

UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

**The Fast And The Frugal (Fashion): Literacy on the Impact of Sustainable Consumerism**

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**Course: PSYC 421**

**Themes: Food, Climate, Procurement**

**Date: April 14, 2020**

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## Executive Summary

In collaboration with the Social Ecological Economic Development Studies (SEEDS) program at the University of British Columbia, this research project examined the factors that contributed to increased self-perceived climate literacy in students in an attempt to investigate the relationship between their self-perceived literacy of sustainable consumerism and their communication of those ideas. A sample of UBC undergraduates was measured on their personal sustainability practices, familiarity with sustainability as a norm in Canada, sources of information, actual literacy on sustainable clothing consumption, number of conversations held by them around these topics, and self-perceived literacy through a survey that was administered online. Results from a multiple regression analysis revealed that actual literacy and rated importance of sustainability in Canada negatively predicted self-perceived literacy, while personal sustainability and the number of critically selected sources positively predicted it. There was a small-to-medium correlation between self-perceived literacy and the number of conversations on sustainable clothing consumption, suggesting that people's perception of their own knowledge is related to their willingness to translate intention into action. The practical implications of these findings stem from identifying a gap between perceived and actual literacy, which can inform future educational interventions.

**Keywords:** climate, actual literacy, self-perceived literacy, communication, sustainable fashion consumption

## Introduction

Fashion products have an enormous impact on the environment at every stage of a product's life cycle, ranging from resource consumption to landfill usage. All tiers of the manufacturing process of fast fashion create environmental problems - from the design, raw materials, and preparation, to the weaving, dyeing, and finishing<sup>1</sup>. Clothing consumption and the amount of clothing bought has been increasing in the past decade and only a small fraction of it is going to the recycle bin<sup>1</sup>. Research shows that consumers of fashion who care about their social image over their hedonistic needs, have higher knowledge and perceived literacy, show an increased interest in sustainable fashion as opposed to fast fashion<sup>2</sup>. Kang and colleagues<sup>3</sup> found that there are three main factors affecting sustainable clothing consumption in young consumers: consumer's product knowledge, perceived consumer effectiveness, and perceived personal relevance. This affects what their intentions are about sustainable clothing and their behavioural control over these intentions.

Like most other environmental behaviours, subjective social norms affect people's behaviours significantly and word-of-mouth communication has a huge impact on consumer behaviour by providing a way for these norms to be made explicit. Word-of-mouth is defined as "informal communications regarding products and sharing product-related content through either direct recommendations or mere mentions to social ties"<sup>4</sup>. Research shows that impression management, information acquisition, and social bonding are shown to be important factors that shape how information is shared through word-of-mouth<sup>4</sup>. Berger suggests that this impression management and social bonding could be what leads people to care about their social image in a community and motivates them to present their identity as being aligned with the subjective norms that they perceive<sup>4</sup>. Communicating useful information to people in a community can help enhance one's social image as well.

Studies have shown that knowledge about sustainable behaviour does not directly translate into action, however, addressing the discrepancy between mere awareness and literacy may be a step in the right direction<sup>5</sup>. Conversations on relevant topics explicitly highlight existing social norms, which might act as a bridging factor between literacy and behaviour. Identifying common gaps in climate literacy across a population could generate ideas to nudge people towards feasible behavioural changes.

Previous research does not provide a clear relationship between perceptions of literacy that young consumers have and how that might affect their own behaviours in a social setting that values sustainable behaviours. UBC undergraduates are one such group of young consumers in a setting where sustainable consumption and behaviours are increasingly becoming the norm. With these phenomena in mind, this study aimed to assess where the climate literacy gap is among UBC undergraduate students and how this may translate into behaviour through peer communication.

The following study was designed to examine how students' literacy of sustainable consumerism, specifically in the realm of sustainable fashion, related to their communication of those ideas. This was tested through two specific hypotheses: it was hypothesized familiarity with social norms of sustainability, information from more critically selected sources, higher personal sustainability, and higher actual literacy will predict higher self-perceived climate literacy. And, that higher self-perception of literacy will correlate positively with increased communication among peer groups regarding sustainability.

## Methods

### Participants

The study aimed to recruit 113 sample respondents via Qualtrics. This target sample size of 113 respondents was determined by taking the base value of 104 respondents and adding "M", the number of predictors, and accounting for a 5% error rate to equal 113 respondents<sup>6</sup>. In total, 144 undergraduates at UBC were surveyed, but final analyses were

conducted on 104 responses, after excluding incomplete data, students not from UBC, students who did not complete the full survey, and students who did not consent to have their data analyzed. The only demographics measured were the number of years that respondents had lived in Canada, which had an average of 8.22 years, and ranged from 1 to 42 years.

### Measures

#### *Hypothesis 1.*

The first hypothesis was designed and tested through a multiple regression analysis.

**Familiarity with Norms.** This variable was measured by the question: How important do you think sustainability is in Canada? Respondents selected an option from a Likert scale of 1-5 from “not at all important” to “extremely important”. This variable was measured by this question because respondent’s understanding of sustainability in Canada as a norm could influence how much they are aware of sustainability behaviours and knowledge around climate change actions and, in turn, affect their perception of their own literacy.

**Sources of Information.** Sources of information from critical sources were measured by the number of quality sources from which respondents obtained their information. Respondents selected all that apply from the following options; knowledge from classes, social media, parents/family, scientific research, conversations with friends, reasoning, and guess. When the data was coded, for each source respondents selected, they received one point. As the option “guess” is not a highly critical source, it was coded as zero. The highest number of points respondents could receive was 6 points. Each time the respondent was presented with the “actual literacy” measurement question, they were asked to rate what sources of information helped them to answer the question.

**Personal Sustainability.** This variable was measured by respondents rating on a Likert scale of 1-5 from “completely unsustainable” to “completely sustainable” for the question: how would you rate your lifestyle choices with regard to the following categories? Categories included were clothing consumption, transportation, and diet habits. These questions assessed respondents’ self-reported sustainable habits in other aspects of life; this was measured as it was thought to be a factor that might influence their perception of their own sustainability knowledge.

**Actual Climate Literacy.** Actual climate literacy was measured by rating a series of 10 positive actions for the environment. To test the respondent’s objective knowledge on the degree of the positive impact of behaviours on the environment, respondents rated the actions on a sliding scale from 0-10. Some actions were determined to have a lower positive impact and some had a higher positive impact based on the carbon footprints of different clothing consumption actions. These statements were derived from a modified version of the YCSBC scale<sup>7</sup> and from other existing research<sup>8-15</sup>. A full list of the statements can be found in Appendix B. To code this data, the respondent’s ratings were compared against the respective impact value for that action: high impact = 10, low impact = 0. For high positive impact actions, the rating that the respondents chose became their literacy score. For low positive impact actions, the literacy score was found by subtracting the respondent’s rating from 10. The highest possible score for all 10 statements in the survey was 100, demonstrating a higher number to signify higher actual literacy about sustainable clothing consumption.

#### *Hypothesis 2*

The second hypothesis was designed as a correlation between the following two variables.

**Self-Perceived Literacy.** This variable was measured by the question: how certain are you of your rating? This was asked after each presentation of the positive clothing consumption statements discussed above. The certainty rating was on a scale of 1-5 from “completely uncertain” to “completely certain”. The self-perceived literacy was measured in this way to reach the confidence level respondent’s felt about how well they rated the

clothing consumption actions.

**Communication.** Behaviour was operationalized through the communication measure to examine a potential relationship between it and perceived literacy. Communication was measured by the question: how many conversations about sustainable clothing consumption did you have in the last 30 days? Respondents provided a whole number estimate which was analyzed to mean that the higher the number, the more they communicate their knowledge of sustainable clothing consumption to others. Communication was measured this way in order to see how often respondents were actually talking about clothing consumption in relation to sustainability.

### **Procedure**

The Qualtrics-based survey was distributed through a variety of avenues at UBC between February 25 and March 12, 2020. The survey was sent online to some student groups such as the PSA and the UBC Botany Club, distributed to professors to send out in classrooms, and forwarded to other peers. There was also recruitment in student spaces such as the NEST and the Life Building. Challenges to recruitment were in finding enough outlets to distribute the survey to undergraduate UBC students.

### **Results**

The descriptive statistics and correlation matrix for the study are included in Appendix A.

### **Regression Analysis**

A multiple linear regression was conducted to predict self-perceived literacy of respondents based on their familiarity with norms, the number of sources they used to obtain their information, their actual literacy score, and their self-reported personal sustainability behaviours across three different domains (food, transport, clothing). A significant collective effect of all the predictors was found ( $R^2_{\text{Adjusted}} = .269$ ,  $F(4,98) = 10.398$ ,  $p < .05$ ). The standardized beta weights for the variables were assessed as the scale units in the study were not suitable for a meaningful comparison. Respondents' predicted self-perceived literacy score is likely to increase with increase in number of sources ( $\beta = .40$ ,  $t(99) = 4.70$ ) and higher score on self-report measures of personal sustainability ( $\beta = .21$ ,  $t(99) = 2.50$ ). In contrast, a higher actual literacy score ( $\beta = -.19$ ,  $t(99) = -2.20$ ) and higher familiarity with norms ( $\beta = -.21$ ,  $t(99) = -2.42$ ) predicts a decrease in self-perceived literacy, although these effect sizes are small. All effects are significant ( $p < .05$ ). It was found that the number of sources that a person gained knowledge of sustainable clothing consumption had the biggest effect on their self-perceived literacy. No significant correlations were found between all the factors predicting the self-perceived literacy of respondents, rendering any issues of multicollinearity irrelevant.

### **Correlations**

Results of the Pearson correlation indicated a significant positive correlation between self-perceived literacy and number of conversations ( $r(102) = .215$ ,  $p < .05$ ,  $N = 104$ ), with a small to moderate effect size. This suggests that the more the respondents thought they knew about sustainable fashion consumption ( $M = 30.82$ ,  $s = 7.12$ ), the more conversations they had with others on sustainable fashion ( $M = 2.50$ ,  $s = 3.97$ ) and vice versa.

### **Discussion**

The results from the regression analysis show that all four factors significantly predicted respondents' self-perceived literacy scores; the number of sources and self-reported personal sustainability positively predicted the criterion variable, while actual literacy and familiarity with norms negatively predicted it. These results did not fully support Hypothesis 1, as it was predicted that all factors would positively predict the criterion. Though small in size, the negative effects of actual literacy were interpreted to mean that respondents who had gained substantial knowledge would likely be aware of the fact that a surplus of information

exists that they haven't yet acquired, causing them to rank themselves lower on a larger scale encompassing more knowledge. Those who scored low on actual literacy, however, may not be aware of existing information on the topic, hence feeling a sense of false confidence in their self-perceived knowledge. Another potential explanation to this observed phenomenon is the source of the respondents' knowledge; it is possible that those who had higher literacy gained their information from highly credible sources (such as empirical research and professionals in relevant fields). This could result in their perception of having lesser knowledge in comparison to the knowledge sources. Those who scored lower, on the other hand, may have gotten their information from less credible sources (like word-of-mouth), the lack of a reference point giving them greater confidence in their ideas. There was a significant positive correlation between respondents' self-perceived literacy and the number of conversations they had on sustainable clothing consumption, which supported Hypothesis 2. Hence it can be inferred that there is a moderate relationship between a person's confidence on a topic and how willing they are to talk about it.

Other variables, including avenues of communication and the amount of time that respondents had lived in Canada for, were measured and exploratory analyses were conducted. Though there appeared to be no clear relationship between these variables and self-perceived literacy, future studies might explore their effects on the predictor variables to get a clearer understanding of the factors that may affect literacy gaps in general.

Although the results obtained were significant and largely supported the hypotheses presented, there are several limitations to the study that must be noted. First, the sample consisted disproportionately of psychology undergraduates, which may not be representative of the larger population of UBC students as a whole. Another limiting factor to consider would be the means used to measure actual literacy; given that the study tested respondents' understanding of nuanced ideas about the degree of the positive impact that certain actions had on the environment, it is likely that a slight floor effect was encountered. Additionally, due to its narrow focus, this measure did not fully encapsulate all there is to know about sustainable clothing consumption. Third, all the sources of information (except "guess") were coded with equally distributed weightage. This may not be the most efficient method of coding, as it is evident that not all the sources contain equally credible information. Lastly, the study operationalized behaviour through the number of conversations held on the topic in a given time-span, which might differ from other manifestations of sustainable behaviour; a large percentage of respondents reported to have never had conversations around sustainable clothing consumption, but this does not necessarily imply that they also did not engage in other activities related to it (eg. donating or buying clothes). Hence, operationalizing behaviour in different ways may yield different patterns in relationships between it and self-perceived literacy.

These results have several implications. Considering the discrepancy between actual and self-perceived literacy, it is clear that education on fashion sustainability is lacking. This gap can be mitigated with greater education. Furthermore, the negative relationship between the two literacies implies that limited correct information - or even misinformation - is spread at the conversational level. Bridging this is integral to furthering actual literacy; effort must also be made towards understanding one's own knowledge levels which, based on the findings above, will increase the communication of correct information. Another way to tackle this would be to educate individuals on the importance of critically analyzing information (and their sources); a large number of respondents reported that they received relevant information from conversations with friends/family and social media- both sources of questionable credibility. Further research could investigate the different contributions of each of these sources to actual literacy scores, thereby providing an understanding of what would work best in interventions.

### **Recommendations for UBC Botanical Garden**

The results have provided several implications to analyze. To begin, the average actual literacy scores were 38/100. From this one can draw the conclusion that education on sustainable fashion consumerism is lacking. Though UBC courses on general sustainability are not lacking - as all faculties but Dentistry have sustainable learning opportunities<sup>16</sup> - this may mean that the fashion industry is simply not a focus of such courses. Due to it being a limited topic in education, dissemination of this information is often limited to informal means, most commonly word-of-mouth as the analyses showed. The gap between actual and self-perceived literacy must be mitigated, as the presented correlations indicate that more misinformation is being spread than accurate information. Despite this phenomenon found, conversations about sustainable fashion per month were low among respondents. One cause for this lack of discussion may be due to unawareness about sustainable fashion resources available to UBC undergraduates.

Such resources include UBC student-run second-hand shops like “Get Thrifty” and the “UBC Free Store”<sup>17,18</sup>. If students are unable to shop in person, they can browse online among the numerous UBC second-hand Facebook markets, including “UBC Second-Hand.”<sup>19</sup> UBC continues to innovate with initiatives such as the UBC Sustainable Fashion Week and as the first university in Canada to have a student government climate action plan, as spearheaded by UBC’s Alma Mater Society<sup>20,21</sup>. Students may further be unaware of the Botanical Gardens’ dedication to the UN Climate Sustainability Action Plan<sup>22,23</sup> or of SEEDS initiatives, and how they as students can become involved.

As stated earlier, awareness about these opportunities is a key initial step in educating students about sustainability. McCaffrey and Buhr<sup>24</sup> examined systemic holes in climate literacy among American adults. They found that the primary shortcoming of climate education is its implementation in K-12. The current school curriculum fails to impress the ever-changing nature of climatology, instead instilling concrete beliefs about climate change; this fault may be due to misinformed educators, and/or educators who maintain former beliefs despite updated information surfacing<sup>25</sup>. One such way that this monumental task can be managed is with the National Oceanic and Atmospheric Administration (NOAA) Essential Principles of Climate Literacy. This guide is designed to direct pedagogical practices around climatology in a clear and concise manner<sup>26</sup>. Reaching out to K-12 educators with this guide, when leading field trips at the Botanical Gardens could be an effective way of mitigating this climate literacy gap beginning at local schools.

As a contribution to UBC, we hope that this research can be used as a source of motivation for educators to highlight the detriments of the fashion industry on climate and sustainable practices that students can employ. With this research in mind, increased communication of clothing sustainability as a perceived norm could positively affect students’ inclination to comply, thereby yielding higher rates of sustainable behaviour.

## Appendix A: Statistics

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Familiarity with norms (Total possible= 5)	104	2	5	4.54	.667
Number of Sources of information(Total possible=70)	104	1	27	12.87	6.291
Actual Literacy Score (Total possible= 100)	104	24	70	47.29	7.180
Personal sustainability (total possible= 15):	103	4	15	9.80	2.451
Percieved Literacy Score (Total possible= 50)	104	10	45	30.82	7.116
Number of conversations	104	0	30	2.50	3.971
Valid N (listwise)	103				

**Figure A1:** Mean and Standard Deviations for all the variables.

### Correlations

		Familiarity with norms (Total possible= 5)	Number of Sources of information (Total possible=70)	Percieved Literacy Score(Total possible= 50)	Actual Literacy Score(Total possible= 100)	Personal sustainability (total possible= 15):	Number of conversations
Familiarity with norms (Total possible= 5)	Pearson Correlation	1	-.098	-.210*	-.033	.146	.172
	Sig. (2-tailed)		.321	.032	.741	.141	.080
	N	104	104	104	104	103	104
Number of Sources of information(Total possible=70)	Pearson Correlation	-.098	1	.439**	-.100	-.019	.106
	Sig. (2-tailed)	.321		.000	.313	.845	.284
	N	104	104	104	104	103	104
Percieved Literacy Score (Total possible= 50)	Pearson Correlation	-.210*	.439**	1	-.219*	.174	.215*
	Sig. (2-tailed)	.032	.000		.025	.079	.028
	N	104	104	104	104	103	104
Actual Literacy Score (Total possible= 100)	Pearson Correlation	-.033	-.100	-.219*	1	.008	-.053
	Sig. (2-tailed)	.741	.313	.025		.937	.592
	N	104	104	104	104	103	104
Personal sustainability (total possible= 15):	Pearson Correlation	.146	-.019	.174	.008	1	.129
	Sig. (2-tailed)	.141	.845	.079	.937		.196
	N	103	103	103	103	103	103
Number of conversations	Pearson Correlation	.172	.106	.215*	-.053	.129	1
	Sig. (2-tailed)	.080	.284	.028	.592	.196	
	N	104	104	104	104	103	104

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Figure A2:** Correlation Matrix between all the variables.



## Appendix B: Survey Design

### Statements\* testing actual literacy:

#### **High positive impact:**

1. Buying second-hand clothing
2. Purchasing eco-friendly materials (avoiding synthetic ones)
3. Airing dirty clothes properly before washing/drying them
4. Purchasing high-quality garments after verifying materials used
5. Patching or mending clothes instead of throwing them away

#### **Low positive impact:**

1. Making your own clothes (sewing/knitting)
2. Buying locally-made souvenir clothing when on vacation
3. Buying from brands that donate to social causes
4. Avoid buying clothing that is dry-clean only
5. Buying expensive clothing that lasts longer

\*Statements were derived and selected from existing research (citations in the References section below, references <sup>7-15</sup>)

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