The stage model of self-regulated behavior change integrates theoretical perspectives about behavior change above and beyond intentions. In line with previous stage models (Prochaska & Velicer, 1997), the model assumes that individuals change their behavior by moving through a sequence of four different stages, whereby the transition through these stages reflects changes in the readiness for change. The four stages are called (1) precontemplation, (2) contemplation, (3) preparation/action and (4) maintenance (Bamberg, 2012).
The transition from *precontemplation* to *contemplation* is marked by the formation of a goal intention to change a specific behavior or perform a new behavior. This can happen e. g. due to becoming aware of self-discrepancies. A realization that (conventional) cotton can have a high environmental impact might lead to the goal to avoid it due to a felt obligation to adhere to a personal standard of living environmentally friendly.

In the *contemplation stage*, the behavioral alternative (e.g., buying fewer clothing items, buying second-hand) is analyzed in terms of its potential consequences and difficulty and compared to other behaviors. This can lead to a behavioral intention to perform the behavior, which is connected with a transition to the next stage, the preparation/action stage. Both intentions, goal and behavioral intention, are conceptually aligned with the intention concept in the CADM. But, further steps are necessary to perform a new behavior like e.g. buying second-hand clothing. In the *preparation/action stage* it is mainly so called 'implementation planning' that helps to translate behavioral intentions into real actions.

Implementation planning is about the when, where and how of how to engage in a behavior. It also includes coping skills to deal with real or anticipated problems that might occur. Resulting implementation intentions (e.g., this Saturday I go to second hand shop X to buy Y) mark the end of this stage and the behavior is performed. Ideally, as a next step in the final *maintenance stage*, the new behavior is habitualized, increasing the probability that the behavior change will

be long lasting. Especially important in this stage are skills to resist temptations and to recover quickly and perform the new behavior again even if one failed to do so once.

This theoretical approach offers a broader understanding as in how to design interventions for behavior change. Firstly, it becomes clear that motivating consumers to build an intention might not be enough for changing actual behavior. Further steps to help consumers move along the preparation/action and maintenance stage are necessary. Secondly, it proposes that there is no one-intervention solution that fits all. Special intervention content needs to be developed to fit the needs of consumers depending on their current position along the stages. For example, a consumer that never heard of the environmental impact of cotton needs different intervention material than one that already has a firm intention to reduce the environmental footprint caused by personal clothing consumption but does not yet know how to practically do so – the barriers and benefits for both would significantly differ from each other. This is also reflected in the communication tools introduced in section 3, as different tools are aiming at different stages.

Lastly, it should be noted that despite the importance of the barriers and benefits analysis step, it is often skipped in practice due to restricted time, money or other resource restrictions (McKenzie-Mohr, 2000). It is recommended, however, to always perform at least one or more of the four suggested steps for barrier and benefits identification, if albeit in a reduced version. Preconceived ideas about existing barriers and benefits could potentially lead interventions to fail if not researched and confirmed for the behavior and target group in question.

designing strategies

Intervention strategies should aim at decreasing barriers for desirable behaviors and increasing barriers for undesirable ones. Selecting the correct tools for behavior change therefore heavily depends on the type of behavior and the connected barriers and benefits (McKenzie-Mohr, 2011). Especially when barriers are high (e.g., when a more sustainable behavior is much more costly), difficult, or time-consuming, and benefits are potentially low, structural changes (i.e., changes in the context) are necessary (Schultz, 2014). Such behaviors need to be made more attractive, and opportunities need to be created for consumers to engage in them (Ölander & Thøgersen, 1995; Steg & Vlek, 2009). As we know from the theory of planned behavior (Ajzen, 1991), if perceived behavior control, which also is a proxy for actual behavior control, is low, intentions to perform the behavior are less related to actual behavior. This is easy understood from a practical perspective, as consumers simply not engage in behaviors that are too difficult or set intentions to behave in a more sustainable way that are not achievable due to external restrictions. In such cases, the availability of environmentally friendly alternatives (e.g., environmentally friendly clothing or collection points for recycling unwanted clothing) needs to be improved, legal changes made (e.g., tack-back schemes), and price structures adopted (e.g., via changes in taxation). If benefits are high, however, or barriers are low, a multitude of different behavior change tools is available. Among these are social norms, commitments, prompts, feedback and others, which are described more in detail in section 3 (Schultz & Kaiser, 2012).

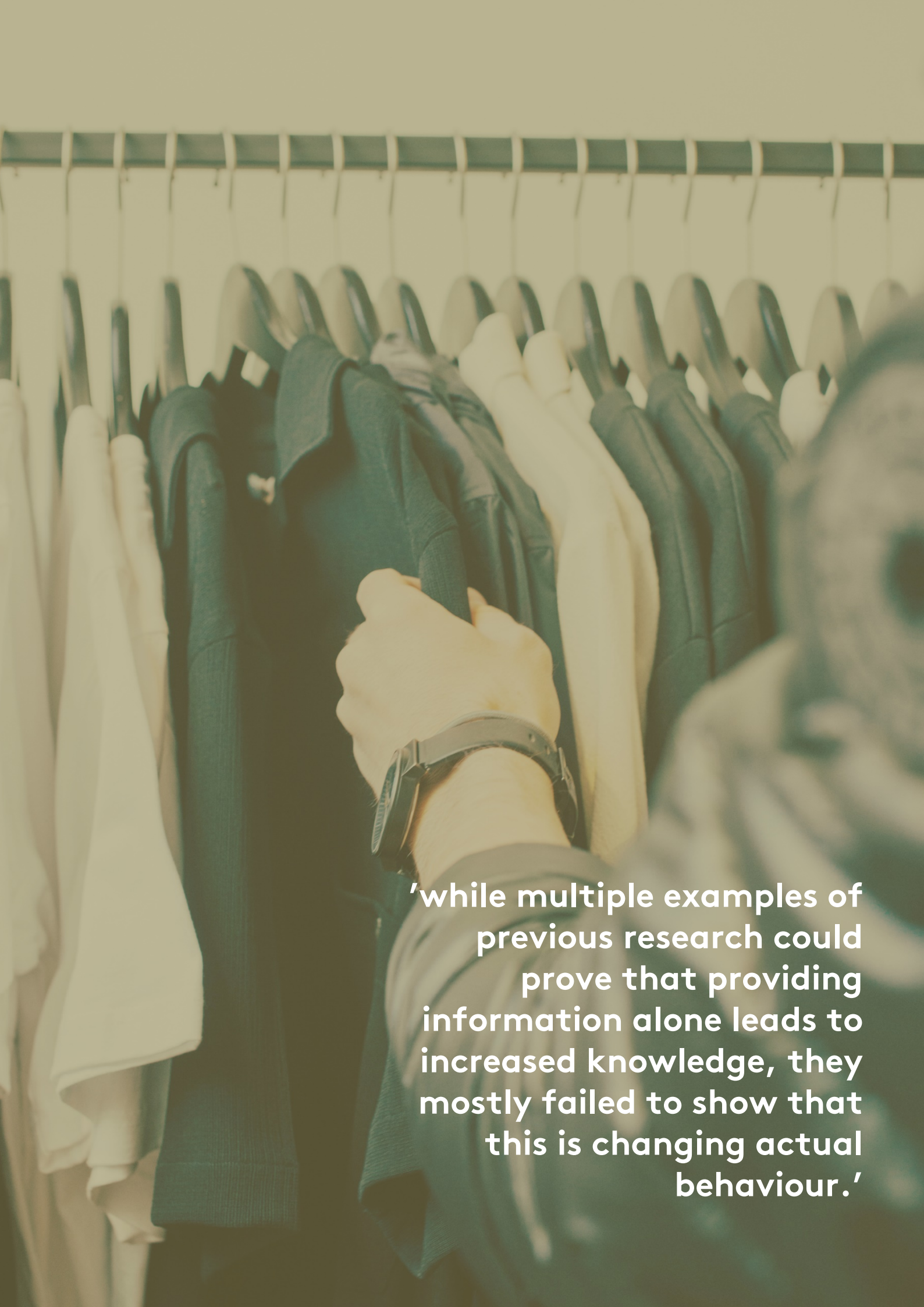
pilot testing and evaluation of intervention programs

Before large scale implementation of any intervention a small pilot should be run (McKenzie-Mohr & Schultz, 2014). It is important to have at least two groups, one intervention group (where tools are applied) and one control group (where nothing is changed) in order to be able to determine that any changes in behavior are connected to the intervention (McKenzie-Mohr, 2012). Participants need to be assigned to both groups randomly. The behavior in question should be measured before and after the intervention. This approach is called pre-test – post-test control group design and allows to be sure that behavior change happened due to the intervention and not to randomly occurring changes in behavior (Abrahamse, 2016). Equally,

proposed model variables which are relevant for behavior change (e.g., attitudes, outcome efficacy) should be measured repeatedly. This way it is possible to test hypotheses about these variables being responsible for behavior change. More importantly, in case interventions fail to show the expected results, these variables can help clarifying which assumption of the theoretical approach to behavior change did not hold true or caused the failing of the intervention (Steg & Vlek, 2009).

For pilot testing it is also possible to test different strategies and compare their effectiveness before designing the final intervention program. If resources allow, multiple groups can use different tools and their outcomes compared to each other, resulting in a more in-depth understanding how these tools combine and which, if any, advantages result.

Otherwise, for the full implementation of intervention programs an identical pre-test – post-test research design should be set up for the evaluation. The most important aspect for pilot testing as well as for later implementation is the measurement of behavior, whereby objective measures of behavior changes (e.g., reduced water and energy consumption as provided through meter readings) are ideal. An accurate behavior measure is the prerequisite for determining the effectiveness of any intervention program. Moreover, for the evaluation of broad-scale implemented interventions, it is beneficial to assess long-term effects. In order to do so, the behavior measurement should be repeated after longer period to see whether interventions help to foster sustained behavior change, especially once the tool from the intervention is removed and no longer influencing behavior). Follow-up surveys are therefore regularly used e.g., three months after the end of an intervention.



'while multiple examples of previous research could prove that providing information alone leads to increased knowledge, they mostly failed to show that this is changing actual behaviour.'

3. communication tools

In the following, we will discuss various tools for behavior change with a specific focus on their theoretical grounding and empirical knowledge about their effectiveness. The latter will also span other consumer areas than fashion because only a limited amount of studies has been carried out in the fashion domain. Nevertheless, we can learn from research conducted in other areas and reflect on what these results potentially mean for the current context. Behavior is always guided by antecedents and by expected consequences (Ölander & Thøgersen, 1995).

We will first introduce antecedent tools, which aim at influencing determinants preceding behavior. These are providing information, goal setting, commitment, prompts, and modeling. Secondly, consequence strategies are described, which on the other hand

3.1. antecedents tools

providing information
Providing information is one of the most common strategies used (e.g., in brochures, TV or public campaigns). It usually informs people about either the disadvantages of current unsustainable behaviors, or the importance and benefits of engaging in sustainable behavior alternatives. The latter can be accompanied by further instructions on how to act, where to get help etc. The underlying assumption is that it is mostly a lack of knowledge, which hinders consumers to take action, and that once this knowledge gap is closed consumers will change their behavior towards more sustainable alternatives (Abrahamse & Matthies, 2012). Providing knowledge can furthermore lead to attitude changes and changes in perceived behavior control (Klöckner, 2015).

Providing information about an environmental problem is one of the first steps towards changing the behavior. However, while multiple examples of previous research could prove that providing information alone leads to increased knowledge, they mostly failed to show that this is changing actual behavior (Abrahamse & Matthies, 2012; Abrahamse et al. 2007; Abrahamse, Steg, Vlek, & Rothengatter, 2005; Klöckner, 2015). This confirms what was discussed in earlier sections, that information is a necessary, yet often not sufficient condition for behavior change. Providing information should be a part of change programs, but accompanied with further tools (McKenzie-Mohr, 2011).

It should be noted that information tailored for specific target groups in questions proved more effective than general information (Klöckner & Ofstad, 2017). One tailoring strategy is to provide specific information that matches the stage the consumer is at in the behavior change process (as detailed in the self-regulated stage model of behavior change; section 'barriers and benefits', p.18 & Bamberg, 2013). Providing detailed information about the when and how of sustainable consumption might confuse consumers at an early stage, who have not yet formed a goal to consume more sustainable. But, it might be the right support for consumers at a later stage, who would like to consume more sustainable but are not sure how. Additionally, providing information should be combined with further strategies to help translating positive attitudes and intentions into behavior change.

goal setting

Goal setting is used often in the context of reduction behaviors (Abrahamse et al., 2007; Abrahamse et al., 2005; Klöckner, 2015), whereby goals can be understood as similar, if not equal to, intentions or goal intentions as commitments to engage in a behavior (Bamberg, 2012; Gollwitzer, Fujita, & Oettingen, 2008). Goals can be set by individual's themselves or externally, but they should always be achievable and clearly defined, including their timeframe. Specific and concrete goals are more likely to be attained than general ones (Sheeran & Webb, 2016).

As discussed earlier, setting an intention or a goal does not necessarily lead to behavior, no matter how strong the intention. Goal setting is only a first step towards behavior change. In line with Bamberg's (2013) stage model of self-regulated behavior change, planning with regard to goal achievement, getting started, as well as successfully completing and maintaining goals are further steps. Problems, such as failure to get started or getting distracted, can occur along each step. Therefore, goals are easier to attain when accompanied by so called implementation intentions or if-then plans (Carrington et al., 2014; Gollwitzer et al., 2008), which contain the when, where and how of action to reach a set goal. They define the behavior that should be enacted to reach one's goal, including the context for when to take action, as well as how to handle distracting stimuli that might hinder goal attainment. Meta-analytic results indicate medium-to large effect size of implementation intentions on goal attainment, further supporting the notion that if-then planning increases the likelihood of achieving one's goals (Gollwitzer & Sheeran, 2006). Moreover, goal setting often is used in combination with other communication strategies, such as commitment or feedback (Abrahamse et al., 2005; Abrahamse & Matthies, 2012; Klöckner, 2015).

commitment

Commitments are pledges to perform certain behaviors and are often linked to goals (Abrahamse et al., 2005; Matthies, Klöckner, & Preißner, 2006). In order to avoid inconsistencies and cognitive dissonance (Festinger, 1962), individuals are more likely to act if they committed to do so (McKenzie-Mohr & Schultz, 2014). Equally, a change in self-concept is mediating the relationship between commitment and behavior (Lokhorst, Werner, Staats, van Dijk, & Gale, 2013). Commitments can be made publicly, or in private, whereby results about higher effectiveness of one or the other are mixed and potentially dependent on the target group and setting (Abrahamse & de Groot, 2013). Meta-analytic results show that commitment is effectively influencing behavior, even after interventions in follow-up periods and especially when combined with other strategies (Lokhorst et al., 2013). In this research, participants were asked to confirm their goal and pledged to attain it on a voluntary basis. Commitment was therefore 'semi-public', as participants were aware that the experimenter would see it.

prompts

Prompts are short messages—for example, signs, pictures or short sentences—that are placed close to the point of decision and aim at reminding consumers of a desired behavior in the setting, their goals to act in certain ways and potentially also why (Klöckner, 2015). They can furthermore include short descriptions of what needs to be done exactly. They work especially well in situations where consumers already have positive attitudes and intentions to act, which are activated through the cue of the prompt, or for habitual behaviors, if successful at interrupting what otherwise might have been an automatic falling back in old, unsustainable behavior. Good examples are: stickers for washing machines reminding consumers to wash at low temperatures, or at garbage bins reminding consumers to recycle. The most crucial characteristic of prompts thereby seems to be their placement—it is important to place them exactly at the point of consumption decision both with regard to space and time. According to Abrahamse & Matthies (2012), prompting is especially useful for easy or simple target behaviors.

Prompts should be worded politely and precise. should be simple and easy and the prompt worded politely. As for their content, they can, for example, be related to social norms ('80 % of households already decrease the washing temperature to 30°') or rewards ('Thank you for choosing to wash at 30°' or 'Washing at 30° saves energy and money').

social norms, social models and block-leaders

Psychological research shows that our behavior is influenced by others – namely, by what others are doing themselves and what others are expecting to be done. Such social norms can be made salient, e.g., by social models who behave in the desired way or by relevant social models saying what they expect to be done (Klöckner, 2015). This way they can help strengthening the social norm. It is important to note, however, that the social model needs to be of importance for the target group. One specific case is the 'block-leader' idea, which suggests choosing persons close to the target group as promoter and good role models for a specific behavior. Examples are members of neighborhood communities, who are chosen as opinion leaders to motivate their neighbors for participating in sustainable behaviors. Overall, the block-leader technique might not be suitable for every community, depending on how community members relate to each other. Research found that the effect of observing a model showing the desired behavior was stronger when two persons were observed (insert ref.). Another famous example working with social norms are signs in hotels stating that the majority of guests already are reusing their towels (Goldstein et al, 2008?). The effect could even be improved by slightly changing the wording to 'the majority of guest who stayed in this room', therefore stating what others guests in the same situation have done. It is important to note that social norms need to be thought through and formulated very carefully.

foot-in-the-door and making self-discrepancy salient

The foot-in-the-door technique is also referred to as social compliance procedure. The technique entails to first ask a small request which most people would agree to fulfill, e.g. a campaigner asking consumers whether they have one minute for the environment. This can happen on the phone, on a leaflet, in a shopping setting etc., the only important aspect is that most consumers would be willing to agree in the given situation (i.e. supermarkets where people shop for food quickly after work are not a good situation). Once a person has agreed to this small request, the idea is that they will be more likely ready to agree to a larger request as well, e.g. to sign a petition or consider options for how to change their clothing consumption behavior. This is called the actual target request (Tykocinski, Higgins, & Chaiken, 1994). The technique has been applied in the environmental domain increasing participants' willingness to sort their garbage (Dufourcq-Brana, Pascual & Guéguen, 2006) and as double foot-in-the-door (including a initial preparatory and intermediary preparatory act) for energy saving (Souchet & Girandola, 2013). For the latter the preparatory acts were answering a six-item questionnaire about energy savings (e. g. 'Do you think that energy savings help to protect the environment?') and writing arguments in favor of energy savings. There are different theoretical explanations why foot-in-the-door techniques work (Arnold & Kaiser, 2018), and one of the most widely cited explanations stems from self-perception theory (Bem, 1972). According to this theory individuals attain an understanding of their self and their attitudes from their behavior. Following this idea, it is the preparatory act that makes a person believe that he or she is the kind of person that appreciates the cause in question, e.g. energy saving, and acts upon it. In order to avoid inconsistencies in this perception of the self, an agreement with the larger or target request takes place.

A tool targeting similar processes of avoiding inconsistency is making self-discrepancy salient. It assumes that individuals compare their actual self, i.e. who they are, to their ideal self, i.e. who they like to be, and their ought self, i.e. representations of who an individual thinks he or she ought to be (Phillips & Silvia, 2005). Discrepancies between these selves then motivate behavior

change (Klöckner, 2015). To be made aware of such discrepancies individuals can be asked to explain how they would like to live their life with regard to environmental impacts (ideal self), how they think they should live (ought self) it and how they actually are doing (actual self).

providing experience and everyday problem-solving abilities
Providing experience means facilitating that consumers can try environmentally friendly behavioral alternatives, e.g. through trial periods for clothing libraries. The idea is that if people try a certain behavior successfully and make positive experiences during the trial period, it helps to change control beliefs. Having experienced the possibilities and becoming aware that one can show the behavior in question lead to a change in control beliefs, especially if the behavior was seen as e.g. difficult or inconvenient before. Examples of previous studies include e.g. provision of tickets for public transport (Bamberg, 2006), which can also be interpreted as an incentive or rewards strategy. Providing everyday problem-solving abilities can be a valuable addition. Such abilities include knowledge about potential obstacles to a certain behavior and potential solutions to these obstacles (Klöckner, 2015). Thinking through what potentially could go wrong, and also reflecting on possible reaction in such situations, can increase self-efficacy beliefs, i.e. individuals' beliefs that they are able to show a certain behavior.

3.2. consequence tools

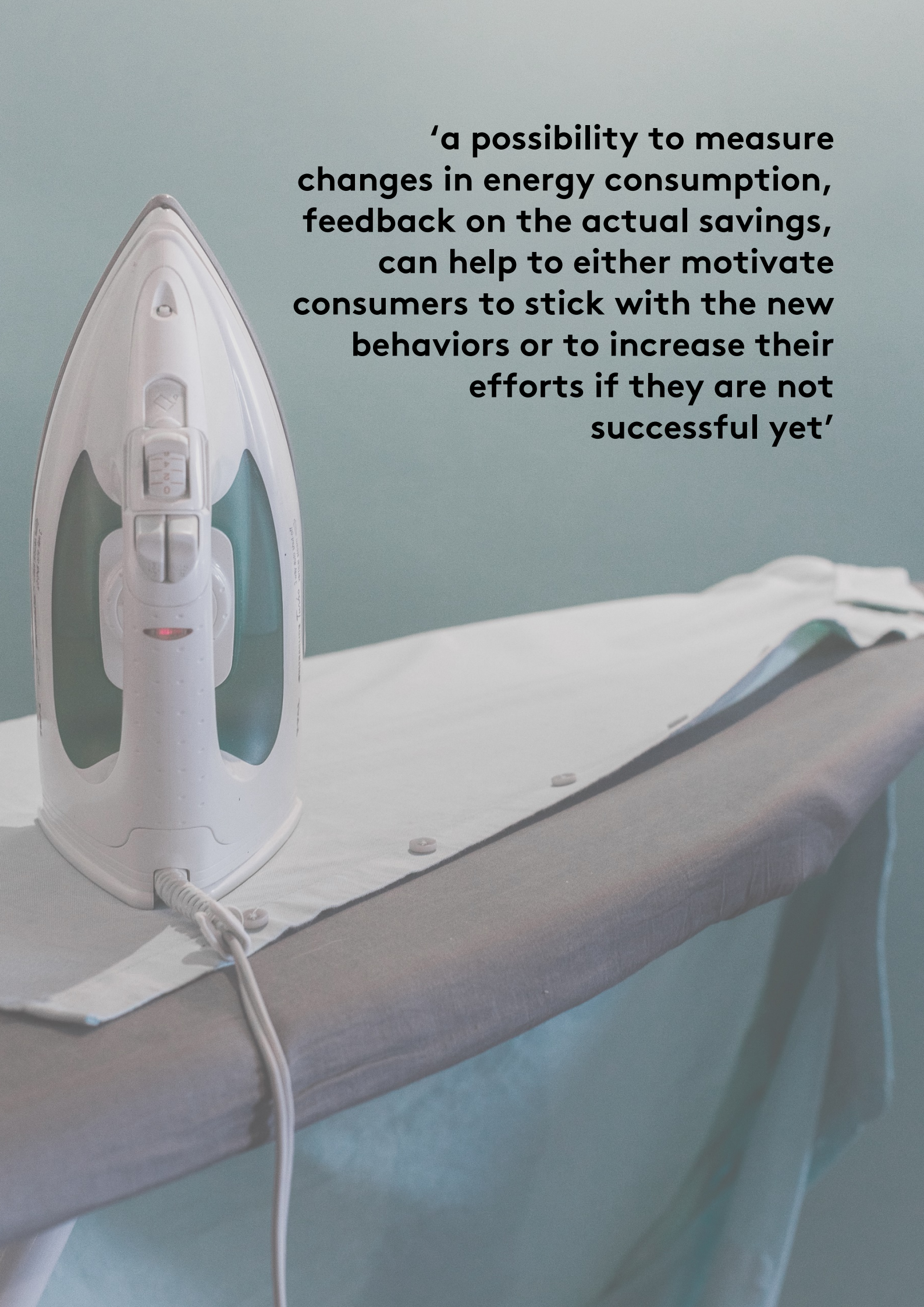
feedback and competitions as comparative feedback
Feedback refers to providing consumers with information on their performance. It offers participants an understanding of links between certain outcomes (e.g., savings in water consumption and emissions) and the behavior necessary to reach it (e.g., limiting the purchase of water-intensive clothing products, such as jeans; Abrahamse & Matthies, 2012). The feedback has to be understandable and meaningful to individuals, and it showed to be most effective if provided tailored to the individual, frequently and in close proximity to the behavior (Abrahamse et al., 2005; McKenzie-Mohr & Schultz, 2014). Feedback on personal water consumption or carbon footprints might increase perceived responsibility or outcome efficacy (i.e., the perception that one's action can make a difference; Klöckner, 2015). Moreover, feedback can be linked to comparisons with others or to personal standards and self-perceptions. Both can take the form of competitions, which can be realized on the individual level or group level (e.g., citizens of different neighborhoods or students of different universities against each other). Previous research found a reduction in electricity usage among residence hall residents who competed against each other in groups. These groups consisted of residents of one apartment, and the competition was combined with near real-time feedback at each apartment level, and changes in behavior could be mostly attributed to changes in group identification and perceived social norms (Sintov, Dux, Tran, & Orosz, 2016). While this provides some evidence of the effectiveness of competitions, an effect solely based on competition has not be identified. Equally, results from comparing groups or individuals against each other are similarly inconclusive (Abrahamse et al., 2005).

rewards and penalties
Rewards and penalties technically do not refer to a communication tool like the previous ones, but to altering the consequences of behavior (Bolderdijk, Lehman & Geller, 2012). Theoretically, they are based on classical behavioral psychology (Skinner, 1938), which holds the assumption that people are motivated to perform certain behaviors to obtain positive outcomes or avoid

negative ones. Consequently, this leads to the repetition of behaviors that lead to positive outcomes, and the abolition of behaviors that result in negative outcomes. Rewards are the introduction of positive outcomes or removing negative outcomes connected to a behavior and penalties or punishment are the opposite, the addition of negative consequences or removing of something that is perceived positive (Klöckner, 2015). Stimuli that are available in the environment thereby signal the availability of consequences, e.g. advertising in clothing stores announcing the possibility to receive a voucher for handing in old unwanted clothes. Such stimuli are called antecedents, and behavior understood to be formed according to the Antecedent -> Behavior -> Consequence sequence, or ABC model (Bolderdijk et al., 2012).

In addition to introducing rewards or penalties, also antecedents can be targeted in the form of incentives, which signal that by following the desired behavior a positive consequence will follow, and disincentives, suggesting negative outcomes for undesired behaviors. As described above, H&M used incentives (take-back scheme) and rewards (vouchers) to motivate consumers to bring back unwanted clothing and make it available for recycling. Rewards and punishments are working best when they are certain and proximate in time (Geller, 2002). They can be of monetary or material nature, but also positive or negative feedback can be a form of reward or penalty. Rewards are often preferred over penalties in order to avoid psychological reactance and negative attitudes that potentially can emerge from limiting individuals' choices to act (Bolderdijk, et al., 2012). From a policy perspective, the benefits of penalties, however, are that they usually create revenue (e.g. in form of taxes or fines) instead of costs and they signal that a behavior is obligatory instead of voluntary (e.g. fine for not adhering to a driving ban instead of a reward for adhering to it or a sugar tax).

Section 2 and 3 mapped out a granular theoretical approach to follow in order to develop strategies for changing behavior. In the following section 4, we will discuss potential applications of the tools introduced especially in chapter 3. We will thereby focus on each of the five ways described in section 2, building upon the different barriers and benefits that might exist for each.



‘a possibility to measure changes in energy consumption, feedback on the actual savings, can help to either motivate consumers to stick with the new behaviors or to increase their efforts if they are not successful yet’

4. five challenges and communication tools applied

The following discussion can only be based on preliminary deliberations for two reasons: First, each way contains a multitude of different behaviors, which are each characterized by different barriers and benefits; second, even if the behaviors for each way would be non-divisible and define an end-state, within the scope of this report it is not possible to conduct a barrier and benefits analysis for each behavior. Such an analysis, however, would be necessary to identify appropriate tools for each behavior (see above section 2.2. 'Social marketing – changing behavior for the common good). The following deliberations therefore need to be understood as discussion of selected potential applications of the tools for each way, an array of examples to understand each tool better in context whereby the application of other tools can also be envisioned. Each idea would need further research of actual barriers and benefits and to be scrutinized with at least pilot studies. Furthermore, the ideas differ in terms of which stakeholder could potentially realize them in practice. Some ideas could be used by business, e.g. reward systems for bringing unwanted clothes back to the stores, whereas others would be more suitable for implementation by NGOs or government initiatives, e.g. providing stickers functioning as prompts for lower washing temperatures to consumers. At the same time, of course, many initiatives would benefit from collaborations across business, governments and civil society institutions, e.g. a broad campaign providing information about second hand clothes, potentially combined with role models; measures to create self-discrepancy and encourage reflections about one's shopping behavior; and vouchers from second-hand clothes encouraging consumers to gain experience.

4.1. promoting environmentally friendly clothing products

The promotion of environmentally friendly clothing is to a large extent based on structural hindrances, e.g., availability and price. However, with an increasing supply of environmentally friendly clothing products, both online and offline, availability is a decreasing problem. Apart from providing information about environmental impacts of conventional clothing products, one other potential pathway to foster purchases of environmentally friendly clothing products is to limit the focus on costs, which is highly salient for many consumers (Harris, Roby, & Dibb, 2016; Nielsen et al., 2018). Two different ways of doing so can be imagined: First, reminding consumers of their own values in the purchasing context and thereby making self-discrepancies obvious might motivate to consider environmental benefits over increased cost. Nielsen et al. (2018) found preliminary evidence that framing a purchase decision with values of e.g., fairness and conservation could help to offset to some extent a negative impact of increased price on the willingness to buy recycled material textiles. The effect such messages can have in the purchase context, i.e. if visible in physical or online shops, should be further explored. Second, sustainable attributes or sustainable brands could be marketed similar to clothing brands such that consumers desire this attribute and, as a result, are willing to pay a higher price for sustainable products (Harris, Roby, & Dibb, 2016). Potentially social role models, such as celebrities, can help facilitate this change.

Another way to work with social norms would be to change current social norms favoring cheap, low quality fast fashion clothing towards a preference of quality and longevity, even at increased prices. However, changing perceived social norms is not easy and can again be perhaps successful with prominent individuals as social role models or by tackling smaller communities (e. g. school classes) and using block-leaders (e. g. single students that are early adopters) as role models.

Closely related to the question why environmentally sustainable clothing is not perceived like branded clothing is one other main barrier. It is often supposed to not meet the expectations for two main criteria for buying clothing, quality and style (Iwanow, McEachern, & Jeffrey, 2005). This, however, is long not true anymore. Here, providing experience can help to promote environmentally friendly clothing simply by showing consumers these alternatives. In addition, discount vouchers for the purchase of such clothing

Across all ideas it is important to handle the three main barriers for information providing as identified by Harris et al. (2016) well. These are 'the complexity of sustainability in clothing, the lack of transparency in the supply chain and consumer skepticism' (p. 314).

4.2. supporting consumers' use of alternative business models

A first pathway towards encouraging consumers to increasingly use alternative business models again is providing information about the detrimental impacts of conventional clothing production. Above and beyond providing information different further tools can be applied. Assuming that such business models are available and accessible to consumers, one strength is their affordability – they usually are cheaper for the end consumer, especially in comparison to clothing products made from environmentally friendly material. This can be used as basis for a communication strategy, whereby it is importance is to select a certain target group and match information to their characteristics. E.g. especially price sensitive target groups might be reached with this message, whereas consumers spending more for their clothing purchases might not react well.

In order to encourage consumers that spend more on their clothing and maybe simply enjoy the activity of acquiring new clothing items a more cognitive than practical approach could be useful. To get such consumers to reflect on their consumer behavior e.g. techniques that make self-discrepancy aware can have more potential. For example, a campaign (in form of a leaflet, personal conversations etc.) can aim at making consumers aware that they would like to behave environmentally friendly, for those where this is the case, and that others think they should be. This can be done via asking consumers to describe how they want to live their life and how they think one should with regard to the impact one has on the environment. Once primed with an understanding of their self as a person who tries to live environmentally friendly, they can be asked to reflect on their clothing consumption choices in the past. If they become aware of a discrepancy of the ideal self and the actual self, then a good moment for providing alternative modes of acquiring clothing arises. For consumers that like novelty, to dress in fashion and change style often clothing libraries can then be a good alternative, for consumers enjoying the

social component of purchasing new items swapping markets offer a alternative business model with high possibilities for exchange with others.

All alternative business models are fairly new ways of acquiring clothing (apart from second-hand sales), partly asking for a completely different and new mindset with regards to clothing. Providing opportunities to gain experience and simply trying these new ideas, e.g. through vouchers, can be beneficial.

Two more challenges are especially connected with second-hand clothing, concerns about the choice of items on offer and their up-to-datedness, about hygiene and about second-hand being for people who cannot afford otherwise. The latter two potentially can be tackled with role models, e.g. celebrities usually known for the branding of expensive brands. The potential of providing everyday problem solving abilities, either through educated sales personnel or on campaign level, should be explored for the former. Finding successful ways to educate consumers about what suits them style wise instead of what is available fashion wise might help to overcome wishes for buying latest trends and instead foster a desire for quality clothing matching one's style.

4.3. prolonging use

The constant purchase of new, fashionable items with short use phases presents a need of addressing broad-scale social norms in order to facilitate change. Such large-scale changes are not easy, and likely need to start with the individual consumer. For prolonging use and reducing consumption, goals and commitment can be a promising strategy. Consumers need to reflect on their purchasing behavior and what sort of concession they can make for the number of items bought in order to reduce environmental burden. Different strategies such as providing information, making self-discrepancy aware (e.g. between the aim of living environmentally friendly and the impact one's clothing consumption has) or foot-in-the-door techniques (e.g. small request to buy one item less to reduce environmental burden, followed by a request to indicate how many items less a person would be able to buy) can help to support such reflections. Once possible concessions are found and intentions to reduce clothing purchases are developed they can then find their way in the specification of goals, e.g. the goal of not purchasing any new item in a given period or defined maximum consumption levels. In order to support consumers to follow through with these goals commitment can help. In practice, this could be build around e.g. a 'zero no purchases spring or three month period' campaign, potentially on social media and with the support of influencer or other prominent role models, and public commitments to take part via sharing on social media platforms. Equally, campaigns should provide advice how to avoid temptations (e.g. unsubscribing from newsletters and advertisement of clothing brands) and alternative behaviors (e.g. clothing libraries).

Repair services, which can help to support prolonged use, are similarly to alternative business models something many people are not using (anymore) today. Assuming good infrastructure for such services, providing experience e.g. via vouchers similarly can be a good option to encourage consumers to try them.

4.4. optimizing use-phase handling of clothes

Barriers are low and benefits are high for many behaviors optimizing the use phase of clothes, such as lower washing temperatures and dryer use. Others, e.g. the amount of wearing before washing, often are influenced by social norms, too. Nevertheless, all of these do not require specific knowledge, technology or other financial resources. In a first step, intentions to show such behaviors need to be created, e.g. through providing information about their benefits. Another option are foot-in-the door techniques, e.g. by asking whether one could imagine reducing one's usual washing temperature by 5-10°C to have a positive impact on the environment, followed by a request to also stop using the tumble dryer where possible.

Once intentions are created, these behaviors are a perfect area for applying prompts. They happen in the household, therefore it is easy to place prompts and reach consumers with them. A prompt could be a sticker at the washing machine reminding consumers to wash at lower temperatures, or in clothing labels with washing instructions reminding to wash at lower temperatures and, where possible, increase the number of wearing before washing.

Likewise, feedback could be a valuable strategy to further foster environmentally friendly use-phase behaviors. If consumers wash less at lower temperatures and avoid using the dryer it should be noticeable in their energy consumption. If there is a possibility to measure such changes in energy consumption, feedback on the actual savings can help to either motivate consumers to stick with the new behaviors if they are successful already or to increase their efforts if they are not successful yet. Depending on the setting, this can be combined with competitions or comparative feedback. E.g. in communities with shared laundering facilities (common in Danish housing associations or student halls) feedback can be given at the level of washing machines of certain units that share those machines and afterwards compared against the usage of other units and their washing machines. Equally, sometimes shared washing machines are accessed with a member card, which allows to track individual washing behavior and provide feedback on its energy usage. From a reward and punishment perspective, higher washing temperatures or tumble dryer usage could be punished with higher cost.

4.5. increasing recycling rates

Increasing recycling rates can be especially realized with the help of business partners, who should provide the infrastructure to make recycling clothes available to a wide audience. Once the infrastructure is provided, rewards have a big potential to engage consumers to bring old, unwanted clothes to the store. Retailers like H&M already show the viability of this idea, whereby the reward in form of a voucher for new purchases can be discussed critically from an environmental impact perspective as it fuels the purchase of new clothing. Improved rewards could be either of monetary nature or vouchers linked to environmentally friendly clothing products, e.g. the conscious collection in the case of H&M.

Making use of rewards combined with everyday-problem solving skills could take the form of higher rewards for the first time of recycling or for a starting period when new recycling facilities are introduced. In a community setting a competition strategy can be imagined, too. E.g. in schools different school classes could have a competition of who is collecting the most clothing items for recycling. Important would be, however, to combine such efforts with other elements that ensure such competitions do not motivate to recycle clothes that otherwise might have been worn for longer (e.g. attaching a label on each recycled clothing piece why it could not have been repaired, reused or otherwise worn for longer).

The foot-in-the-door technique can be a potentially good for increasing recycling rates, however more for online shopping than traditional mall or high street shopping. According to the theory the target request should be as close as possible to the preparatory request in time, therefore it is especially the online setting in which consumers could be motivated to recycle, e.g. in online stores when they are just about to buy new clothing items. A potential question could be 'As you just bought a new item, would you like to see a short overview of what you can do with old unwanted items'? Such a question could be followed by instructions of how to recycle old clothes, ideally locally or, where it makes sense environmentally, also via shipping of unwanted clothes to a collection point.

‘for prolonging use and reducing consumption, goals and commitment can be a promising strategy.’

5. concluding remarks

In this report, we have introduced a wide spectrum of different approaches aiming at behavior change towards more sustainable clothing consumption. To our knowledge, both theoretical and empirical knowledge about successful strategies to change clothing consumption behavior is missing up until today. We therefore reviewed strategies derived from other areas of environmentally friendly behavior and health behavior. Currently equally missing is a systematic overview of which interventions work under which circumstances and for which types of behavior (Abrahamse & Matthies, 2012). Any point made in this report therefore can only stand as informed assumption, which needs to be further developed, tested and adopted in the future.

Additionally, when aiming to reach sustainability in clothing consumption we need to set the content discussed here in a bigger framework perspective. In the future, transdisciplinary collaborations across different scientific research disciplines, business and politics are necessary to develop and identify the most promising supply side solutions (e.g. new technologies for recycling) and foster their uptake on the demand side (i.e. consumer behavior and lifestyle changes) (Creutzig et al., 2018). It is important to take all aspects into account, the saving potential of new technological and business solution, the ease with which consumers potentially can change their behavior and adapt new technology and business ideas, and the political feasibility to enroll such new ideas on a big scale (Dietz et al., 2009; Vandenbergh & Gilligan, 2017). Once such ideas and solutions are identified, the tools described in this report can help to communicate them to consumers.

references

Abrahamse, W. (2016). Research designs for measuring the effectiveness of interventions. In R. Gifford (Ed.), Research methods for environmental psychology (pp. 291-306). Chichester: The British Psychological Scoiety and John Wiley & Sons.

Abrahamse, W., & de Groot, J. I. M. (2013). The psychology of behaviour change: an overview of theoretical and practical contributions. In S. Fudge, M. Peters, S. M. Hoffman, & W. Wehrmeyer (Eds.), The Global Challenge of Encouraging Sustainable Living - Opportunities, Barriers, Policy and Practice (pp. 3–17). Cheltenham: Edward Elgar Publishing Limited.

Abrahamse, W., & Matthies, E. (2012). Informational strategies to promote pro-environmental behavior: Changing knowledge, awareness and attitudes. In L. Steg, A. E. van den Berg & J. I. M. de Groot (Eds.), Environmental Psychology: An Introduction (pp. 223-232). Chichester: The British Psychological Scoiety and John Wiley & Sons.

Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2005). A review of intervention studies aimed at household energy conservation. Journal of Environmental Psychology, 25(3), 273–291.

Ajzen, I. (1991). The Theory of Planned Behavior. Orgnizational Behavior and Human Decision Processes, 50, 179–211.

Arnold, O., & Kaiser, F. G. (2018). Understanding the foot-in-the-door effect as a pseudo-effect from the perspective of the Campbell paradigm. International Journal of Psychology, 53(2), 157–165.

Bamberg, S. (2013). Processes of change. In L. Steg, A. E. van den Berg & J. I. M. de Groot (Eds.), Environmental Psychology: An Introduction (pp. 267-280). Chichester: The British Psychological Society and John Wiley & Sons.

Bamberg, S. (2006). Is a residential relocation a good opportunity to change people's travel behavior?: Results from a theory-driven intervention study. Environment and Behavior, 38(6), 820–840.

Bamberg, S. (2013). Changing environmentally harmful behaviors: A stage model of self-regulated behavioral change. Journal of Environmental Psychology, 34, 151–159.

Bamberg, S. (2012). Processes of change. In L. Steg, A. E. van den Berg, & J. I. M. de Groot (Eds.), Environmental Psychology: An Introduction (pp. 268–279). Chichester: BPS Blackwell.

Bem, D. (1972). Self-perception theory. In L. Berkowitz (Ed.), Advances in experimental social psychology (6th edition, pp.1–62). New York: Academic Press.

Bolderdijk, J. W., Lehman, P. K., & Geller, E. S. (2013). Encouraging pro-environmental behavior with rewards and penalties. In L. Steg, A. E. van den Berg & J. I. M. de Groot (Eds.), Environmental Psychology: An Introduction (pp. 233-242). Chichester: The British Psychological Scoiety and John Wiley & Sons.

Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2014). Lost in translation: Exploring the ethical consumer intention-behavior gap. Journal of Business Research, 67(1), 2759–2767.

Choo, H.J., Sim, S.Y., Lee, H.K., Kim, H. Bin, 2014. The effect of consumers' involvement and innovativeness on the utilization of fashion wardrobe. International Journal of Consumer Studies, 38, 175–182.

Creutzig, F., Roy, J., Lamb, W. F., Azevedo, I. M. L., Bruine De Bruin, W., Dalkmann, H., ... Weber, E. U. (2018). Towards demand-side solutions for mitigating climate change. Nature Climate Change, 8(4), 268–271.

De Groot, J. I. M., & Steg, L. (2009). Morality and Prosocial Behavior: the Role of Awareness, Responsibility, and Norms in the Norm Activation Model. The Journal of Social Psychology, 149(4), 425–449.

Dietz, T., Gardner, G. T., Gilligan, J., Stern, P. C., & Vandenbergh, M. P. (2009). Household actions can provide a behavioral wedge to rapidly reduce US carbon emissions. Proceedings of the National Academy of Sciences, 106(44), 18452-18456.

Donovan, R., & Henley, N. (2010). Principles and practice of social marketing: an international perspective. Cambridge: Cambridge University Press.

Dufourcq-Brana, M., Pascual, A., & Guéguen, N. (2006). Déclaration de liberté et pied-dans-la-porte. Revue Internationale de Psychologie Sociale, 19, 173–187.

Fornara, F., Pattitoni, P., Mura, M., & Strazzera, E. (2016). Predicting intention to improve household energy efficiency: The role of value-belief-norm theory, normative and informational influence, and specific attitude. Journal of Environmental Psychology, 45, 1–10.

Geller, E. S. (2002). The challenge of increasing proenvironment behavior. In R. B. Bechtel & A. Churchman (Eds.), Handbook of environmental psychology. New York: John Wiley & Sons, Inc.

Gollwitzer, P. M., Fujita, K., & Oettingen, G. (2008). Planning and the Implementation of Goals. In R. F. Baumeister (Ed.), Handbook of self-regulation: research, theory and applications (pp. 211–228). New York: Guilford Press.

Gollwitzer, P. M., & Sheeran, P. (2006). Implementation Intentions and Goal Achievement: A Meta-analysis of Effects and Processes. Advances in Experimental Social Psychology, 38(06), 69–119.

Harris, F., Roby, H., & Dibb, S. (2016). Sustainable clothing: Challenges, barriers and interventions for encouraging more sustainable consumer behaviour. International Journal of Consumer Studies, 40(3), 309–318.

He, X., & Zhan, W. (2018). How to activate moral norm to adopt electric vehicles in China? An empirical study based on extended norm activation theory. Journal of Cleaner Production, 172, 3546–3556.

Iwanow, H., McEachern, M. G., & Jeffrey, A. (2005). The influence of ethical trading policies on consumer apparel purchase decisions: A focus on The Gap Inc. International Journal of Retail and Distribution Management, 33(5), 371–387.

Klöckner, C. A. (2015). The Psychology of pro-environmental communication: Beyond standard information strategies. London: Palgrave Macmillan.

Klöckner, C. A. (2013a). A comprehensive model of the psychology of environmental behaviour-A meta-analysis. Global Environmental Change, 23(5), 1028–1038. https://doi.org/10.1016/j.gloenvcha.2013.05.014

Klöckner, C. A. (2013b). How Powerful are Moral Motivations in Environmental Protection? Handbook of Moral Motivation, 447–472. https://doi.org/10.1007/978-94-6209-275-4_25

Klöckner, C. A., & Blöbaum, A. (2010). A comprehensive action determination model: Toward a broader understanding of ecological behaviour using the example of travel mode choice. Journal of Environmental Psychology, 30(4), 574–586. https://doi.org/10.1016/j.jenvp.2010.03.001

Klöckner, C. A., & Matthies, E. (2004). How habits interfere with norm-directed behaviour: A normative decision-making model for travel mode choice. Journal of Environmental Psychology, 24(3), 319–327. https://doi.org/10.1016/j.jenvp.2004.08.004

Klöckner, C. A., & Ofstad, S. P. (2017). Tailored information helps people progress towards reducing their beef consumption. Journal of Environmental Psychology, 50, 24–36. https://doi.org/10.1016/j.jenvp.2017.01.006

Klöckner, C. A., & Oppedal, I. O. (2011). General vs. domain specific recycling behaviour - Applying a multilevel comprehensive action determination model to recycling in Norwegian student homes. Resources, Conservation and Recycling, 55(4), 463–471. https://doi.org/10.1016/j.resconrec.2010.12.009

Lindenberg, S., & Steg, L. (2007). Normative , Gain and Hedonic Goal Frames Guiding Environmental Behavior. Journal of Social Issues, 63(1), 117–137. https://doi.org/10.1111/j.1540-4560.2007.00499.x

Lokhorst, A. M., Werner, C., Staats, H., van Dijk, E., & Gale, J. L. (2013). Commitment and Behavior Change: A Meta-Analysis and Critical Review of Commitment-Making Strategies in Environmental Research. Environment and Behavior, 45(1), 3–34. https://doi.org/10.1177/0013916511411477

MacInnis, D. J., Moorman, C., & Jaworski, B. J. (1991). Enhancing and measuring consumers' motivation, opportunity, and ability to process brand information from ads. The Journal of Marketing, 55(4), 32-53.

Matthies, E., Klöckner, C. A., & Preißner, C. L. (2006). Applying a modified moral decision making model to change habitual car use: How can commitment be effective? Applied Psychology, 55(1), 91–106. https://doi.org/10.1111/j.1464-0597.2006.00237.x

McKenzie-Mohr, D. (2011). Fostering sustainable behavior: An introduction to community-based social marketing. Gabriola Island: New society publishers.

McKenzie-Mohr, D. (2000). Fostering Sustainable Behavior Through Community-Based Social Marketing. American Psychologist, 55(5), 531–537.

McKenzie-Mohr, D., Lee, N. R., Kotler, P., & Schultz, P. W. (2011). Social marketing to protect the environment: What works. Thousand Oakes: Sage Publications.

McKenzie-Mohr, D., & Schultz, P. W. (2014). Choosing Effective Behavior Change Tools. Social Marketing Quarterly, 20(1), 35–46. https://doi.org/10.1177/1524500413519257

Nayum, A., & Klöckner, C. A. (2014). A comprehensive socio-psychological approach to car type choice. Journal of Environmental Psychology, 40, 401–411. https://doi.org/10.1016/j.jenvp.2014.10.001

Nielsen, K. S., & Gwozdz, W. (2018). Report on consumer policy recommendations. Mistra Future Fashion. Task deliverable: 3.2.2.1.

Ölander, F., & Thøgersen, J. (1995). Understanding of consumer behaviour as a prerequisite for environmental protection. Journal of Consumer Policy, 18(4), 345–385. https://doi.org/10.1007/BF01024160

Phillips, A. G., & Silvia, P. J. (2005). Self-awareness and the emotional consequences of self-discrepancies. Personality and Social Psychology Bulletin, 31(5), 703–713. https://doi.org/10.1177/0146167204271559

Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behavior change. American journal of health promotion, 12(1), 38-48.

Prothero, A., Dobscha, S., Freund, J., William, E., Luchs, M. G., & Ozanne, L. K. (2011). Sustainable Consumption : Opportunities for Consumer Research and Public Policy, 30(1), 31–38.

Roed Nielsen, K., Müller, T., Gwozdz, W., Bauer, J. M., & Steensen Nielsen, K. (2018). Task 3.3 Consumer Evaluation of Materials and Products Developed Within the Project: Results of Experimental Auctions. Frederiksberg: Copenhagen Business School.

Roos, S., Zamani, B., Sandin, G., Peters, G. M., & Svanström, M. (2016). A life cycle assessment (LCA)-based approach to guiding an industry sector towards sustainability: The case of the Swedish apparel sector. Journal of Cleaner Production, 133, 691-700.

Schultz, P. W. (2014). Strategies for promoting proenvironmental behavior: Lots of tools but few instructions. European Psychologist, 19(2), 107–117. https://doi.org/10.1027/1016-9040/a000163

Schultz, W. P., & Kaiser, F. G. (2012). Promoting Pro-Environmental Behavior. In S. Clayton (Ed.), The Oxford Handbook of Environmental and Conservation Psychology. New York: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199733026.013.0029

Schwartz, S. H. (1977). Normative Influences on Altruism. In Advances in experimental psychology (pp. 221–279). New York: Academic Press.

Schwarzer, R. (2008). Modeling Health Behavior Change: How to Predict and Modify the Adoption and Maintenance of Health Behaviors. Applied Psychology, 57(1), 1–29. https://doi.org/10.1111/j.1464-0597.2007.00325.x

Sheeran, P., & Webb, T. L. (2016). The Intention–Behavior Gap. Social and Personality Psychology Compass, 10(9), 503–518. https://doi.org/10.1111/spc3.12265

Sintov, N., Dux, E., Tran, A., & Orosz, M. (2016). What goes on behind closed doors?: How college dormitory residents change to save energy during a competition-based energy reduction intervention. International Journal of Sustainability in Higher Education, 17(4), 451–470. https://doi.org/10.1108/IJSHE-02-2015-0027

Skinner, B. F. (1938). The behavior of organisms: an experimental analysis. Oxford: Appleton-Century.

Sopha, B. M., & Klöckner, C. A. (2011). Psychological factors in the diffusion of sustainable technology: A study of Norwegian households' adoption of wood pellet heating. Renewable and Sustainable Energy Reviews, 15(6), 2756–2765. https://doi.org/10.1016/j.rser.2011.03.027

Souchet, L., & Girandola, F. (2013). Double foot-in-the-door, social representations, and environment: Application for energy savings. Journal of Applied Social Psychology, 43(2), 306–315. https://doi.org/10.1111/j.1559-1816.2012.01000.x

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. Journal of Environmental Psychology, 29(3), 309–317. https://doi.org/10.1016/j.jenvp.2008.10.004

Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. Journal of Social Issues, 56(3), 407–424.

Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A Value-Belief-Norm Theory of Support for Social Movements : The Case of Environmentalism. Human Ecology Review, 6(2), 81–97.

Thøgersen, J. (2010). Pro-environmental consumption. In K. M. Ekström (Ed.), Consumer Behaviour. A Nordic Perspective (pp. 95-115). Lund: Studentlitteratur AB.

Tykocinski, O., Higgins, E. T., & Chaiken, S. (1994). Message Framing, Self-Discrepancies, and Yielding to Persuasive Messages: The Motivational Significance of Psychological Situations. Personality and Social Psychology Bulletin, 20(1).

United States Environmental Protection Agency. Advancing Sustainable Materials Management: 2014 Fact Sheet; Office of Land and Emergency Management, United States Environmental Protection Agency: Washington, DC, USA, 2016.

Vandenbergh, M. P., & Gilligan, J. M. (2017). Beyond Politics. Cambridge University Press.

Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer "attitude - Behavioral intention" gap. Journal of Agricultural and Environmental Ethics, 19(2), 169–194. https://doi.org/10.1007/s10806-005-5485-3

Verplanken, B., & Aarts, H. (1999). Habit, Attitude, and Planned Behaviour: Is Habit an Empty Construct or an Interesting Case of Goal-directed Automaticity? European Review of Social Psychology, 10(1), 101–134. https://doi.org/10.1080/14792779943000035

Mistra Future Fashion is a research program that focuses on how to turn today's fashion industry and consumer habits toward sustainable fashion and behavior. Guided by the principles of the circular economy model, the program operates cross disciplinary and involves 60+ partners from the fashion ecosystem. Its unique system perspective combines new methods for design, production, use and recycling with relevant aspects such as new business models, policies, consumer science, life-cycle-assessments, system analysis, chemistry, engineering etc.

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