**Research Design**

I plan to conduct an experiment with participants recruited from the University of Oregon Psychology/Linguistics Human Subjects Pool. The Human Subject Pool’s pre-screening, which participants are required to complete prior to signing up for individual studies, will be used to measure participants on various covariates, including personal values, group identification, interest in clothing, and socially desirable responding. This will separate the time at which participants are measured on value- and social desirability-related constructs, which could have priming effects, from the time at which they participate in the main intervention.

Study 2 will be the main intervention phase of this study in which participants are exposed to a framing manipulation (control, pro-environmental, self-enhancing) and a norm-intervention manipulation (control, descriptive norm, convention, social norm, moral norm). In the main intervention phase of this study, participants will first be randomly assigned to read one of the following framing messages that contextualize the behavior of reducing brand-new clothing item purchases as either pro-environmental, self-enhancing, or neither:

**Pro-environmental framing:** Participants will be informed of the negative impact that purchasing brand new clothing has on the environment, including that the clothing industry produces substantial greenhouse gas emissions that contribute to the ongoing climate change crisis. Participants will be told that people reducing the number of brand-new clothing items that they purchase is one way of lessening the demand for new clothing production.

**Self-enhancing framing:** Participants will be informed that a national survey was conducted among people living in the US to investigate people’s views on purchasing and wearing new clothing items. One of the study’s results was that people reported being unimpressed when they see other people wearing brand-new clothing items. Rather, survey responders reported that they view people more positively who rarely buy brand-new clothing items, and when they do buy clothing, purchase it from secondhand shops.

**Control framing condition:** Participants will not be shown either framing message.

After reading one of the framing conditions, participants will be randomly assigned to one of the five norm-intervention conditions below:

**Control norm condition**: The control condition will contain no additional information to the framing message.

In each of the following norm-intervention conditions, participants will be told that a similar survey of clothing views was recently administered by researchers from the psychology department to University of Oregon students to investigate UO students’ views on purchasing and wearing new clothing items.

**Descriptive norm**: Participants will be told that the survey of clothing views found that a majority of other University of Oregon students have reduced the number of brand-new clothing items that they purchase. Based on responses, it appears to be more typical amongst UO students to purchase clothing from secondhand shops.

**Convention**: Participants will be told that the survey of clothing views found that a majority of other University of Oregon students have reduced the number of brand-new clothing items that they purchase in a coordinated effort with the community to reduce the amount of clothing waste that ends up in the community’s landfills. Based on responses, it appears to be more typical amongst UO students to purchase clothing from secondhand shops because this also reduces the amount of clothing waste that goes to the community’s landfills.

**Social norm**: Participants will be told that the survey of clothing views found that a majority of other University of Oregon students believe that people should reduce the number of brand-new clothing items that they purchase and that failing to do so would be a faux pas (i.e., a social slip-up). Responders reported believing that it is unnecessary to buy brand-new clothing in order to make a good impression at special occasions (e.g., for work, a wedding, a job interview, etc.). Based on responses, it appears to be more typical amongst UO students to purchase clothing from secondhand shops because students want to avoid being judged by their peers and feeling guilty for buying brand-new clothing items.

**Moral norm**: Participants will be told that the survey of clothing views found that a majority of other University of Oregon students believe that people should reduce the number of brand-new clothing items that they purchase because it is the right thing to do. Based on responses, it appears that most UO students believe that it is more ethical to purchase clothing from secondhand shops. Responders reported thinking that buying clothing from secondhand shops is good for the local economy because many secondhand shops are run by small businesses and that it is also better for the environment.

This study will also measure participants on several covariates, including personal values, group identification, interest in clothing, and socially desirable responding. These will be measured prior to participants’ participation in the main intervention phase of this study. The measures that will be used to assess each of these covariates are described below:

**Values.** Participants will be measured using the values scale from Steg et al. (2012), which assesses values on four different dimensions: biospheric (i.e., pro-environmental), altruistic, egoistic, and hedonic.

For this measure, participants will be asked to indicate how important a set of 16 values are to them as “guiding principles in their lives” on a scale from -1 (opposed to my principles), 0 (not important), to 7 (extremely important). The items assessing each value dimension are: biospheric (respective the earth, unity with nature, protecting the environment, preventing pollution), altruistic (equality, a world at peace, social justice, helpful), egoistic (social power, wealth, authority, influential, ambitious), and hedonic (pleasures, enjoying life, gratification for oneself). Average scores on the biospheric value dimension will be used to assess the degree to which participants endorse pro-environmental values.

**In-group Identification.** The degree to which participants identify with the group being depicted in a normative message has been found to moderate the persuasiveness of a social intervention (Cialdini & Jacobson, 2021; Lede, Meleady, & Seger, 2019). Normative appeals appear to be more effective amongst participants who strongly identify with the group being discussed by the normative messages compared to those who weakly identify with this group.

The current study is using normative messages to describe the behaviors of University of Oregon students. To control for the degree to which participants identify with University of Oregon students, a 14-item measure of in-group identification will be used (Leach et al., 2008). This survey assesses five aspects of in-group identification, including solidarity (e.g., “I feel solidarity with other University of Oregon students”), satisfaction (e.g., “I am glad to be a University of Oregon student”), centrality (e.g., “The fact that I am a University of Oregon student is an important part of my identity”), individual self-stereotyping (e.g., “I have a lot in common with the average University of Oregon student”), and in-group homogeneity (e.g., “University of Oregon students are very similar to each other”). Responses will be given on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

**Interest in Clothing.** The main dependent variables in this study concern people’s intentions to reduce their future clothing consumption and to buy clothing secondhand rather than brand new. Scores on these dependent variables could vary due to individual differences in the degree to which participants are interested in clothing in general. To control for these individual differences, general interest in clothing will be measured using the 20-item Clothing Interest Inventory (Schrank, 1973). This measure includes items that assess the degree to which participants are interested in clothing (e.g., “I enjoy clothes like some people do such things as books, music, and movies”) and fashion (e.g., “I have no interest in keeping up with the latest fashion trends” (*reverse-coded*)). Responses are given on a 1 (*definitely true*) to 5 (*definitely false*) scale.

**Socially Desirable Responding.** To control for individual differences in participants’ tendency to give socially desirable responses, participants will complete the Balanced Inventory of Desirable Responding Short Form (Hart et al., 2015). The short form improves upon the length and language of the original 40-item BIDR while still replicating the original scale’s two-factor structure with acceptable fit and reliability. The measure includes 16 items assessing impression management (e.g., “When I hear people talking privately, I avoid listening”) and self-deceptive enhancement (e.g., “I never regret my decisions”). Responses are given on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale.

Finally, participants will be measured on the following two dependent variables:

**Intentions to Reduce Future Clothing Consumption (DV1)**: The first dependent variable will measure participants’ intentions to reduce their new clothing item purchases over the next five years. This 8-item survey was developed for the current study. It assesses the degree to which people intend to not buy new clothing in the future, as well as the degree to which people intend to buy secondhand clothing instead of brand-new clothing. The instructions will inform participants that each statement is about the prospective clothing purchases that the participant may make in the next five years. All eight items are listed below:

In the next five years…

1. I will purchase very few brand-new clothing items.

2. I will purchase many brand-new clothing items. (*reverse*)

3. I will only purchase a brand-new clothing item if it is something that I need for basic functioning.

4. I don’t plan on changing the number of brand-new clothing items that I typically buy. (*reverse*)

5. When I purchase a clothing item, I will get it from a secondhand shop rather than brand new.

6. When I purchase a clothing item, I will get it brand-new instead of from a secondhand shop. (*reverse*)

7. When I need a new clothing item for a special occasion, I will look for it at a secondhand shop instead of buying it brand new.

8. When I need a new clothing item, I will go straight to buying it brand-new and not look for it at a secondhand shop first. (*reverse*)

**Buying Clothing Secondhand Instead of Brand New (DV2):** Participants will be presented with the choice to enter themselves into one of two raffles, either the chance to win a $50 gift card to spend on new clothing items or a $50 gift card to spend on secondhand clothing items.

**Proposed Analysis**

The results of this project will be analyzed using a multiple-regression analysis. The 15 experimental conditions above (3 framings x 5 norm-intervention conditions) will be coded in the regression model to test for a main effect of framing, a main effect of norm-intervention condition, and an interaction effect between framing and norm-intervention condition. The full design is pictured in table 4 below:

**Table 4**

*Proposed Research Design*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IV1: Framing Condition** | | | | |
| **IV2:**  **Norm**  **Condition** |  | **Control** | **Pro-Environmental (PE)** | **Self-Enhancing (SE)** |
| **Control** | Control | Pro-environmental only | Self-Enhancing only |
| **Descriptive Norm** | Descriptive Norm | PE + Descriptive Norm | SE + Descriptive Norm |
| **Convention** | Convention | PE + Convention | SE + Convention |
| **Social Norm** | Social Norm | PE + Social Norm | SE + Social Norm |
| **Moral Norm** | Moral Norm | PE + Moral Norm | SE + Moral Norm |

A power analysis was conducted to determine the sample size needed to achieve a minimum 80% chance of detecting significant main effects and interaction effects. Power analyses were conducted in R using the `pwr.f2.test` function. This function allows you to input the numerator degrees of freedom, effect size, alpha, and desired power, and provides as output the sample size needed to achieve the desired power level. For the estimated effect sizes, I used Cohen’s conventions for a small effect, which is an *f*2 of .02 (Cohen, 1988). This corresponds to a partial *R*2 of .02, or in other words, indicates that the effect being tested accounts for 2% of the variance in the dependent variable above and beyond the other predictor variables in the model. This estimated effect size was reasonable to the researcher to use because an intervention with a smaller effect size may have less important practical applications.

I performed three separate power analyses for the main effect of norm-intervention condition, the main effect of framing condition, and the interaction effect between the two. The interaction effect produced the largest needed sample size. To achieve 80% power for detecting a significant interaction effect, the study requires 765 participants, which is approximately 51 participants per condition. This sample size achieves approximately 89% power for detecting a significant main effect of norm-intervention condition and approximately 94% power for detecting a significant main effect of framing condition. Since some participants may need to be removed from analysis for having too much missing data and/or for not passing an attention check, my aim is to collect an additional 50 participants for a final needed sample size of 815 participants.

To test for the main effect of norm-intervention condition, I will compare a full regression model that includes 14 contrast-coded predictors to a compact model with only 10 contrast-coded predictors that has the codes corresponding to the main effect of norm-intervention removed. I will test whether the *R*2 value of the full model is a significant improvement to the *R*2 of the compact model to determine whether there is a significant effect of norm-intervention condition. I will then use Tukey post-hoc tests to conduct pairwise comparisons of each norm-intervention condition (descriptive norm, convention, social norm, moral norm) versus the control condition to determine which normative messages significantly changed people’s clothing behaviors and intentions compared to people with no normative message exposure. Descriptive statistics will be used to determine the direction of the effects.

The same model comparison method will be used to analyze the main effect of framing condition and the interaction effect. For the main effect of framing condition, the full model with 14 contrast-coded predictors will be compared to a compact model with only 12 contrast-coded predictors where the codes corresponding to the main effect of framing condition have been removed. This will be followed by Tukey post-hoc tests to make pairwise comparisons among each pair of framing conditions. Descriptive statistics will be used to determine the direction of the effects. For the interaction effect, the full model with 14 contrast-coded predictors will be compared to a compact model with only 6 contrast-coded predictors where the codes corresponding to the interaction effect have been removed. If a significant interaction effect between norm-intervention condition and framing condition exists, it will be unpacked using simple slopes analysis.

I will also use regression analyses to investigate this study’s two exploratory research questions. The first exploratory research question was, “Which combination of framing condition and norm-intervention condition produces the strongest reductions in people’s clothing consumption intentions and behaviors compared to the control condition?” To investigate this question, contrast codes will be constructed that compare each of the conditions which are a combination of a framing condition (pro-environmental, self-enhancing) and a norm-intervention condition (descriptive, convention, social, moral) to the control condition. This will allow me to clearly identify which framing in combination with which norm condition produces the strongest changes in people’s clothing consumption intentions and behaviors.

The second exploratory research question was, “Does endorsement of pro-environmental values moderate the effect of each norm-intervention condition on people’s consumption intentions and behaviors, and does this moderating effect vary depending on whether a pro-environmental or self-enhancing framing is used?” To investigate this question, I will construct the three-way interaction term between framing condition, norm-intervention condition, and pro-environmental values and compare this full model to a model that does not contain the three-way interaction term to examine whether the interaction effect significantly improves upon the variance accounted for in people’s clothing consumption intentions and behaviors. If the three-way interaction effect is significant, I will use simple slopes analyses to examine whether the effect of each norm-intervention condition is moderated by pro-environmental values (high = +1SD above the mean, low = -1SD below the mean), and whether this moderated effect is different depending on which framing condition (self-enhancing or pro-environmental) participants were shown.