

**Green Washing Your Clothes**

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## **Executive Summary**

The purpose of implementing a correlational design study was to determine how individuals perceived eco-friendly (green) detergents in terms of sustainability and performance compared to generic laundry detergents. It was hypothesized that participants would perceive green detergents as superior in sustainability but inferior in performance compared to its counterparts. In this study, participants were intercepted on UBC campus with verbal consent and were asked to answer a quick survey preceding a printed image of a laundry detergent. Surveys included a free-association task, in which participants were asked to generate words after being shown an image of the respective detergent, consumer behaviour questions, Likert-scale questions regarding personal and perceived cleanliness and sustainability, and basic demographic/psychographic questions. Subsequent results conclude that Nellie's, a green product, was perceived as the most sustainable option. However, in terms of performance, it scored the same as its generic counterparts, supporting only half of our proposed hypothesis. Students (or perhaps Millennials) may already have certain brands in mind with regards to laundry detergents, but are flexible in trying new ones. Repositioning Nellie's as the premier sustainable brand and changing its packaging can potentially allow students to shift their preferences and opt for greener products.

## **Research Question**

How are green detergents perceived with regards to sustainability and performance (cleaning ability) compared to generic laundry detergents?

## **Hypothesis**

Green laundry detergents will be perceived to be superior in sustainability but inferior in performance compared to generic laundry detergents.

## **Participants**

The sample consisted of 100 participants (N = 100, 47 men, 53 women, mean age = 21), collected through convenience sampling at the University of British Columbia's AMS Nest. These participants were comprised mostly of UBC students, all of which were randomly assigned to one of three conditions: 32 for Nellie's, 38 for Woolite, and 30 for Tide.

## **Conditions**

Researchers were randomly assigned to one of the three conditions. Nellie's was used as the green laundry detergent, while Woolite and Tide were used as the generic options. Tide was chosen as a comparison group to Nellies and Woolite due to its popular demand and number one position for most popular laundry detergent of 2014 (The Statistics Portal, 2014). Pictures of these laundry detergents were shown to the participants preceding the questionnaire.

## **Measures**

The survey (Appendix B) was divided into four qualitative sections: free-association task, consumer behaviour questions, Likert-scale questions, and basic demographic/psychographic questions.

- Measure 1: Salience was measured through primary and secondary word associations of the respective laundry detergents. Responses were compiled and analyzed through the free-

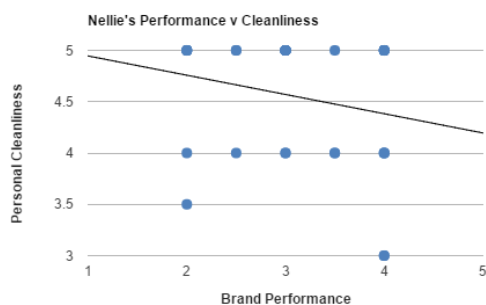
association tasks. Primary associations were the most salient words, and were separated from the secondary associations by the first natural pause/break.

- Measure 2: Brand recall, share of pocket, and purchase frequency was measured through the consumer behaviour questions. These basic questions probed shopping patterns and brand strength.
- Measure 3: Personal perception and values were measured through Likert-scale questions. These questions quantified how participants perceived the brand in terms of sustainability and performance/cleanliness. It also captured the how important the values of sustainability and cleanliness were to the participants. By doing so, correlations could be tested between the variables.
- Measure 4: Demographic and psychographic information were gathered and analyzed at the end. Questions regarding age, gender, year and major, vocation, residency (living on or off campus), and financial dependency (paying or not paying for own tuition expenses) were asked. These were then tested for possible correlations with the primary research question.

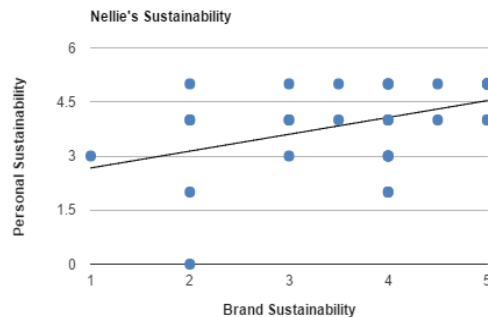
### Procedure

Participants were collected through convenience sampling in and around the AMS Nest. With oral consent, they were asked to say whatever comes to mind when they first see the picture assigned to them. An image of the detergent was then shown. The appointed researcher wrote down responses word-for-word as the responses commenced. A dashed line separated primary and secondary associations when a natural pause/break ensued. Then, the following consumer behaviour questions were asked to identify spending patterns: familiarity with the brand, shopping frequency for laundry detergents a year, shopping frequency for the given laundry detergent a year, and the approximate dollar amount spent of laundry detergents per year. A short scenario was then introduced to the participant. Participants were asked to imagine spilling coffee on their favourite shirt and responding to the a few Likert-scaled questions pertaining to sustainability and performance. Responses would vary from 1 being least effective and 5 being most effective. Descriptive statistics were used to compute mean and mode for aggregate perception of sustainability and performance/cleanliness of each respective detergent. Lastly, basic demographics/psychographics were noted. Upon reaching 100 participants, data were compiled, finalized, and analyzed.

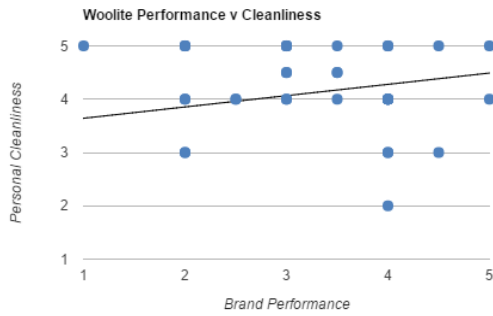
### Results



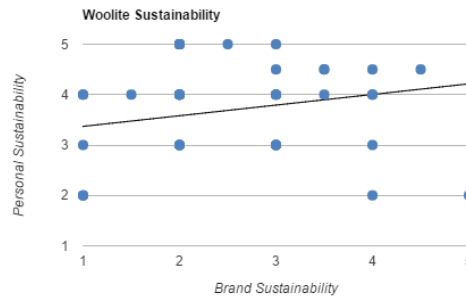
Nellie's Performance  
 R = -0.217 Downwards and Weak



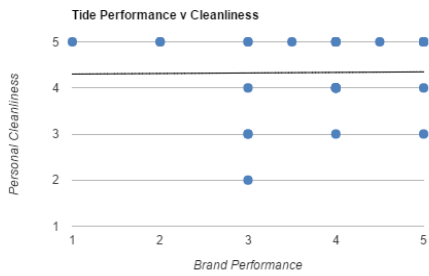
Nellie's Sustainability  
 R = 0.434 Upwards and Moderate



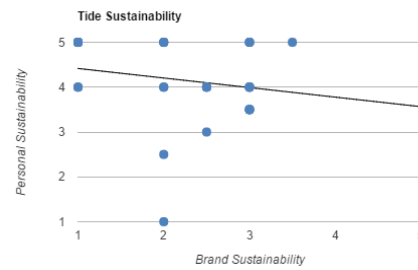
**Woolite Performance**  
 $R = 0.226$  Upwards and Weak



**Woolite Sustainability**  
 $R = 0.221$  Upwards and Weak



**Tide Performance**  
 $R = 0.013$  Flat and Weak



**Tide Sustainability**  
 $R = -0.189$  Downwards and Weak

## Discussions

The regression lines and R-values show the relationship between perceived brand performance/cleanliness and personal cleanliness or perceived brand sustainability and personal sustainability of the three different laundry detergents. The results of the free-association task, correlations, and Likert-scale responses all highlighted Nellie's as the most sustainable option as perceived by the participants. Nellie's scored a 4 on the Likert-scale for brand sustainability while Woolite stood at 2 and Tide at 3. This matched the moderate, positive correlation seen between Nellie's perceived sustainability and the participants' own sustainability values. The sustainability correlation for Nellie's was the only graph that produced a linear trend line with an R-value of any significance. All in all, Nellie's R-score of 0.434 was relatively higher than the others.

While Nellie's was perceived to be the most sustainable of the three detergents across our measures, it captured 0% of the share of pocket (Appendix F). When participants were asked how much they spent per year on each detergent, the only one that was currently being purchased by UBC students was Tide. This may be due to the longstanding influence of the students' peers and family members over the years prior to living independently. However, over 40% of those surveyed were willing to try Nellie's even though only 9% of participants knew about the product prior to completing the survey (Appendix G and H).

Upon analyzing Nellie's free-association results, it was evident that there were negatively charged associations attached to the brand's packaging (Appendix D), which depicted a stereotypical female on the front of the detergent tin (Appendix A). This imagery resulted in negative views of Nellie's, as many UBC students perceived the packaging to be out-dated and

sexist by displaying 1950s style traditional gender roles. These negative associations took away from the sustainability of the product and made it less-liked overall.

The findings supported the research question, as the green product (Nellie's) was perceived as more sustainable compared to its generic counterparts (Tide and Woolite). While it was believed that the green alternative would be perceived as being inferior in performance, this was not supported by the data collected. Instead, Nellie's, Woolite, and Tide all ranked equally on the performance measure using the Likert-scale. This means the original hypothesis was half supported by the evidence. Therefore, we concluded that green laundry detergents are perceived to be superior in sustainability and equal or just as good in terms of performance when compared to their generic counterparts.

### **Limitations**

Because of the small population size, the study had low external validity. Moreover, the location and time at which the interviews were conducted may have led to rushed responses. Also, many respondents were unsure of how much money or times per year they purchased laundry detergents, which may have led to response biases. Face-to-face interaction during the interviews may have also skewed the data because of social desirability bias, artificially inflating scores about personal cleanliness and sustainability. Surveys were also subject to experimenter bias due to interviews being divided amongst five researchers. Furthermore, any small differences in the wording, the amount of time for answers expected for the free-association task, and selection of subjects may have affected the data collection process. The research design did not allow for conclusions about directionality between the four measures to be drawn. More studies into the directionality between attitudes towards the environment and the perceived value of green products could further the current support for the hypothesis. Furthermore, a more detailed measure of the different variables that affect consumer's trust in green products should be used to differentiate between consumer attitudes and behaviours. The study could have benefitted by asking self-identifying environmentally-conscious consumers to name factors that prompt the purchase of eco-friendly or green-branded products, and whether statistical evidence or packaging influences their trust.

### **Implications**

Tide was the most recognized laundry detergent out of the three brands tested, garnering an impressive 93% brand recall. It was also the most popular option as shown by the 54% share of pocket. These results were expected due Tide's superior marketing and branding capabilities. However, 43% of the participants were willing to try other brands. After analyzing the results and compiling the mode ratings of the Likert-scale questions, a perceptual map (Appendix C) was designed to rank the brands based on sustainability and performance. As a result, the following implications were extrapolated from the research findings. First, students faced money and time scarcity. Therefore, they were more inclined to purchase brands that were more familiar, more salient, and more readily available to them. This was depicted by Tide's high brand recall, and consequently, dominating share of pocket. Fortunately for the other brands, students were constantly searching for other alternatives and were willing to try other brands due to the relatively high willingness-to-try results we gathered. Hence, there exists an opportunity for other value-added brands such as Nellie's to compete head on with successful generic brands like Tide and Woolite.

## **Recommendations**

The client was the Student Housing and Hospitality Services (SHHS) – an organization that oversees operations for UBC Food Services, UBC Conferences and Accommodations, and UBC Childcare. Upon meeting with one of their representatives, the team discovered that they were opening up a new sustainable grocery store in the new Ponderosa building called Harvest. They wanted to see which one of their currently used laundry detergents should they carry, Nellie's or Woolite. Based on our analysis, we concluded that Nellie's would be more successful in the new store. However, in order for it to compete with popular generic brands such as Tide sold by other nearby vendors, we recommend the following marketing strategy. First, they need to position Nellie's as the premier sustainable laundry detergent option. They could do this by highlighting the top word associations we elicited. For instance, 'green,' 'safe,' and 'environment.' Second, they should rebrand the packaging to be less gender specific, if possible. Some students found the blonde lady stereotypical and even slightly offensive. Which lead to our third recommendation, targeting. Based on the demographic and psychographic information gathered, Nellie's should be targeted towards third and upper-year students who live on campus with part-time jobs and are paying off their own school expenses. This group of students have experienced being away from home and have become savvy and well-informed consumers. Also, there was an underlying assumption that Harvest would attract a certain type of customer with similar values as the target audience. Lastly, SHHS should offer promotions quarterly as average purchase frequency for laundry detergents were shown to be 4-5 times annually. In terms of price, SHHS should also highlight that Nellie's is a cheaper alternative. Comparing the standard sizes for all three brands, Nellie's (\$12.99 for 50 loads) was approximately \$0.26/load, Woolite (\$13.99 for 30 loads) was approximately \$0.47/load, while Tide (\$13.99 for 32 loads) was about \$0.44/load. All in all, not only is Nellie's perceived to perform just as well as other detergents, it also more eco-friendly and more wallet-friendly.

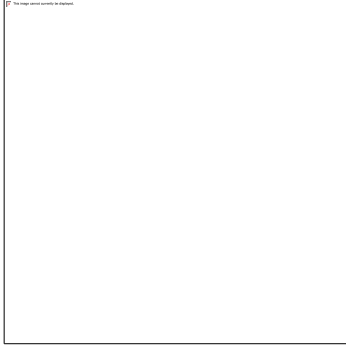
## **References**

Statistics Portal (2014). Sales of the leading liquid laundry detergent brands of the United States in 2014 (in million U.S. dollars). Retrieved from:  
<http://www.statista.com/statistics/188716/top-liquid-laundry-detergent-brands-in-the-united-states>

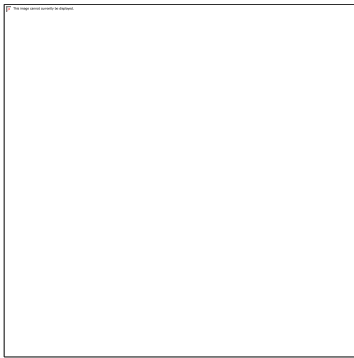
## Appendices

### Appendix A

Images used for free-association task.



Nellie's (Nellie's, 2016).



Woolite (Walmart, 2016).



Tide (Walmart, 2016).

Appendix B

The survey consisting of free-association task, consumer behaviour questions, Likert-scale typed questions, and demographics/psychographics questions.

	1	2	3	4	5
Primary associations (Before first pause)					
Secondary associations (After first pause)					
Are you familiar with (brand)?	Y / N	Y / N	Y / N	Y / N	Y / N
How often do you shop for laundry detergents per year?					
How much do you spend on laundry detergents per year?	\$	\$	\$	\$	\$
How much do you spend on (brand) per year?	\$	\$	\$	\$	\$
Imagine you spilt coffee on your favorite shirt! On a scale of 1-5 (1 being the lowest and 5 being the highest)...	X	X	X	X	X
a) How effective will (brand) be at cleaning your clothes?					
b) How effective will (brand) be at being good for the environment?					
c) How important is cleanliness to you?					
d) How important is sustainability to you?					
What laundry detergent do you currently use?					
Would you try (brand) next time you shop for laundry detergents?	Y / N / Maybe	Y / N / Maybe	Y / N / Maybe	Y / N / Maybe	Y / N / Maybe
Gender?					
Age?					
Year and major?					
Do you have a job?	Y / N	Y / N	Y / N	Y / N	Y / N
Do you pay for your own school fees?	Y / N	Y / N	Y / N	Y / N	Y / N
Do you live on res?	Y / N	Y / N	Y / N	Y / N	Y / N
Email? (Prize!)					



Appendix C

Perceptual map of the three detergents based on two measured dimensions of sustainability and performance. Circled is Nellie's, rated 4 on both dimensions of sustainability and performance.



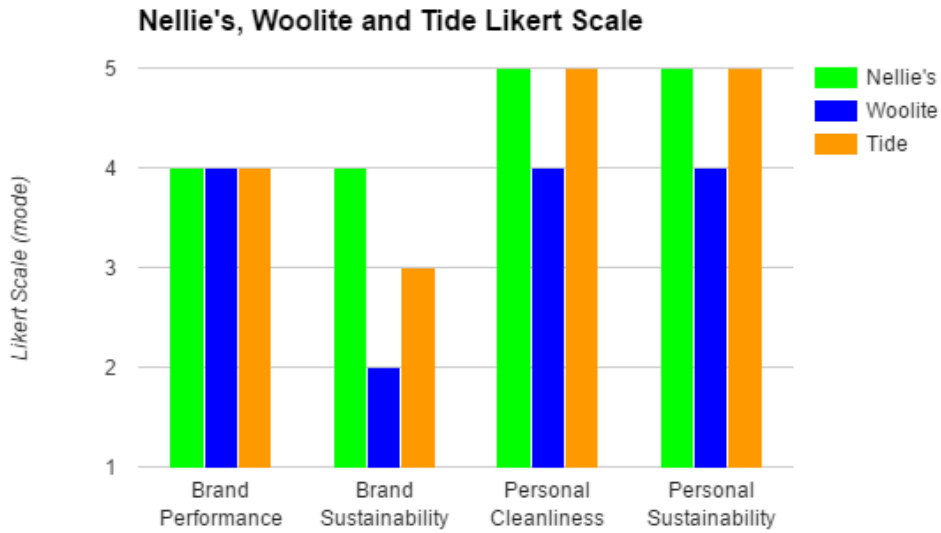
Appendix D

Top 10 primary associations and top 2 secondary associations for each condition. Highlighted words indicate key points of difference niche to the individual brands.

Word Associations			
Primary Associations	Nellie's	Woolite	Tide
	Laundry	Clean	Clean
	Woman	Detergent	Laundry
	Clean	Blue	Detergent
	Blonde	Fluffy	Orange
	Soap	Fresh	Tide
	Detergent	White	Red
	Green	Wool	Cloth
	House	Cloth	Wash
	Old	Wash	Brand
Soda	Laundry	Chemicals	
Secondary Associations	Environment	Fresh	Cheap
	Safe	White	Commercial

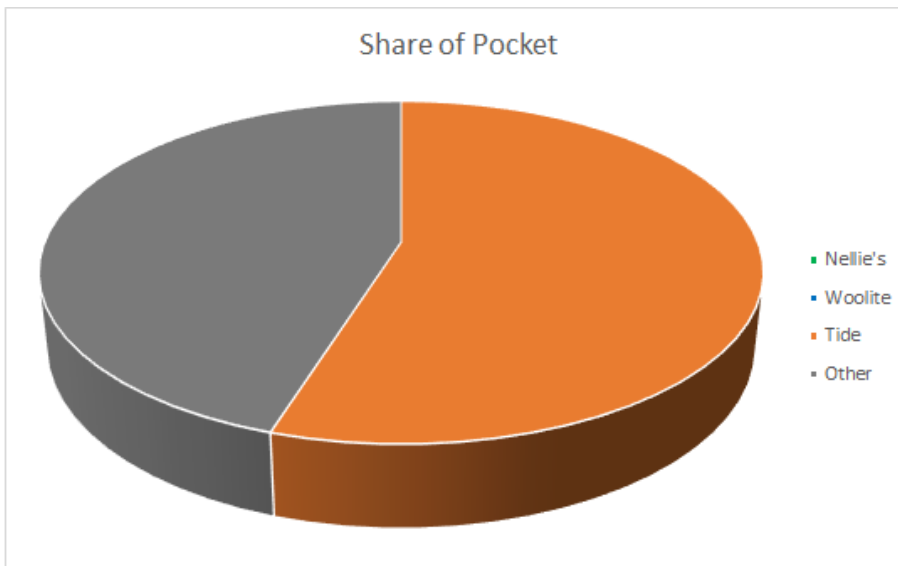
Appendix E

Likert-scale mode results based on questions using the measures: performance and sustainability. 5 ranked the highest in each measure.



Appendix F

Share of pocket showing the approximate amount each person spends per year on each of the three brands. Tide = 54.92%, Nellie's = 0%, Woolite = 0%, others = 45.08%.



Appendix G

Brand recall and purchase frequency measures.

	Nellie's	Woolite	Tide
Brand recognition (%)	9%	26%	93%
Purchase frequency (mean)	7.19	3.7	2.85
Purchase frequency (mode)	6	2	0

Appendix H

Figure 6: Willingness-to-try measures.

	Nellie's	Woolite	Tide
Willingness to try (% of Y)	28.13%	10.53%	40.00%
Willingness to try (% of N)	28.13%	44.74%	20.00%
Willingness to try (% of M)	43.75%	44.74%	40.00%