University of Maryland Sustainability Literacy Assessment

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Note: This is a pre-publication release of findings and survey instrument of the University of Maryland Sustainability Literacy Assessment. The researchers plan to publish the full paper including literature review and methodology by late 2012.

ABSTRACT

In the spring of 2010, the Office of Sustainability emailed a Sustainability Literacy Assessment to a random sample (9,170 students, about one-quarter of the student population) of undergraduate and graduate students registered at the University of Maryland College Park (UMD). This was the University's first attempt to assess the understanding of basic sustainability concepts among the undergraduate and graduate student population. This paper includes findings from the study and a copy of the assessment instrument. The researchers plan to publish the full paper including literature review and methodology by late 2012.

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Average Score = C

- A total of 1442 students completed the assessment. The average score of all participants is 75%.
- Graduate students have a higher score on the assessment (average of 77%) compared to undergraduates students (average of 74%)
- There was a difference between the average scores of the colleges on campus. Some colleges have a higher average score compared to other colleges. Note: College marked with the asterisk* are graduate level programs only.

College	Average Score
AGNR	79
CLIS*	79
JOUR	78
ARCH	78
ARHU	78
CMNS	78
SPHL	77
PUAF*	76
BSOS	75
LTSC	74
ENGR	74
EDUC	71
BGMT	71

Concern for Environment and Number of Courses effect Score

- Students who reported having taken 3 or more courses related to the topics and themes in the assessment scored higher than those who did not take any courses or those who only took 1 or 2 courses.

Courses Taken	Average Score
0 related courses	74
1-2 related courses	75
3+ related course	80

- Students who reported being somewhat or very concerned about the environment scored higher on the assessment than those who reported being not at all, not every, or neutral in concern.

Level of Concern	Average Score
Not at all concerned	54
Not very concerned	57
Neutral	64
Somewhat concerned	74
Very concerned	79

Gaps in Knowledge

- **Climate Change:** Only 64% of participants correctly identified expansion of deserts is a potential effect of climate change while 31% incorrectly said sea levels may decrease.
- **Tragedy of the Commons:** Only 58% of students could accurately respond to the consequences related to the misuse of a common resource, in this case the Chesapeake Bay fishery.
- **Reduce, Reuse, Recycle:** When presented with the choice to reduce, reuse, or recycle, 55% of participants correctly identified reducing consumption (55%) or reusing products (25%) as the best way to be more sustainable. 18% of participants chose recycling as the *top choice* to being sustainable.
- **Supporting the Local Economy:** 30% of participants incorrectly said buying goods (groceries, clothing, toiletries, etc.) at locally-owned stores and restaurants is a better way of supporting the local economy than buying goods at farmer's markets and stores that sell locally-produced goods.
- **Ecological/Carbon Footprint:** Only 35% of participants correctly identified the order of environmental impact of common practices. 45% of participants incorrectly said that keeping their cell phone chargers plugged in for 12 hours has a greater environmental impact than producing a hamburger or chicken sandwich.

UMD Sustainability Literacy Assessment – Frequency of Answer Selections

The researchers used Survey Monkey to distribute the following survey to undergraduate and graduate students at the University of Maryland. Answers that were scored as correct are bolded. The frequency of answer choice selections is noted next to each answer choice. Please contact the researchers – Nicole Horvath (nhorvath@umd.edu) and Mark Stewart (stewartm@umd.edu) – with any questions.

BEGIN ASSESSMENT INSTRUMENT:

For each of the following questions please select the best answer:

1. Why is it important to recycle? (Choose all that apply)

80.3% a) **recycling decreases the amount of habitat lost due to resource extraction.**
56.4% b) **recycling typically takes less energy to process recycled materials than to use new materials.**
92.1% c) **recycling cuts down on the amount of trash that goes into landfills.**
1.9% d) None of these (recycling is not an efficient way of dealing with our wastes.)

2. What are the potential effects of global climate change? (Choose all that apply)

93.8 % **a) loss of habitats**
18.2% b) less severe weather
64.5% **c) expansion of deserts**
31.0% d) decrease in sea level

3. Living in Maryland, we see signs about entering the Chesapeake Bay Watershed or about "Saving the Bay." Which of the following pressures lead to degradation to the Bay's ecosystem? (Choose all that apply)

77.7 % **a) application of fertilizer on lawns**
80.9% **b) overfishing**
61.5% c) use of landfills to dispose of waste
78.3% **d) conversion of natural space to human developments (buildings, roads, homes, farms, etc.)**

4. Imagine you are one of many fishermen who rely on the fish you catch from the Chesapeake Bay as your main source of income. The Fishermen Council determined that each fisherman must limit his/her catch to 5 tons per year to maintain the fishery. You decide to catch 6 tons of fish this year. What could be the results of your decision? (Choose all that apply)

62.0% **a) You make more money this year than you would have if you caught 5 tons of fish.**
9.7% b) You make less money this year than you would have if you caught 5 tons of fish.
89.4% **c) The total number of fish that are available to catch each year could decrease.**
72.1% **d) Fishermen, including you, could go out of business.**

5. The most significant driver in the loss of species and ecosystems around the world is

23.2% a) overhunting/overharvesting
73.3% **b) conversion of natural space into human developments (farmland, cities, etc.)**
2.8% c) acid rain
0.8% d) breeding of animals in zoos

6. Which of the following is an example of environmental justice?

7.2% a) Urban citizens win a bill to have toxic wastes taken to rural communities.

5.6% b) Government dams a river, flooding Native American tribal lands, to create hydro-power for large cities.

82.0% **c) Indigenous communities are involved in setting a quota for the amount of wood that they can take from a protected forest next to their village.**

5.1% d) Corporations build factories in developing countries where environmental laws are less strict.

7. Of the following, which contributes the most to sustainability?

18.7% a) recycling products

25.0% **b) reusing products**

1.5% c) buying the newest products to increase economic development

55.0% **d) reducing consumption of products**

**Participants were given credit for both b or d

8. What factors influence human population's impact on Earth's resources? (Choose all that apply.)

86.0% **a) size of the population**

94.9% **b) amount of materials used per person**

59.2% **c) use of technology that lessens our impact**

9. Using non-renewable resources, like fossil fuels, can create economic growth but future generations will be disadvantaged if the current generation overuses these resources. Which of the following principles can we follow if we do not want to disadvantage the next generation? (Choose all that apply)

81.9% **a) Renewable resources such as fish, soil, and groundwater must be used no faster than the rate at which they regenerate.**

69.3% **b) Nonrenewable resources such as minerals and fossil fuels must be used no faster than renewable substitutes for them can be put into place.**

76.2% **c) Pollution and wastes must be emitted no faster than natural systems can absorb them, recycle them, or render them harmless.**

1.7% d) None (Humans will never run out of non-renewable resources.)

10. The best way to support a local economy, such as the local economy of College Park, is to buy goods (groceries, clothing, toiletries, etc.) at

4.5% a) large chain stores such as Target or Walmart

64.9% **b) farmer's markets and stores that sell locally-produced goods**

30.6% c) locally-owned stores and restaurants

11. Which of the following statements about water is/are true? (Choose all that apply)

21.3% a) The number of people who have access to clean drinking water will increase over the next two decades

77.4% b) **Globally, freshwater reserves (aquifers) are used faster than they are replenished.**

89.9% c) **Many people around the world do not have access to clean drinking water, so their only option is to drink contaminated water**.

4.8% d) Global warming does not threaten to decrease freshwater reserves.

12. Imagine that we had to pay for all the costs associated with the manufacturing of the goods we use every day. What would go into calculating the true costs of a product?
(Choose all that apply)

92.0% **a) the cost of raw materials to make the product**
78.1% **b) the cost of environmental damage caused by production**
90.6% **c) the cost to transport that product from its manufacturing location to your location**
69.6% **d) the cost of health care for employees who manufacture the product**

13. Put the following list in order of the activities with the largest environmental impact to those with the smallest environmental impact

A. Keeping a cell phone charger plugged into an electrical outlet for 12 hours
B. Producing one McDonalds quarter-pound hamburger
C. Producing one McDonalds chicken sandwich
D. Flying in a commercial airplane from Washington DC to China

9.4% a) A, C, B, D
45.6% b) D, A, B, C
9.4% c) D, C, B, A
35.6% **d) D, B, C, A**

14. Globally, communities face a variety of social injustices, including low wages, poor working conditions, and lack of access to education. To help improve communities around the world you can:
(Choose all that apply)

13.8% a) support US corporations that do not allow labor unions
82.5% **b) buy fair trade certified products**
7.4% c) make all purchases online
82.9% **d) learn how companies you usually buy from conduct business**

15. During your time at the University of Maryland, how many courses have you taken that address the topics presented in this survey?

48.3% a) 0 (none that I remember)
40.8% b) 1-2
10.9% c) 3 or more