rijksuniversiteit groningen

Does What I Do Define Who I Am? Exploring the Potential of Clothes Sharing for Pro-Environmental Behavioural Spillover

Hannah-Aurelia Henke

Master Thesis - MSc Environmental Psychology

S4660943

April 2022

Department of Psychology University of Groningen

Examiner/Daily supervisor: T. J. Downer

Thesis Statement/ Disclaimer

A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned.

Abstract

Participation in clothes sharing platforms is a pro-environmental behaviour that has the potential to greatly reduce the environmental impact of the fast fashion industry. However, since a single pro-environmental behaviour is hardly sufficient to achieve a positive impact on the environment as an individual, positive behavioural spillover and how it can be promoted is a topic of utmost importance for environmental research. The aim of this thesis was to examine spillover and its possible increasing factor environmental self-identity in the context of sharing platforms. A real-life longitudinal study with quasi-experimental design, as well as a short online questionnaire were carried out to examine the matter. Contrary to the hypotheses, environmental self-identity was not increased, and no positive spillover took place in the given samples. There are several possible reasons why the results contradict expectations, including the possibility that certain characteristics of the sharing platform behaviour may compromise its effectiveness in increasing environmental self-identity. The examination of real-life behaviours is the main strength of this study as it enables a more realistic perspective on the occurrence of spillover effects. Further research is needed to investigate the role of sharing platforms and environmental self-identity in behavioural spillover.

Does What I Do Define Who I Am? Exploring the Potential of Clothes Sharing for Pro-Environmental Behavioural Spillover

Consumer behaviour and especially individual buying behaviour in the context of the fast fashion industry has widespread environmental impacts (Nguyen & Johnson, 2020; Patti et al., 2020). These impacts range from water pollution to CO2 emissions and vast amounts of textile waste, to name a few (Aggarwal & More, 2020). To reduce this burden on the environment, there is an urgent need to address these impacts (Chen & Burns, 2006). The textile industry is held responsible for 20% of all environmental pollution (this includes, e.g., energy usage, transport, and packaging material) and is therefore regarded as one of the most devastating and dangerous production systems for the environment (Patti et al., 2020). Worldwide, around 80 billion new items of garment are being purchased annually (Bick, 2018). In both the US and the UK, each person wastes an average of 30 kg of textiles per year and on a global scale, textiles contribute up to 22% of individual mixed waste (Niinimäki et al., 2020). About 95% of the garments thrown away and sent to landfill for disposal could have been reused, such as worn again, recycled, or repaired (Henninger et al., 2019). Many garments do not biodegrade well, depending on the fabric (Chen & Burns, 2006). As we have become accustomed to fashion brands releasing new collections every few weeks, we have developed the desire to constantly be responsive to current trends (Patti et al., 2020) which results in short lifetimes for the garments we buy (Niinimäki et al., 2020).

Clothes sharing platforms can provide a great alternative to buying new clothing items in stores, as they can help divert clothes that are no longer needed, or wanted into a new cycle, thereby reducing waste in landfills (Henninger et al., 2019). This allows for the garment to be worn by a new person, fulfilling the desire for new outfits in a more sustainable way. Since a

great number of the problems that we are now confronted with in terms of climate change, waste and sustainability are consequences of the overconsumption in the last 50 years, clothes sharing has the potential to contribute to making better use of the finite resources available to us (Futter, 2020). Research has shown that local sharing platforms hold the potential to decrease Europe's carbon footprint by up to 18%, with clothes sharing platforms potentially accounting for 3% (Vita et al., 2019). As European households produce up to 20 tonnes of CO2 per person per year (Vita et al., 2019), 3% would mean a potential reduction of 0.6 tonnes per person per year. To this day, only limited knowledge exists about the true participation of people in clothes sharing platforms (Futter, 2020) and since they are becoming more relevant (Constantiou et al., 2017) they present an interesting research topic.

However, clothes sharing behaviour does not occur in a vacuum and instead may influence uptake in other pro-environmental behaviours (Fritze, 2017). Since increases in many pro-environmental behaviours are needed to reduce humans' impact on the planet (IPCC, 2021; Lacasse, 2019; Lawson, 2021), it is important to consider how the popularity of clothes sharing platforms serves the overall sustainability picture. In other words, does participation in such a sharing platform support uptake of other pro-environmental behaviours? Or are people less likely to engage in other pro-environmental behaviours as a consequence of clothes sharing? Research has shown that performing one pro-environmental behaviour can influence the likelihood that a person will engage in another pro-environmental behaviour, representing a relevant phenomenon known as behavioural spillover (Maki et al., 2019). The relevance of such spillover effects lies in their potential to reduce humans' impact on the environment by promoting pro-environmental behaviour of individuals (Truelove et al., 2014).

The aim of the present work is to investigate whether engaging in sharing platforms can trigger positive behavioural spillover. The concept of environmental self-identity will be investigated as a mediator in this context, as previous research suggests that it could play a promoting role (Van der Werff et al., 2013a; 2014a). The mentioned concepts will be explained in the following text.

Behavioral Spillover Effects

Positive behavioural spillover refers to the phenomenon that people who engage one pro-environmental behaviour are more likely to also adopt other similar behaviours. However, the opposite effect can also occur, meaning that engaging in one pro-environmental behaviour can reduce the likelihood of adopting other similar behaviours. This is called negative behavioural spillover (Maki et al., 2019). The goal is to avoid the risk of negative spillover effects whenever possible, as they would be counterproductive in the sense that they lead to less pro-environmental behaviour overall. If negative spillover effects occur frequently, we risk overestimating the relevance of behavioural intervention measures for the environment. However, if positive spillover effects dominate, we may underestimate positive environmental impacts and risk wasting the chance to motivate an effective change in behaviour (Maki et al., 2019; Truelove et al., 2014).

So far, from the literature it is unclear when positive and when negative spillover occurs. This presents a practical problem for pro-environmental interventions. If there was more clarity on the topic, interventions with an increased risk of negative spillover effects could contain components that have been shown to lead to positive behavioural spillover (Truelove et al., 2014). Penz et al. (2019) provide valuable input in the field of positive behavioural spillover by proposing the initial behaviour of sustainable consumption as a way to encourage more pro-

environmental behaviour in other areas. In their study, consumers who behaved in a sustainable manner had a higher likelihood of making a sustainable decision concerning transport, or food (Penz et al., 2019). However, for instance in a study by Sachdeva et al. (2015), households which engaged in water saving behaviour, had an increase in their energy consumption, and people who recycled were less likely to use reusable shopping bags. This is an example of an occurrence of negative spillover. Following on from this, it is highly relevant to know when each kind of spillover is likely to occur and which factors influence it, so that tactics to trigger pro-environmental behaviour in the general population can be adapted.

Environmental Self-Identity

One factor that several studies have observed as being conducive to positive behavioural spillover is environmental self-identity (Van der Werff et al., 2014a; Whitmarsh & O'Neill, 2010). This concept can be defined as the degree to which one sees oneself as an environmentally friendly acting type of person (Balundė et al., 2019) and is generally associated with the tendency towards pro-environmental behaviour (Carfora et al., 2017; Qasim et al., 2019). Self-identity in general determines a way of doing things that is consistent with one's sense of who one is (Van der Werff et al., 2013b; Berzonsky, 1994). Therefore, high environmental self-identity can reportedly make it more likely that people act pro-environmentally (Van der Werff, 2013; Van der Werff et al., 2013a).

Biospheric values and past environmental behaviours were found to influence environmental self-identity, that is, the higher the biospheric values are and the more pro-environmental behaviours have been performed in the past, the more likely a person is to exhibit high environmental self-identity (van der Werff et al., 2014a). Possessing high biospheric values is defined as caring for, as well as making decisions for the benefit of nature and the environment

(Martin & Czellar, 2017). People with high biospheric values have a tendency to look at their own and others' actions from the standpoint of the advantages and disadvantages to nature (Martin & Czellar, 2017). Consequently, the stronger a person's biospheric values are, the more they are likely to engage in pro-environmental behaviour. While values tend to remain relatively stable over time and are therefore not easily influenced (Feather, 1995), past environmental behaviour on the other hand is variable. Why past behaviour can influence environmental self-identity may be explained by self-perception theory (Bem, 1972), which states that individuals determine their own internal states by drawing conclusions from observations of their own external behaviour. Following this theory, a person would take the pro-environmental behaviours they performed in the past into account when determining for themselves if they are an environmentally friendly acting type of person. So, the more often individuals have engaged in pro-environmental actions in the past, the more likely they are to have a high environmental self-identity (Van der Werff et al., 2014a).

As inspiring more pro-environmental behaviour in the real life has great practical relevance, this thesis will focus on how to increase environmental self-identity in a real-life setting. Due to the relative stability of biospheric values compared to the modifiability of past behaviour, environmental self-identity can be considered stable to some degree but also changeable, and may therefore be increased (Van der Werff et al., 2013b). Whether past behaviour affects environmental self-identity is reportedly likely to be independent of the strength of one's biospheric values (Van der Werff et al., 2014a). Following this thought, modifying past pro-environmental behaviour will provide the starting point for this thesis. In detail, if people perform a real-life pro-environmental behaviour (thus potentially making their

past pro-environmental actions salient), this could directly increase their environmental self-identity and in turn lead them to perform further pro-environmental behaviours.

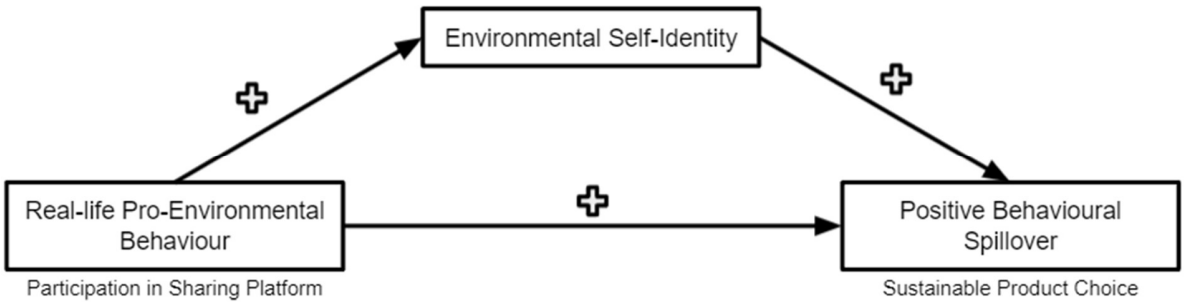
Aim of Present Research

The aim of this work is to investigate if real-life participation in a clothes sharing platform can increase environmental self-identity and thus trigger positive behavioural spillover. Building on the aforementioned findings, the following model is proposed (see Figure 1).

The model predicts that the real-life pro-environmental behaviour of clothes sharing leads to positive behavioural spillover via the mediator environmental self-identity. The basis for the proposed model of this thesis is Van der Werff et al.'s (2014a) model in which environmental self-identity mediates the relationship between past environmental actions and biospheric values on the one hand and environmental judgments, intentions, and behavior on the other.

Figure 1

Proposed relationship of Real-Life Pro-Environmental Behaviour, Environmental Self-Identity and Positive Behavioural Spillover



For the spillover pro-environmental behaviour, sustainable product choice was assessed because it has been shown to be an effective measure of spillover behaviour in past research (Van der Werff & Steg, 2018). Every purchase has an impact on resources and waste (Young et al., 2010) which means one can choose to act either pro-environmentally or not. Due to the scope of this thesis, it was not feasible to assess spillover with a real-life behaviour as well, so sustainable product choice was assessed in an online questionnaire.

Research has shown that reminders of past pro-environmental behaviours can positively influence environmental self-identity and subsequent environmental actions (Van der Werff et al., 2013a; Van der Werff et al., 2014b; Cornelissen et al., 2008). The technique of a questionnaire reminding participants of past pro-environmental behaviours was used successfully in making these behaviours salient and thus, increasing environmental self-identity (see e.g., Van der Werff et al., 2014b; Van der Werff & Steg, 2018). It is possible that environmental self-identity is not increased if people do not recognise that they are engaging in a pro-environmental behaviour (Van der Werff & Steg, 2018; may be the case, for example, if the behaviour is not only pro-environmental but also saves money). To the best of our knowledge, there are no studies that assessed if saliency of past pro-environmental behaviour can be manipulated (thus increasing environmental self-identity) by performing a real-life pro-environmental behaviour.

In psychological research, spillover behaviour is not usually studied as a response to a real-life intervention (Truelove et al, 2014) or in a longitudinal design (Nilsson et al., 2017). Study 1 seeks to contribute to existing literature by addressing this very issue. Furthermore, this thesis aims to contribute to the so far inconsistent findings on spillover effects. Participants will take part in one of two conditions, the experimental group that participates in the clothes sharing

platform or the control group that does not do so. Study 2 is designed to serve as a replication of Study 1.

H1a. Participation in the sharing platform will increase environmental self-identity to a greater extent than the control condition.

H1b. Increased environmental self-identity will trigger positive behavioural spillover to a greater extent than the control condition.

H2. Participation in the sharing platform will trigger positive behavioural spillover to a greater extent than the control condition.

Study 1

The aim of Study 1 was to investigate the potential of a clothes sharing platform in increasing environmental self-identity and subsequently triggering positive behavioural spillover in a real-life setting with a longitudinal design. The opportunity existed to implement a clothes sharing platform in a local kindergarten, so this is where data collection took place. The sample consisted of any adult that came to visit the kindergarten (parents, grandparents, other relatives, or guardians of the children) and the research question is not related to the setting of the kindergarten. The study took place between July 1st and July 22nd of 2021.

Methods

Design

The study used a within-subjects design with two points of measurement and two conditions (experimental and control). It was a requirement of the kindergarten that the participation in the clothes sharing platform (the intervention) had to be voluntary, making the design quasi-experimental rather than experimental. The independent variables were participation in the sharing platform and time. The dependent variables were environmental self-identity and sustainable product choice. Questionnaire 1 was administered before the intervention (T1). In the following three weeks, the clothes sharing platform was implemented, and Questionnaire 2 was administered post-intervention (T2).

Participants

Participants were personally recruited on site and consisted of adults that came to visit the St. Benedikt kindergarten in Bochum, Germany. Due to the personal contact with participants, no personal information was gathered to avoid the possibility of identifying which participant filled in which questionnaire. The participants were all 18 years or older and were not

compensated for taking part in the study. Participants were excluded if they did not answer the control questions correctly or did not take part in both questionnaires.

An a priori power analysis for a two-way repeated measures ANOVA with 80% power, an alpha level of 0.05 and a mean effect size of 0.3 was used to determine an intended sample size of 68 participants. At T1, $n = 47$ initial participants took part in Questionnaire 1. At T2, the same group of people were asked to complete Questionnaire 2 and a total of $n = 30$ people followed this request. Three had to be excluded because they had not filled in the questionnaire at T1. One participant took part twice, but indicated the same values both times, so only one of the responses were included in the analyses. After one participant was excluded for not answering the control question correctly, a total of $N = 25$ participants remained. Accordingly, all final participants filled out the questionnaires at T1 and T2. However, it was their personal decision whether they wanted to take part in the clothes sharing platform or not. More than half of the participants ($n = 15$) decided to use the platform and thus formed the experimental group. The others who decided not to use the platform ($n = 10$) served as the control group.

Procedure

Participants of Study 1 were handed three documents; a flyer for the clothes sharing platform (see Appendix A), an information sheet about the study (see Appendix B) and an explanation document on how and when to fill in the questionnaires (see Appendix C). As data collection took place in Germany, all these documents were originally in German and have been translated for the purpose of this thesis. The explanation document included QR codes leading to the two questionnaires as well as an individual code word for each participant. The individual code word was used to connect the questionnaires administered at T1 and T2 to one person. Participants were asked to fill out Questionnaire 1 for baseline measurement on Thursday 1st July

2021 (T1). Consent was asked for (see Appendix D), then environmental self-identity was measured. The clothes sharing platform started on the following day. For three weeks, participants had the chance to exchange clothes every day between two and three p.m. in the kindergarten location. Participants were invited to bring clothes from their home to the sharing platform which were clean and of good quality. Clothes for any age and gender could be exchanged, but it ended up being primarily children's clothes, likely because of the kindergarten location. On Thursday 22nd July 2021 (T2), the clothes sharing platform ended, and participants were asked to fill out Questionnaire 2. The date for participation in Questionnaire 2 as well as the corresponding QR code were included in the explanation document the participants received in the beginning. Additionally, participants were personally reminded on site to take part in the questionnaire. In Questionnaire 2, participants were asked if they did (at least once) or did not take part in the clothes sharing platform to split them into the experimental and control groups. Then, environmental self-identity and sustainable product choice were assessed, similar to Questionnaire 1.

Materials

As data collection took place in Germany, all materials were originally administered in German and have been translated for the purpose of this thesis.

Environmental Self-Identity. Environmental self-identity was measured at T1 and T2 using three items; "Acting environmentally friendly is an important part of who I am", "I am the type of person who acts environmentally friendly", and "I see myself as an environmentally-friendly person" (see Appendix E). These items were taken from Van der Werff et al. (2014a). Cronbach's alpha for this scale was .84 at both time points in the given sample.

With a seven-point Likert scale, where higher values represent a higher manifestation of environmental self-identity, at T1 the mean was 5.5 (*SD* = 1.2) for the experimental group, and 5.2 (*SD* = .8) for the control group. At T2, the mean of the experimental group was 5.5 (*SD* = .9), and 5.1 (*SD* = .9) for the control group.

Environmental Self-Identity Manipulation. The experimental group took part in the clothes sharing platform. This was intended to manipulate their environmental self-identity, as past pro-environmental behaviour can contribute to higher environmental self-identity. No manipulation took place in the control group.

Sustainable Product Choice. Sustainable product choice was measured at T2 and was assessed in a similar way to how Van der Werff and Steg (2018) operationalised it in their study. The questionnaire included five items where participants had to choose between two different options of a product – a sustainable and an unsustainable one, comparable in all other features (see Appendix F). The products were a deodorant, a light bulb, a chocolate bar, paper towels and cleaning spray. The sustainable option was always 10% more expensive than the other one and prices were reasonably chosen (i.e., prices you would see in the supermarket). The mean was *M* = 3.92 (*SD* = 1.24) for the experimental group, and *M* = 4.08 (*SD* = 1.26) for the control group, higher values indicating more sustainable product choice. Inverted items were reverse coded. The reporting of average scores may provide a clearer overview in this context; It can be observed that people in the experimental group chose the more sustainable product out of the two options 78% of the time (*SD* = .07) and people in the control group chose the more sustainable product of the two options 81% of the time (*SD* = .07).

Control Question. Attention of the participants was checked with a control question that revealed whether they read the instructions properly (see Appendix G).

Results

Participation in the Clothes Sharing Platform and Environmental Self-Identity

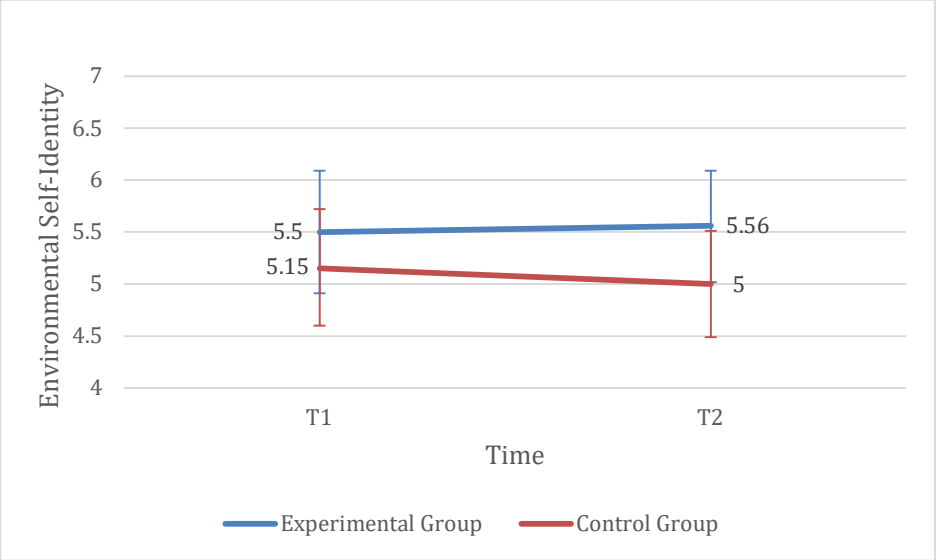
H1a. Hypothesis 1a predicted that environmental self-identity would be higher for the experimental group (who participated in the clothes sharing platform) than for the control group at T2. A two-way repeated measures ANOVA was planned to investigate whether any change in environmental self-identity (i.e., the dependent variable) was the result of the interaction between the groups (i.e., experimental or control; factor 1) and time (factor 2). For a test of normality, the Kolmogorov-Smirnov test showed a non-significant result, for all the groups, $p \geq .2$, which means the prerequisite of a normal distribution was fulfilled. For the prerequisite of homogeneity, a Box's test of equality of covariance matrices was significant, $p = .5$, and therefore showed that the covariances were homogenous in the groups.

The two-way repeated measures ANOVA showed there was no interaction effect independent of group over time ($F(1,23) = 0.15$; $p = .70$; $Eta^2 = .007$) or dependent of group ($F(1,23) = 0.68$; $p = .42$; $Eta^2 = .03$). This means the first hypothesis was not supported for the given sample since environmental self-identity was not higher for the experimental than for the control group at T2. Figure 2 shows that the scores slightly diverge, but this is not significant.

Due to the quasi-experimental design of the study, it was tested if there is a significant difference between the groups in mean environmental self-identity at T1. The mean of the experimental group was slightly higher at T1 ($M = 5.5$) than that of the control group ($M = 5.2$), but this is not significant.

Figure 2

Estimated Marginal Means of Experimental and Control Group Over Time



H1b. Hypothesis 1b predicted that increased environmental self-identity would lead to more positive behavioural spillover for the experimental than for the control group at T2. H1b was dependent on the increase in environmental self-identity (H1a), which did not occur in the given sample. Consequently, regarding H1b, there is nothing that can be elaborated or established.

Participation in the Clothes Sharing Platform and Behavioural Spillover

H2. Hypothesis 2 predicted that the product choice of the participants would be more sustainable for the experimental group than for the control group. To test the hypothesis, a t-test was planned. A Kolmogorov-Smirnov test for normality showed a significant result for the control group, $p < .01$, which means that a normal distribution was not present. Therefore, an independent samples Mann-Whitney U test was conducted instead of a t-test.

This test showed a non-significant result, $U(N_{experimental} = 15, N_{control} = 10) = 68.00$, $z = .47$, $p = .64$. Accordingly, the null hypothesis was maintained. The means of the experimental group ($M = 3.92$, $SD = 1.24$) and the control group ($M = 4.08$, $SD = 1.26$) did not differ significantly. These results imply that in the given sample, spillover from taking part in the clothes sharing platform to sustainable product choice did not occur. Consequently, for the hypotheses of Study 1, statistical analyses revealed that in the given sample there were no significant differences for any of the comparisons.

Study 2

As sample size in Study 1 was not sufficiently large to investigate the results further, Study 1 was replicated among a larger student sample in Study 2. Here, the same idea as described before was conducted in an online study, which consisted of a questionnaire reminding participants of past pro-environmental behaviours (in the context of sharing platforms) and assessment of the effects on a spillover behaviour.

Methods

Design

The online study used a between-subjects design with one point of measurement and two conditions (experimental and control). The independent variable was the division of participants in experimental and control group and the dependent variables were environmental self-identity and sustainable product choice. The study took place in October and November 2021.

Participants

Data was collected from users of the SONA platform of the University of Groningen in the Netherlands. This is a platform for first year bachelor psychology students who are required to take part in research studies (and collect SONA credits) for successful completion of their degree. They filled in the online questionnaire, then were redirected to the SONA website, and compensated for their efforts (in SONA credits). An a priori G*Power analysis revealed that 140 participants would be needed to detect a medium effect (d = .5) with alpha = .05 and power at .95. Given that some participants would not provide valid data (e.g., because of failing control questions), initially a total of 178 participants were recruited to account for flawed participants or non-valid data. Participants were excluded if they answered the control questions incorrectly. Furthermore, in the beginning there was an error in data collection, that allowed participants to

take part more than once, which 25 participants did. Due to the nature of the spillover effect, a previous participation in the questionnaire could have an influence on the behavior in the spillover measure (Penz et al., 2019). To avoid a bias related to this, only the first questionnaire of each of these participants was used in data analysis. Finally, participants who were assigned to the experimental group but indicated that they had not participated in any sharing platform so far were excluded. In this case, it was likely that the questions made salient to them that they had not behaved pro-environmentally in the context of sharing platforms so far (thus not contributing to the increase of their environmental self-identity). After applying the exclusion criteria, $N = 142$ ($n = 63$ experimental group; $n = 79$ control group) valid participants were left of whom 107 were female, 32 were male, one participant identified as nonbinary and two preferred not to indicate their gender. Participants were between 18 and 30 years old, $M = 20$, $SD = 2.3$.

Procedure

First, the online questionnaire of Study 2 asked for consent, then participants were randomly split into experimental and control group. The experimental group received questions about their previous participation in different kinds of sharing platforms (intended to increase their environmental self-identity), while the control group received questions about random past behaviours that were not related to environmental friendliness. Afterwards, participants' environmental self-identity was administered and then they were given the choice between sustainable and not sustainable products.

Materials

Environmental Self-Identity. Environmental self-identity was measured using the same items as in Study 1 (see Appendix E). Cronbach's alpha for this scale was at 0.85 in the given

sample. The mean of the experimental group was $M = 5.04$ ($SD = .97$), and $M = 5.07$ ($SD = .99$) for the control group.

Environmental Self-Identity Manipulation. In the experimental group the first part of the questionnaire consisted of items asking them about their past pro-environmental behaviour in the context of sharing platforms (see Appendix H). This was intended to manipulate their environmental self-identity in a similar fashion to how Van der Werff and Steg (2018) utilised this method in their study. Reminding a person of their past pro-environmental behaviour has been shown to be an effective method for increasing their environmental self-identity.

Rather than receiving this manipulation, the control group were presented with items asking about random past behaviours like study behaviours in the Groningen library among other things. No manipulation of environmental self-identity took place. The rest of the questionnaire was the same as for the experimental group.

Sustainable Product Choice. Sustainable product choice was measured the same way as in Study 1 (see Appendix F). The number of pro-environmental products participants chose out of the five options was counted. The mean of the experimental group was $M = 2.87$ ($SD = 1.31$), and the mean of the control group was $M = 2.9$ ($SD = 1.41$), higher values indicating more sustainable product choice. Inverted items were coded invertedly. Using average scores for a clearer overview, it can be observed that in the given sample, participants of the experimental group chose the more sustainable option 57% of the time ($SD = .26$) and participants of the control group chose the more sustainable option 58% of the time ($SD = .28$).

Control Question. Attention of the participants was checked with a control question that revealed whether they read the instructions properly (see Appendix G).

Results

Participation in Sharing Platforms and Environmental Self-Identity

H1a. The first hypothesis anticipated that the environmental self-identity of the experimental group would be higher than that of the control group, which was planned to be analysed with a t-test for independent samples. A Shapiro-Wilk test showed that normal distribution was given in the experimental group ($W = .96$, $p = .06$), but the distribution of the control group departed significantly from normality ($W = .92$, $p < .001$). Since a Levene's test showed that the variances were homogeneously distributed in the given sample ($F = .03$, $p = .85$) and sample size in both groups was >50, the t-test could still be implemented (Sawilowsky & Blair, 1992; Havlicek & Peterson, 1974).

As the t-test showed non-significant differences ($t(140)= -0.20$; $p = .84$), the null hypothesis was maintained. This implies that the environmental self-identity of the experimental group and the control group in the given sample did not differ.

H1b. Hypothesis 1b predicted that increased environmental self-identity would lead to more positive behavioural spillover for the experimental than for the control group. H1b was dependent on the increase in environmental self-identity (H1a), which again did not occur in the given sample. Consequently, regarding H1b, there is nothing that can be elaborated or established.

Participation in Sharing Platforms and Sustainable Product Choice

H2. Hypothesis 2 assumed that product choice of the experimental group would be more sustainable than that of the control group. Again, a t-test for independent samples was planned to investigate this. A Shapiro-Wilk test showed that normal distribution was not given in experimental group ($W = .93$, $p = .001$), or control group ($W = .93$, $p < .001$). However, since a

Levene's test showed that the variances were homogeneously distributed in the given sample (F = .08, p =.78), and sample size in both groups was >50, the t-test could still be implemented (Sawilowsky & Blair, 1992; Havlicek & Peterson, 1974).

The t-test showed non-significant results ($t(140)$= -0.11; p = .91), so the null hypothesis was maintained. This means the sample indicated that sustainable product choice of the experimental group and of the control group did not differ. Consequently, for the hypotheses of Study 2, statistical analyses revealed that there was no significant difference for any of the comparisons.

Discussion

Clothes sharing is a behaviour that has the potential to considerably reduce the personal environmental impact of individuals (Henninger et al., 2019; Vita et al., 2019; Futter, 2020). However, its role in behavioural spillover has to the best of our knowledge not been addressed in research yet. As climate change mitigation urgently requires individuals to engage in more than a single pro-environmental behaviour (IPCC, 2021; Lacasse, 2019), spillover effects and how to trigger them present a highly relevant research topic (Maki et al., 2019; Truelove et al., 2014). The approach of increasing environmental self-identity as a mediator to trigger positive behavioural spillover was implemented in the existing literature using questionnaires that reminded people of their past pro-environmental behaviour (see e.g., Van der Werff et al., 2014b; Van Der Werff & Steg, 2018). However, seemingly this mediation model has not been tested yet with real-life past behaviour. The aim of the current study was to explore the potential of sharing platforms to increase environmental self-identity and thus trigger positive behavioural spillover.

Summary and Interpretation of the Findings

Study 1 used a quasi-experimental, longitudinal design to investigate the matter with real-life participation in a clothes sharing platform. The results did not support any of the hypotheses, meaning that for the given sample there were no indications that real-life pro-environmental behaviour of clothes sharing increased environmental self-identity over a time of three weeks as well as there were no indications of behavioural spillover in the form of sustainable product choice. Looking at the descriptive data, the graphs are slightly divergent thus suggesting a weak tendency for the mean environmental self-identity value of the experimental group to increase and the mean environmental self-identity value of the control group to decrease. However, these values do not differ significantly from each other, so there is no reason to assume an effect. Study 2 aimed to replicate Study 1 on a larger sample with an online questionnaire. This study also did not provide significant results, meaning that the data of the given sample suggests that the environmental self-identity of participants was not increased by reminding them of their previous participation in sharing platforms as well as that there were no indications of positive behavioural spillover. People in the experimental group did not choose the sustainable option of the given products more often than people in the control group. In the proposed model, environmental self-identity mediates the relationship between pro-environmental behaviour and positive behavioural spillover. Since there were no indications of an increase in environmental self-identity, it could not be investigated if increased environmental self-identity would have led to more positive behavioural spillover than the control condition. Therefore, this path of the model could not be examined with the present study. To summarise, all expected effects of the study could not be confirmed in the given samples, as all results were not significant.

Theoretical Implications

The non-significant outcomes of the present research contribute to the conflicting findings in existing literature on the occurrence of behavioural spillover in the context of pro-environmental behaviour (see e.g., Peters et al., 2018; Lacasse, 2016). Some studies have found positive spillover (see e.g., Penz et al., 2019; Poortinga et al., 2013) and some have found negative spillover (see e.g., Sachdeva et al., 2015; Tiefenbeck et al., 2013) while the conditions under which they occur are not clear (Truelove et al., 2014; Maki et al., 2019). However, as the approach of increasing environmental self-identity as a mediator to trigger positive spillover has been applied successfully by previous research, this section explores possible theoretical reasons for this discrepancy.

Existing literature suggests that high environmental self-identity is associated with subsequent pro-environmental actions (Whitmarsh & O'Neill, 2010; Stets and Burke, 2014; Gatersleben et al., 2014) and past behaviour has the potential to increase environmental self-identity (Van der Werff et al., 2013a; 2013b; 2014a; 2014b). Since Study 1 of the present work did not indicate an increase in environmental self-identity, a difference between Study 1 and previous work may be a reason for the divergent results. While previous work used questionnaires about past environmental actions, Study 1 used real-life behaviour (in the form of inviting participants to take part in a clothes sharing platform) to increase environmental self-identity. Previous research suggests that environmental self-identity may not increase if people do not realise, they are engaging in pro-environmental behaviour (Van der Werff & Steg, 2018). Participants of Study 1 were not explicitly told that the clothes sharing behaviour was pro-environmental. It has been argued that consumers may not be aware of the true environmental impact of a textile product (Chen & Burns, 2006), as well as the environmental value of clothes

sharing platforms (Black et al., 2019). In Study 1 of the present work, this could have resulted in the clothes sharing behaviour not contributing to the environmental self-identity of participants. Further studies could investigate if real-life behaviour explicitly framed as pro-environmental leads to a different outcome. However, Study 2 also did not find significant results, while using an approach with a questionnaire, as established in previous studies.

This seeming contradiction between the current findings of Study 2 and previous research may be resolved by considering differences in effectiveness of different kinds of pro-environmental behaviours in increasing environmental self-identity and positive spillover. This has been suggested by Van der Werff et al. (2014b; for pro-environmental behaviour that is not indicative of who one is, thus not being attributed to one's environmental self-identity) and by Van der Werff and Steg (2018; for pro-environmental behaviour that is also a money-saving behaviour). Although the participation in sharing platforms is a pro-environmental behaviour (Futter, 2020), it may not fulfil the attributes of a behaviour that is indicative of who one is. In other words, if a pro-environmental behaviour involves a range of behavioural patterns, is rather unique, and is difficult, people are more likely to attribute it to their environmental self-identity (Van der Werff et al., 2014b). Study 1 of the present research involved one kind of behaviour (clothes sharing) and Study 2 involved behaviour of the same kind (participation in sharing platforms), so the range of behavioural patterns could be considered limited. The uniqueness of the behaviour may be questionable due to the increasing popularity of sharing platforms. Lastly, the difficulty of the behaviour may not have been perceived as very high, as taking part in the clothes sharing platform of Study 1 was made as easy as possible for the participants. No statement can be made about the difficulty of participating in the sharing platforms of Study 2.

Calls were made for future research to examine how the conditions under which a behaviour is more indicative of who one is can be strengthened (Van der Werff et al., 2019).

Concerning money-saving behaviour, a conflict between the environment and money was evident in both sharing platform behaviour as well as sustainable product choice in the current research. When the money-saving properties of a behaviour are more significant than the pro-environmental properties, people may attribute only the money-saving behaviour to their self-identity (Van der Werff & Steg, 2018). For this reason, financial benefits may weaken environmental self-identity (Van der Werff & Steg, 2018) and positive spillover effects can be impaired (Steinhorst & Matthies, 2016), leading the participants to choose the cheaper (and less sustainable) option of the products in the spillover measure. Research suggests that participation in clothes sharing relates positively to the desire for financial benefits (Futter, 2020). Therefore, in future real-life studies it would be interesting to highlight the environmental friendliness of sharing platforms more than the financial gain to see if this has an increasing effect on environmental self-identity.

It follows that the potential of sharing platforms as environmental interventions to influence further pro-environmental behaviours is still unclear. Since possibly, participation in sharing platforms is not a behaviour suitable in triggering positive spillover (i.e., is not indicative of who one is; is seen as a money-saving behaviour rather than as pro-environmental), future research should investigate this further. If it shows to be the case, this needs to be considered in designing pro-environmental interventions to promote sharing platforms. Care should be taken to avoid potential drawbacks (less pro-environmental behaviour overall) outweighing the benefits of a desired behavioural change (motivating people to take part in sharing platforms). Furthermore, another initial real-life pro-environmental behaviour should be selected to

investigate whether the proposed model of the present research (environmental self-identity as a mediator in the pathway to positive spillover) is applicable.

Alternatively, it may be that environmental self-identity was unintentionally weakened in Study 2 of the present research, which can be the case if an individual is made aware that they have not behaved in a pro-environmental way in certain situations (Van der Werff et al., 2013b; Bouman et al., 2021). In Study 2, for each of the different kinds of sharing platforms (clothes, food, car, accommodation, or bike) participants were asked if they had ever participated in it and if they answered "yes" at least once, the criterion for being included in the experimental group was satisfied. The reminder that they had conducted a pro-environmental behaviour in the past was intended to increase their environmental self-identity, but it could also work the other way around. If participants answered "no" for most of the questions, this could have made it salient to them that they did not act pro-environmentally a certain number of times in the past, thus resulting in a weakened environmental self-identity. If Study 2 was to be replicated, consideration should be given to how best to increase environmental self-identity without risk of unintentionally weakening it. This thought can also be a practical implication, as environmental self-identity may be weakened inadvertently when the intention is to increase it to inspire more pro-environmental behaviour (e.g., in environmental protection campaigns). More research must investigate when this phenomenon occurs and how to avoid unwanted outcomes.

Limitations

Several other factors in implementation as well as design could play a role for the unexpected results and a detailed reflection on the limitations of the present study could provide further insights. One limitation lies in the fact that Study 1 did not have an experimental but a quasi-experimental design. Participants could choose whether to engage in the clothes sharing

and were used as a control group if they did not do so. Higher environmental self-identity is associated with more pro-environmental behaviour (Whitmarsh & O'Neill, 2010; Van der Werff, et al., 2013b; 2014b), and accordingly existing literature suggests that people with a high environmental self-identity are more likely to engage in sharing platforms (Schuster et al., 2022). In Study 1 of the present work, this posed a potential risk of biased results. Although a review of the data showed that in the present sample pre-intervention environmental self-identity did not differ significantly between the groups, an experimental design should be considered when thinking to replicate Study 1. Despite this, the setting in the present research did not allow for an experimental design, as the clothes sharing platform had to be implemented on a voluntary basis by requirement of the kindergarten.

Another limitation of Study 1 considers the time and frequency of the intervention. Firstly, Study 1 did not control how often participants exchanged clothes, so it could be that some participants only participated in the clothing sharing platform once, while others used it much more frequently. A discrepancy in frequency of pro-environmental behaviour can lead to differences in increases in environmental self-identity (Dresner et al., 2015; Whitmarsh & O'Neill, 2010) and could thus be a confounding factor in the present study. Secondly, the study did not examine at what point in the three weeks participants engaged in the clothes sharing platform. Literature suggests that repeated behaviours (such as driving style or meat consumption) can predict environmental self-identity one year later (Van der Werff, 2013), but seemingly so far it remains unclear how long environmental self-identity can be strengthened for by a single behaviour. Thus, it could be possible that for some participants, the clothes sharing was carried out too far in the past to have a lasting effect on their environmental self-identity or lead to positive behavioural spillover. Nilsson et al. (2017) note that more research is needed to

investigate the time period in which a pro-environmental behaviour can trigger spillover. Although the inclusion of these variables may have led to interesting findings that could be useful for future environmental interventions, it was not within the scope of the present study to control for time and frequency.

Additionally, the spillover behaviour was assessed in a questionnaire and not with real-life behaviour. When studying spillover effects in a realistic setting, research can better inform environmental policymaking (Truelove et al., 2014). So, while implementing clothes sharing as a real-life pro-environmental behaviour presents a valuable approach, also assessing sustainable product choice in a real-life setting could have provided further insight. As this was not feasible given the scope of this master's thesis, it may be a possible approach for future studies.

Finally, the small sample size of Study 1 reduces the statistical power of the study, potentially compromising its ability to detect an effect. Alas, the location of the data collection did not yield more voluntary sign-ups.

Strengths and Relevance

The present research contributes to existing literature by providing valuable input on real-life pro-environmental behaviour and spillover, while other studies in this field oftentimes only use questionnaires (see e.g., Van der Werff et al., 2013b; Carfora et al., 2017). Despite various problems that may arise from applying real-life behaviours, addressing the climate crisis urgently calls for practical insights into the conditions under which positive behavioural spillover occurs so that adequate environmental protection interventions can be initiated (Truelove et al., 2014). Study 1 of the present research used real-life behaviour in a longitudinal design which in principle allows to detect patterns of change in variables over time (Farrington, 1991). This enables a more realistic perspective on the real-life occurrence of spillover (Nilsson et al., 2017).

Since no spillover occurred in this setting, more broadly, new questions can be raised from the non-significant results of the present study, which represents a starting point for further research.

Another strength of the present work lies in the fact that Study 2 was planned to compensate for the small sample size of Study 1 and to investigate the matter in a different context. The young sample of undergraduate students (Study 2) seemed suitable to test the research question, as students have shown high environmental awareness in previous studies (Penz et al., 2019). As it was not possible to implement the same design in an online questionnaire, it was adapted, making it as similar as possible.

Moreover, the selected pro-environmental behaviour of clothes sharing is highly relevant because of the vast environmental impacts of the fast fashion and textile industry (Niinimäki et al., 2020; Patti et al., 2020) and the potential large-scale positive effects of sharing platforms on individual environmental impacts (Vita et al., 2019; Henninger et al., 2019). A robust research base on the potential of sharing platforms is important so that policy decisions can reflect it (Futter, 2020). The present research adds to the scarce literature on this topic. In this regard, it is worth mentioning that while the present research showed no indications of positive spillover, there were also no indications of negative spillover. This can be seen as a practical implication, insofar as the results of this study indicate that there is no increased need for fear of negative consequences when organising a clothes sharing platform. The positive impacts that clothes sharing platforms can have, are not to be disregarded and promoting such platforms can remain an objective of environmental interventions if there are no negative consequences associated with them.

Concluding Remarks

In current times, there is an increasing need for individuals to act pro-environmentally in as many areas of their behaviour as possible, especially within the textile industry as one of the most devastating production systems of the world. Therefore, it is highly relevant for practical environmental interventions to have insight on occurrence behavioural spillover effects in real-life contexts such as clothes sharing platforms. This master's thesis aimed to build on the approach of past studies that have targeted environmental self-identity in questionnaires only, in order to trigger spillover. In two studies, one of them with a real-life longitudinal design, the potential of sharing platforms in this matter was investigated. Neither an increase in environmental self-identity nor an increased decision for sustainable products (positive spillover) was observed after participation in a sharing platform, so the potential effects of the growing popularity of these are still unclear. These unexpected results raise several further research questions concerning spillover effects in real-life contexts and the conditions under which they occur, thus providing an interesting contribution to this field of research on which further work can be built. Especially, the role of financial benefits as well as the explicit framing of real-life behaviours as being pro-environmental could play a role in this context. The present work found neither positive nor negative spillover associated with clothes sharing platforms, meaning that while they possibly do not lead to further pro-environmental behaviour, their overall impact on the environment can still be highly positive in itself.

References

Aggarwal, N., & More, C. (2020). Fast Fashion: A Testimony on Violation of Environment and Human Rights. *International Journal of Policy Sciences and Law, 1*(3).

Balundė, A., Jovarauskaitė, L., & Poškus, M. S. (2019). Exploring the relationship between connectedness with nature, environmental identity, and environmental self-identity: a systematic review and meta-analysis. *Sage Open, 9*(2), 2158244019841925. https://doi.org/10.1080/0267257X.2015.1061039

Bem, D. J. (1972). Self-perception theory. In *Advances in experimental social psychology* (Vol. 6, pp. 1-62). Academic Press. https://doi.org/10.1016/S0065-2601(08)60024-6

Berzonsky, M. D. (1994). Self-identity: The relationship between process and content. *Journal of research in personality, 28*(4), 453-460. https://doi.org/10.1006/jrpe.1994.1032

Bick, R., Halsey, E., & Ekenga, C. C. (2018). The global environmental injustice of fast fashion. *Environmental Health, 17*(1), 1-4. https://doi.org/10.1186/s12940-018-0433-7

Black, S., Williams, D., Burcikova, M., Vecchi, A., Norton, Z., Brennan, G., ... & Ruelle-Akl, N. (2019). Support report mapping sustainable fashion opportunities for SMEs.

Bouman, T., Van der Werff, E., Perlaviciute, G., & Steg, L. (2021). Environmental values and identities at the personal and group level. *Current Opinion in Behavioral Sciences, 42*, 47-53. https://doi.org/10.1016/j.cobeha.2021.02.022

Carfora, V., Caso, D., Sparks, P., & Conner, M. (2017). Moderating effects of pro-environmental self-identity on pro-environmental intentions and behaviour: A multi-behaviour study. *Journal of environmental psychology, 53*, 92-99. https://doi.org/10.1016/j.jenvp.2017.07.001

Chen, H. L., & Burns, L. D. (2006). Environmental analysis of textile products. *Clothing and Textiles Research Journal, 24*(3), 248-261. https://doi.org/10.1177%2F0887302X06293065

Constantiou, I., Marton, A., & Tuunainen, V. K. (2017). Four models of sharing economy platforms. *MIS Quarterly Executive, 16*(4).

Cornelissen, G., Pandelaere, M., Warlop, L., Dewitte, S., 2008. Positive cueing: promoting sustainable consumer behavior by cueing common environmental behaviors as environmental. *International Journal of Research in Marketing 25*(1) 46–55, http://dx.doi.org/10.1016/j.ijresmar.2007.06.002

Dresner, M., Handelman, C., Braun, S., & Rollwagen-Bollens, G. (2015). Environmental identity, pro-environmental behaviors, and civic engagement of volunteer stewards in Portland area parks. *Environmental Education Research, 21*(7), 991-1010. https://doi.org/10.1080/13504622.2014.964188

Farrington, D. P. (1991). Longitudinal research strategies: Advantages, problems, and prospects. *Journal of the American Academy of Child & Adolescent Psychiatry, 30*(3), 369-374. https://doi.org/10.1097/00004583-199105000-00003

Feather, N. T. (1995). Values, valences, and choice: The influences of values on the perceived attractiveness and choice of alternatives. *Journal of personality and social psychology, 68*(6), https://doi.org/10.1037/0022-3514.68.6.1135

Fritze, M. P. (2017). Like a rolling stone? Investigating consumption values and the spillover effect of peer-to-peer sharing. *International Journal of Business Environment*, *9*(4), 324-355. https://doi.org/10.1504/ijbe.2017.092224

Futter, L. (2020). *Sharing economy: Comparing users' and nonusers' perceptions of participation in clothes sharing practices* (Doctoral dissertation, Dublin, National College of Ireland).

Gatersleben, B., Murtagh, N., & Abrahamse, W. (2014). Values, identity and pro-environmental behaviour. *Contemporary Social Science, 9*(4), 374-392. https://doi.org/10.1080/21582041.2012.682086

Havlicek, L. L., & Peterson, N. L. (1974). Robustness of the t test: A guide for researchers on effect of violations of assumptions. *Psychological Reports, 34*(3_suppl), 1095-1114. https://doi.org/10.2466%2Fpr0.1974.34.3c.1095

Henninger, C. E., Bürklin, N., & Niinimäki, K. (2019). The clothes swapping phenomenon–when consumers become suppliers. *Journal of Fashion Marketing and Management: An International Journal.* https://doi.org/10.1108/JFMM-04-2018-0057

IPCC, 2021: Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis*. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. *Cambridge University Press*. In Press.

Lacasse, K. (2016). Don't be satisfied, identify! Strengthening positive spillover by connecting pro-environmental behaviors to an “environmentalist” label. *Journal of Environmental Psychology, 48*, 149-158. https://doi.org/10.1016/j.jenvp.2016.09.006

Lacasse, K. (2019). Can’t hurt, might help: Examining the spillover effects from purposefully adopting a new pro-environmental behavior. *Environment and Behavior, 51*(3), 259-287. https://doi.org/10.1177%2F0013916517748164

Lawson, E. (2021). Climate Change Action and Individual Responsibility. *British Journal of General Practice, 71*(711), 435-435. https://doi.org/10.3399/bjgp21X717377

Maki, A., Carrico, A. R., Raimi, K. T., Truelove, H. B., Araujo, B., & Yeung, K. L. (2019). Metaanalysis of pro-environmental behaviour spillover. *Nature Sustainability, 2*(4), 307–315. https://doi.org/10.1038/s41893-019-0263-9

Martin, C., & Czellar, S. (2017). Where do biospheric values come from? A connectedness to nature perspective. *Journal of Environmental Psychology*, *52*, 56-68. https://doi.org/10.1016/j.jenvp.2017.04.009

Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The environmental price of fast fashion. *Nature Reviews Earth & Environment*, *1*(4), 189-200. https://doi.org/10.1038/s43017-020-0039-9

Nilsson, A., Bergquist, M., & Schultz, W. P. (2017). Spillover effects in environmental behaviors, across time and context: a review and research agenda. *Environmental Education Research, 23*(4), 573-589. https://doi.org/10.1080/13504622.2016.1250148

Nguyen, N., & Johnson, L. W. (2020). Consumer behaviour and environmental sustainability. *Journal of Consumer Behaviour, 19*(6), 539–541. https://doi.org/10.1002/cb.1892

Patti, A., Cicala, G., & Acierno, D. (2020). Eco-sustainability of the textile production: Waste recovery and current recycling in the composites world. *Polymers, 13*(1), 134. https://doi.org/10.3390/polym13010134

Penz, E., Hartl, B., & Hofmann, E. (2019). Explaining consumer choice of low carbon footprint goods using the behavioral spillover effect in German-speaking countries. *Journal of cleaner production, 214*, 429-439. https://doi.org/10.1016/j.jclepro.2018.12.270

Peters, A. M., van der Werff, E., & Steg, L. (2018). Beyond purchasing: Electric vehicle adoption motivation and consistent sustainable energy behaviour in The Netherlands. *Energy Research & Social Science, 39*, 234-247. https://doi.org/10.1016/j.erss.2017.10.008

Poortinga, W., Whitmarsh, L., & Suffolk, C. (2013). The introduction of a single-use carrier bag charge in Wales: Attitude change and behavioural spillover effects. *Journal of Environmental Psychology, 36*, 240-247. https://doi.org/10.1016/j.jenvp.2013.09.001

Qasim, H., Yan, L., Guo, R., Saeed, A., & Ashraf, B. N. (2019). The defining role of environmental self-identity among consumption values and behavioral intention to consume organic food. *International journal of environmental research and public health, 16*(7), 1106. https://doi.org/10.3390/ijerph16071106

Sachdeva, S., Jordan, J., & Mazar, N. (2015). Green consumerism: moral motivations to a sustainable future. *Current Opinion in Psychology, 6,* 60-65. http://dx.doi.org/10.1016/j.copsyc.2015.03.029

Sawilowsky, S. S., & Blair, R. C. (1992). A more realistic look at the robustness and type II error properties of the t test to departures from population normality. *Psychological bulletin, 111*(2), 352. https://psycnet.apa.org/doi/10.1037/0033-2909.111.2.352

Schuster, C., Goseberg, T., Arnold, J., & Sundermann, A. (2022). I share because of who I am: values, identities, norms, and attitudes explain sharing intentions. *The Journal of Social Psychology*, 1-19. https://doi.org/10.1080/00224545.2022.2044282

Stets, J. E., & Burke, P. J. (2014). The development of identity theory. In Advances in group processes. *Emerald Group Publishing Limited*. http://dx.doi.org/10.1108/S0882-614520140000031002

Steinhorst, J., & Matthies, E. (2016). Monetary or environmental appeals for saving electricity?–Potentials for spillover on low carbon policy acceptability. *Energy Policy, 93*, 335-344. https://doi.org/10.1016/j.enpol.2016.03.020

Tiefenbeck, V., Staake, T., Roth, K., & Sachs, O. (2013). For better or for worse? Empirical evidence of moral licensing in a behavioral energy conservation campaign. *Energy Policy, 57*, 160-171. https://doi.org/10.1016/j.enpol.2013.01.021

Truelove, H. B., Carrico, A. R., Weber, E. U., Raimi, K. T., & Vandenbergh, M. P. (2014). Positive and negative spillover of pro-environmental behavior: An

integrative review and theoretical framework. *Global Environmental Change, 29*, 127-138. http://dx.doi.org/10.1016/j.gloenvcha.2014.09.004

Vandenbergh, M. P., & Steinemann, A. C. (2007). The carbon-neutral individual. *NYUL Rev., 82*, 1673.

Van der Werff, E. (2013). *Growing environmental self-identity*.

Van der Werff, E., Steg, L., & Keizer, K. (2013a). The value of environmental self-identity: The relationship between BVs, environmental self-identity and environmental preferences, intentions and behaviour. *Journal of Environmental Psychology, 34*, 55-63. http://dx.doi.org/10.1016/j.jenvp.2012.12.006

Van der Werff, E., Steg, L., & Keizer, K. (2013b). It is a moral issue: The relationship between environmental self-identity, obligation-based intrinsic motivation and pro-environmental behaviour. *Global environmental change, 23*(5), 1258-1265. http://dx.doi.org/10.1016/j.gloenvcha.2013.07.018

Van der Werff, E., Steg, L., & Keizer, K. (2014a). I am what I am, by looking past the present: the influence of BVs and past behavior on environmental self-identity. *Environment and Behavior, 46* (5), 626-657. https://doi.org/10.1177%2F0013916512475209

Van der Werff, E., Steg, L., & Keizer, K. (2014b). Follow the signal: when past pro-environmental actions signal who you are. *Journal of Environmental Psychology, 40*, 273-282. http://dx.doi.org/10.1016/j.jenvp.2014.07.004

Van Der Werff, E. & Steg, L. (2018). Spillover Benefits: Emphasizing Different Benefits of Environmental Behavior and Its Effects on Spillover. *Front. Psychol.* 9:2347. https://doi.org/10.3389/fpsyg.2018.02347

Van der Werff, E., Taufik, D., & Venhoeven, L. (2019). Pull the plug: How private commitment strategies can strengthen personal norms and promote energy-saving in the Netherlands. *Energy Research & Social Science, 54*, 26-33. https://doi.org/10.1016/j.erss.2019.03.002

Vita, G., Lundström, J. R., Hertwich, E. G., Quist, J., Ivanova, D., Stadler, K., & Wood, R. (2019). The environmental impact of green consumption and sufficiency lifestyles scenarios in Europe: connecting local sustainability visions to global consequences. *Ecological economics, 164*, 106322. https://doi.org/10.1016/j.ecolecon.2019.05.002

Whitmarsh, L., & O'Neill, S. (2010). Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours. *Journal of environmental psychology, 30*(3), 305-314. https://doi.org/10.1016/j.jenvp.2010.01.003

Young, W., Hwang, K., McDonald, S., & Oates, C. J. (2010). Sustainable consumption: green consumer behaviour when purchasing products. *Sustainable development, 18(1)*, 20-31. http://dx.doi.org/10.1002/sd.394

Appendix A

Flyer for Clothes Sharing Platform in Study 1

Appendix B

Information Form

university of groningen / faculty of behavioural and social sciences

INFORMATION ABOUT THE STUDY
VERSION FOR PARTICIPANTS

SHARING PLATFORMS
PSY-2021-S-0491

➢ **Why am I receiving this information?**
Thank you for showing interest in our study. This questionnaire is part of Hannah Henke's master's thesis. It is supervised by Tom Downer (t.j.downer@rug.nl) from the Faculty of Behavioural and Social Sciences at the University of Groningen.

➢ **Do I have to participate in this research?**
Participation in the research is voluntary. However, your consent is required. Therefore, please read this information carefully. Ask any questions you may have, e.g., if you do not understand something. Only then decide whether you would like to participate. If you decide not to participate, you do not have to justify this, and it will not have any negative consequences for you. Even after you have consented to participate in the research, you have the right to stop participating at any time.

➢ **Why this research?**
The study is about the acceptance of sharing platforms. Possible effects of participation will also be investigated.

➢ **What will be asked of me during the research?**
[First, you will be asked to give your consent to participate. Then you must enter your individual word (can be found on the back of the clothes sharing platform flyer). This is followed by questions about environmental friendliness and the clothes swap platform. Participation in the survey will take about 3 minutes. A similar questionnaire will be conducted again after three weeks. During these three weeks you can participate in the clothes sharing platform or decide against it, that is your personal decision.] / [First, you will be asked to give your consent to participate. This will be followed by questions about your behaviour and then about environmental friendliness. Participation in the survey will take about 6 minutes.]

➢ **What are the consequences of participating?**
[There are no negative consequences or risks associated with this study, nor is there any compensation for your participation in this study.] / [There are no negative consequences or risks associated with this study, and there is compensation of 0.3 SONA credits for your participation.]

➢ **How will your data be handled?**
Your data will be collected anonymously, so no one will be able to identify you. You will not be asked for personal information (such as your name, etc.) and your IP address will not be tracked. The main purpose of the data collection is for analysis as part of Hannah Henke's Master's thesis. The anonymous data will be stored until the end of the master's thesis contract at the end of this year.

➢ **What else do you need to know?**
You can ask questions about the research at any time: now, during the research and after the research has ended. You can do this by sending an email to me (h.henke@student.rug.nl).

Do you have questions/concerns about your rights as a research participant or about how the research is conducted? You can also contact the Ethics Committee of the Faculty of Behavioural and Social Sciences at the University of Groningen (ec-bss@rug.nl).

As a survey participant, you have the right to receive a copy of this information.

Appendix C

Explanation Form for Participants of Study 1

Explanation Form Clothes Sharing Platform Study

Dear participants, this is a plan of when and how you can participate in the study.

When taking part in both questionnaires, you must enter an individual word at the beginning. This will ensure that the two questionnaires belong to the same person and that you remain completely anonymous. Your individual word is: [individual word]

Thursday, 01.07.21

Participation in the first online questionnaire (approx. 3 min)

https://bit.ly/3vYzxG4

Please scan the QR code or enter the link in your browser to get to the **first** questionnaire. Your individual word: [individual word]

Please keep this note!

(If you forget the individual word, you cannot participate a second time).

Three weeks time to:

Participate or not participate in the clothes swap platform.

(Your free decision)

Thursday, 22.07.21

Participation in the second online questionnaire (approx. 3 min)

https://bit.ly/3h35fxB

Please scan the QR code or enter the link in your browser to get to the **second** questionnaire. Your individual word: [individual word]

Questions: h.henke@student.rug.nl

Appendix D

Informed Consent

Declaration of Consent

I hereby confirm that I am at least 18 years old and that I am participating in this study voluntarily. I am aware that I can withdraw from the study at any time without giving any reason and without any disadvantages [by closing the browser window]. My anonymity will be preserved at all times, my name will not be requested at any point. This means that it is not possible for anyone to link my data with my name. The data will only be used for scientific purposes and will only be stored for data analysis. I have read the information about the study and have had enough opportunity to ask questions about it. I understand what the study is about, what I am being asked about, how my data will be handled and what rights I have as a participant. I hereby declare that I have read this participation information completely and carefully and would like to take part in the study [now and again in three weeks].

(If you agree to participate, please click "Yes" below. If you do not agree, simply close your browser window. This will end the survey.)

- o Yes

Appendix E

Environmental Self-Identity Measure in Study 1 and Study 2

Please indicate how much the following statements apply to you.

- Being environmentally friendly is an important part of who I am.
- I am the type of person who acts environmentally friendly.
- I see myself as an environmentally friendly person.
    - Strongly disagree
    - Disagree
    - Somewhat disagree
    - Neither disagree nor agree
    - Somewhat agree
    - Agree
    - Strongly agree

Appendix F

Sustainable Product Choice Measure in Study 1 and Study 2

Please select the product you are most likely to buy.

Chocolate 150g
Price: 1,65€

Chocolate 150g
Price: 1,50€

- Please select the product you are most likely to buy.

Paper Towels 3 Rolls
Price: 1,70€

Paper Towels 3 Rolls
Price: 1,87€

- Please select the product you are most likely to buy.

Deodorant
Price: 2,97€

Deodorant
Price: 2,70€

-

Please select the product you are most likely to buy.

Bathroom, Kitchen, Glass Cleaner each 1L
Total price: 5,66€

Bathroom, Kiitchen, Glass Cleaner each 1L
Total price: 5,15€

- ○ ○

Please select the product you are most likely to buy.

Light Bulb
Price for 1 pack: 13,80€

LED Light Bulb
Price for 1 pack: 15,18€

- ○ ○

Appendix G

Control Question

Dear participants, this is a control question so that I can ensure that your information is valid.

Please click on answer 5.

- 1
- 2
- 3
- 4
- 5

Appendix H

Environmental Self-Identity Manipulation for Experimental Group Study 2

Please answer the following questions about your behavior.

- Have you ever participated in a **food** sharing platform (at least once)? (Examples: TooGoodToGo, OLIO, etc.)
- Have you ever participated in a **clothes** sharing platform (at least once)? (Examples: Vinted, flea markets, etc.)
- Have you ever participated in an **accommodation** sharing platform (at least once)? (Examples: Couchsurfing, BeWelcome, etc.)
- Have you ever participated in a **car** sharing platform (at least once)? (Examples: Blablacar, SnappCar, hitchhiking etc.)
- Have you ever participated in a **bike** sharing platform (at least once)? (Examples: Nextbike, OV fiets, Swapfiets, etc.)
    - Yes
    - No