

**Sustainability Literacy Assessment**  
**SEEDS Project, UBC**  
**GRS 497E (Directed Studies)**  
**April 12<sup>th</sup>, 2016**  
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## **Purpose**

The purpose of this project was to develop an assessment tool that starts to answer the question 'Do UBC students have a good understanding of sustainability topics and values?'. The UBC Sustainability Literacy Assessment will measure the baseline knowledge and awareness of sustainability in the student population. This will allow UBC to gauge current levels of sustainability education and engagement, and track changes over time. The questions finalized in this project will be incorporated into the Undergraduate Experience Survey as an optional module beginning in 2017. The results will be used for reporting purposes such as AASHE STARS as well as to inform sustainability curricula and engagement development at UBC.

## **Methods and Process**

The first step in this project was to review existing sustainability literacy assessments created at other post-secondary institutions in North America. Each assessment was applied to a list of criteria to ensure the tests were relevant to UBC students and useful to the university. None of the assessments reviewed fulfilled all of the requirements.

Following the review of existing sustainability literacy assessments, a review of academic articles related to general survey design, question development, and validation was completed, as well as an analysis of recommendations made by researchers who have designed and implemented sustainability literacy assessments in post-secondary institutions. By analyzing a variety of assessment tools, and various perspectives on their effectiveness, an effective plan for administering a Sustainability Literacy Assessment was determined that meets the AASHE STARS requirements and is beneficial to curriculum development at UBC.

The next phase of this project was to create questions based on the constructs surrounding the three pillars of sustainability. For environmental: waste, green buildings, energy, resources and atmosphere. For social: food, health and wellbeing and Indigenous First Nations. For economic: life cycle and fair trade. Professors and UBC staff who are considered experts in their field were approached to create a question surrounding one particular construct. Some questions were drawn from existing sustainability literacy assessments reviewed in the first phase of research. This resulted in 20 multiple choice questions, which were validated through focus groups. Four focus groups of approximately 100 undergraduate students were held over the period of one month at UBC to ensure the test is comprehensive and relevant. Three of these groups were student sustainability organizations representing students in a variety of faculties and year levels. The final focus group was held with a third year sociology class on survey methods.

## **Results and Conclusion**

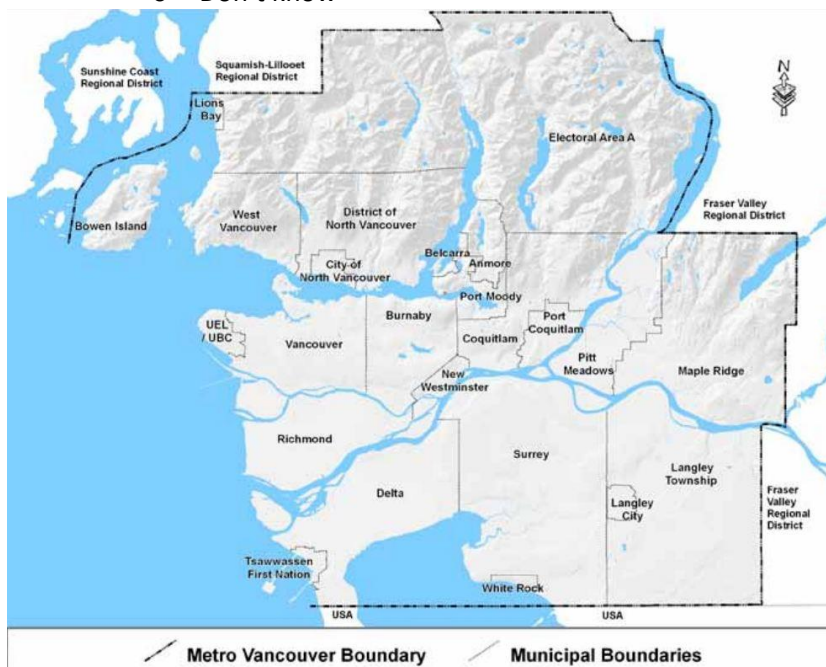
The results of this project are 18 validated and verified multiple choice questions testing sustainability literacy and engagement for a student population. These questions will be

incorporated into the UBC Undergraduate Experience Survey beginning in 2017, and test students each year.

In conclusion, this project is another addition to the growing body of research on sustainability literacy assessment tools, which is used by and shared with other postsecondary institutions that are developing similar tools. This project was guided by the existing research on sustainability literacy surveys, which has contributed to this project's success. Recommendations for further research into sustainability literacy assessment tools include multiple choice survey questions that cover all three pillars of sustainability in one, as well as multiple choice questions that test critical thinking, problem-solving and integration skills in sustainability. Once UBC has a firm grounding in testing baseline sustainability knowledge of a student population, it is suggested that UBC takes that one step further to test *values* and *behaviours* around sustainability, which goes beyond the scope of this project.

Appendix A  
Sustainability Literacy Assessment Final Questions

1. What do the 4R's of waste management stand for?
  - Refuse, Reduce, Reuse, Recycle**
  - Reduce, Reuse, Recycle, Rent
  - Refurbish, Renovate, Rescue, Recycle
  - None of the above
  - Don't know
2. The combustion of fossil fuels emits greenhouse gasses, which are measured in terms of carbon dioxide gas equivalency. Which of the compounds listed is the most potent greenhouse gas?
  - Carbon dioxide
  - Methane
  - Hydrofluorocarbons (HFCs)
  - Sulphur Hexafluoride**
  - None of the above
  - Don't know
3. Where does most of Metro Vancouver's tap water come from? (See map)
  - Watersheds in the North Shore**
  - Fraser River
  - Burrard Inlet
  - Okanagan
  - None of the above
  - Don't know



4. Ozone forms a protective layer in the earth's upper atmosphere. What does ozone protect us

from?

- Acid rain
- Climate change
- Sudden changes in temperature
- Harmful UV rays**
- None of the above
- Don't know

5. What are some of the main impacts of deforestation? Choose all that apply.

- Increased soil erosion**
- Potential loss of biodiversity**
- Impact on cultural practices of those who value forests**
- A source of carbon emissions**
- None of the above
- Don't know

6. What are some sustainability, health and wellbeing benefits of active transportation? Choose all that apply

- Promotes physical activity**
- Promotes mental health**
- Reduces sedentary behavior**
- Reduces GHG emissions**
- Improves air quality**
- Don't know

Definition provided: Active transportation refers to any form of human-powered transportation

7. Have you learned about what 'unceded territory' means and why it is used at UBC?

- Yes
- No

If yes, where?

- In class
- UBC events (For example speeches, graduation ceremonies)
- Museum of Anthropology
- Peers and friends

If not, where would be the best place for you to learn more?

- UBC website
- Classroom discussions
- Student blogs
- Student newspaper (Ubyyssey)
- Physical display on campus (information board, artwork)
- Exhibit on campus

**Question under review by Musqueam Advisory Board- awaiting suggestions and approval**

8. What goes into calculating the life cycle impacts of a product like a piece of paper? Choose all that apply.

- The impact (not cost) of raw materials to make the product**
- The monetary cost of environmental damage caused by production**
- The environmental impacts of transporting that product from its manufacturing location to your location**

- The human health impact of the chemicals in the product**
- None of the above
- Don't know

9. What are the benefits of fair trade for producers? Choose all that apply.

- Access to markets (buyers)**
- Access to credit (loans)**
- Worker protection through international development programs
- Access to long term relationships with buyers**
- No benefits for producers
- Don't know

10. Rank the importance of the following from 1-10 (importance to you, personally):

	1	2	3	4	5	6	7	8	9	10
Recycling and composting										
Renewable Energy										
Conserving Water										
Fair trade										
Gender equality										
Racial equality										
Access to health care										
Access to clean water										
Alternative transportation (walking, biking)										
Sustainable agriculture										

11. How many courses have you taken at UBC that have covered a sustainability topic in some way? For example, through an assignment, activity, lecture, course on sustainability, etc.

- None
- 1
- 2
- 3
- 4
- 5+
- I don't know

12. Which of the following UBC sustainability initiatives, programs and events are you aware of on

campus?

	Don't know	Aware	Participated/Attended
UBC Reads Sustainability Speaker Series			
Sustainability Ambassadors			
Sustainability Fair			
Student Sustainability Research Symposium			
20 Year Sustainability Strategy			
20 Year Climate Action Plan			
Student Sustainability Council			
SEEDS			

13. Where do you primarily obtain sustainability knowledge?

- Sustainability-oriented courses
- Student clubs, groups, or organizations
- Volunteering
- UBC sustainability events
- Informal conversations with friends and peers
- UBC news (ie. The Ubyyssey)
- No opinion
- Other (please specify)

14. Did the university's commitment or reputation in sustainability influence your decision to attend UBC?

- Highly deterring
- Somewhat deterring
- No effect
- Somewhat influencing
- Highly influencing

15. In your opinion, what proportion of your current (or completed) degree should cover aspects of sustainability? Select one answer

- None (0%)
- A little (10%)
- Some (25%)
- Half (50%)
- A considerable amount (75%)
- Almost all (90%)
- All (100%)
- Don't Know

16. Do you think that sustainability knowledge and learning should be officially recognized by UBC?  
If so, how?

- Yes, on my transcript (for example as a major, minor, or honours)
- Yes, as a certificate of recognition or diploma but not on my transcript
- Yes, both on my transcript and as a certificate of recognition or diploma
- No, it's not necessary for my sustainability learning to be recognized by UBC

17. If you were in first year planning your academic career, and the following options were available, which of the following would you like to pursue? Provide one answer for each row.

Answer Options	Yes	No	Maybe	Don't know	Does not apply
Specific Courses					
Undergraduate Minor					
Undergraduate concentration/ specialization/ focus					
Undergraduate major					

18. Why do you think it is important to learn about sustainability? Choose all that apply.

- For my career
- To be an informed citizen
- For the sake of future generations
- To inform my lifestyle choices
- To fit in
- I don't know
- It is not important
- Other (please specify)