Sustainable Literacy

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ENV1101
Kaitlyn Brown 7404846
KBROW114@uottawa.ca
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Sustainable development is defined as the population using resources efficiently in a way that does not sacrifice the needs of the future generations. A sustainable literacy survey was conducted by an environmental science class at the University of Ottawa. The survey has the purpose of finding out how effective the education initiatives in the Ottawa community are and determine how knowledgeable people are about the topic. Many of the participants understand what sustainable development is, however, were unable to correctly answer questions based on more detailed sustainable concepts. The results showed that more initiatives need to be put into place not only on campus, but also in the community, in order to educate individuals on their environmental imprint and what they can do to help conserve resources. By giving people further education on sustainability and environmental threats, it will be easier to prevent climate change, species loss, pollution, and other harmful situations. The survey was successful in analyzing the understanding of people in the Ottawa community and gives environmentalists the research they need in order to find a solution.

Introduction and Objective

Sustainable development refers to the population using resources in a way that satisfies our needs but does not compromise future generations. Along with protecting our resources, it also involves protecting the environment, human health, and the economy. An important aspect of sustainable development is finding ways to meet human needs without exhausting the finite natural resources that will also be required in the future. If no practices are put in place to help maintain a sustainable environment then the resources that we so heavily depend on today will no longer exist leading to increased poverty raters and a huge decline of the environments health.

In Canada the Federal Sustainable Development Strategy (FSDS) is in place in order to address the issues at hand. The four priorities of the FSDS are the climate change and air quality, water quality and availability, protecting nature and Canadians, and shrinking the environmental footprint. When addressing climate change and air quality the federal government is reducing greenhouse gas emissions, generating renewable energy, supporting energy efficiency, and building programs for climate change adaptation. They are implementing strategies for clean technology, industry, and transportation, for energy efficiency and renewable energy, and international work on climate change. When it comes to air pollution the main goal is to minimize the threats to air quality. In order to achieve this goal

the government works to implement the Air Quality Management System, which includes air quality standards and emission requirements. They also conduct research in order to communicate with the public about reducing exposure to air pollutants. Water quality and quantity is also an issue that the government deals with in FSDS and the main goal is to protect the water so that it is clean, safe, and secure for the future. In order to protect nature and Canadians, the government aims to conserve and restore ecosystems, wildlife, and habitats while also meeting the needs of Canadians and ensuring they have a healthy environment to live in. Some ways that the government plans on implementing this plan is to manage and expand protected environmental areas such as national parks, wildlife areas, etc. In order to reduce any risks to Canadian health, they follow a Chemical Management plan in order to reduce the amount of harmful substances in the environment. Lastly, in order to shrink Canada's environmental footprint the government works to reduce carbon footprint, energy consumption, greenhouse gas emissions, and waste.

Ottawa in particular has many programs and organizations that work towards making the city a sustainable environment. One of the main programs is called Solar H2Ottawa which is a way of informing the public of the benefits of solar

heating and making it cheaper for consumers. Ottawa is also building a sustainable community on the University of Ottawa campus. One campus initiative is to consume no more water than the amount that falls on the campus through natural precipitation. This includes using low flow fixtures, no irrigation systems, water recycling, and water fountains instead of water bottles. The University also wants to have a campus that produces all it's own energy and produces it from renewable resources. This will happen through district heating and cooling systems, solar panels, efficient technology, and energy recycling. They also reduce emissions in order to become a carbon neutral campus by using sequester, commuting, and eating locally. Becoming a zero waste campus and eliminating the waste sent to landfills is also a big step towards becoming a sustainable campus. Some ways this is done is through cigarette and pen recycling, reuse program, and using worms to turn waste into fertilizer. The transportation on campus is also a factor, including becoming a car-free campus, using carpooling, cycling, and pedestrian pathways. Creating a food system that minimizes the environmental footprint of the food purchased on campus is also achieved at University of Ottawa by making it a fair-trade campus, serving local food and vegan food. Lastly, in an effort to create a campus that is sustainable is making an environment that contributes to a healthy ecosystem. This is done through the use of green roofs, natural daylight, living wall, bike racks, and heat harvesting. The University of Ottawa prides itself on taking the right steps towards building a sustainable future.

We may not know is sustainable development is improving or getting worse because it is a difficult thing to measure and many things we might be doing right to improve the environment, other people across the world may be doing things to make it worse. However, realizing what a sustainable environment looks like and taking action to get there is the first step. Having the government, cities, and even institutions such as Universities doing their part in building a sustainable environment is what gives hope that there will be positive change. In order to see positive change in sustainable development consumers must continue to think about the resources they use, about the distinction between wants and needs, and about the implications their actions will have on the future.

To further the research on the topic of sustainable development a survey was conducted based specifically on sustainable literacy. The purpose of the survey is to assess the public's general understanding of sustainability. The main objective of this research study is to use the results in order to build more effective programs for sustainability and improve education efforts on The University of Ottawa campus.

Methods

The 'Sustainable Literacy Survey' was conducted by an environmental studies class at The University of Ottawa. The survey was given to the students by the University of Ottawa's Campus Sustainability Office as a way of better understanding the knowledge of students and staff on the subject of sustainability.

The literacy survey was handed out to approximately 670 students, staff, and community members in Ottawa. Having such a big group of participants helped to ensure that the data was not biased and could be classified as 'sound' because there was a wide variety of opinions. The surveys were not aimed at a particular demographic, therefore, the participants vary in age, gender, and occupation. Having this wide range of participants helped give a better understanding of the entire communities perceptions of sustainability, opposed to a select group.

The data that the students collected was then grouped into a large set of findings instead of being looked at individually. This collective data was analyzed by the class, based on the answers given to specific questions about sustainable concepts. A particular problem that had to be overcome when analyzing the data was finding the percentage of people who answered each question accurately. This was necessary in order to see what people's knowledge level is when it comes to sustainability. This posed as an issue because the data had to be altered slightly to

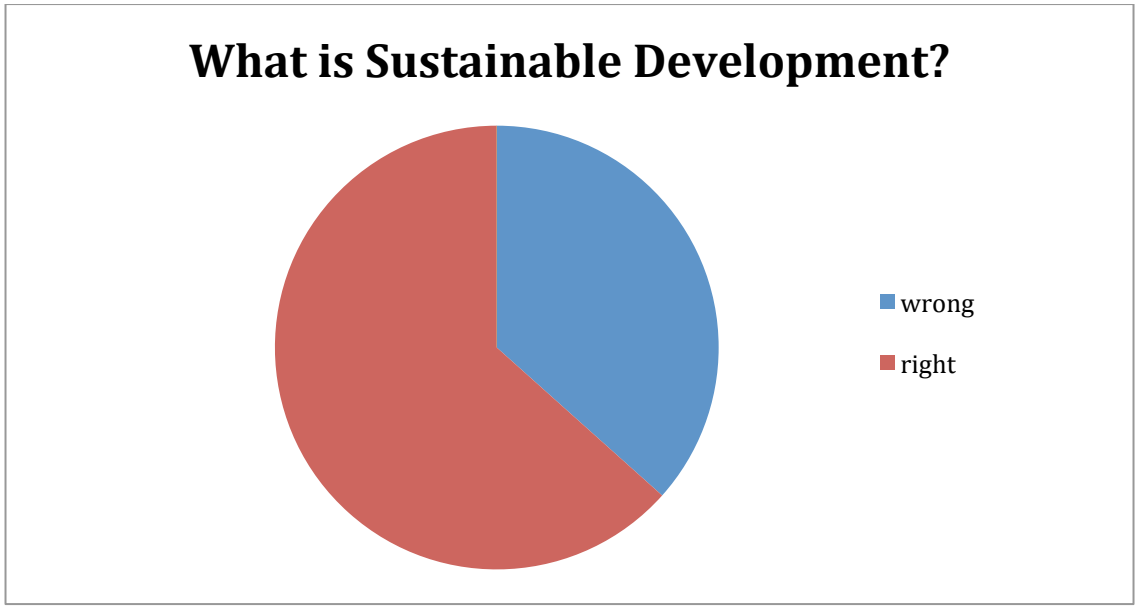
no longer tell you what the participants answer was, but instead whether it was correct or incorrect. Overall, the environmental studies class at University of Ottawa conducted the survey and analyzed the data in order to evaluate the communities understanding of certain sustainability concepts.

Results

Once the results of the survey were pooled into a collective set of data, it was easier to analyze. The participants were asks basic questions about their age, gender, how they identify with the university, and how many hours they spend on campus per week. These questions were used as background information on the participants. Of the 691 surveyed participants, 398 were female, and the other 293 were male. Also, 578 of the participants were students under the age of 25 and the other 113 were over the age of 25, mostly members of faculty and community members.

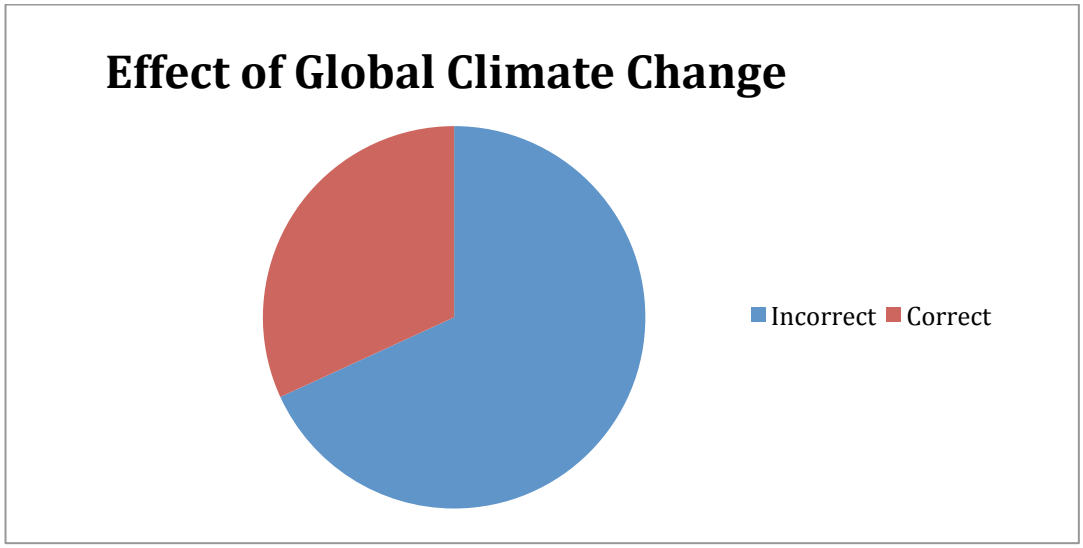
In order to get a better understanding of how much they knew about sustainable development, these individuals were asked what they believe the most commonly recognized definition of sustainable development is. The correct answer to this question was meeting the needs of today without compromising the needs of future generations. As shown in Chart 1 below, approximately 64% of the participants answered the question correctly and the other 36% selected one of the other 4 answers given to choose from.

Chart 1.



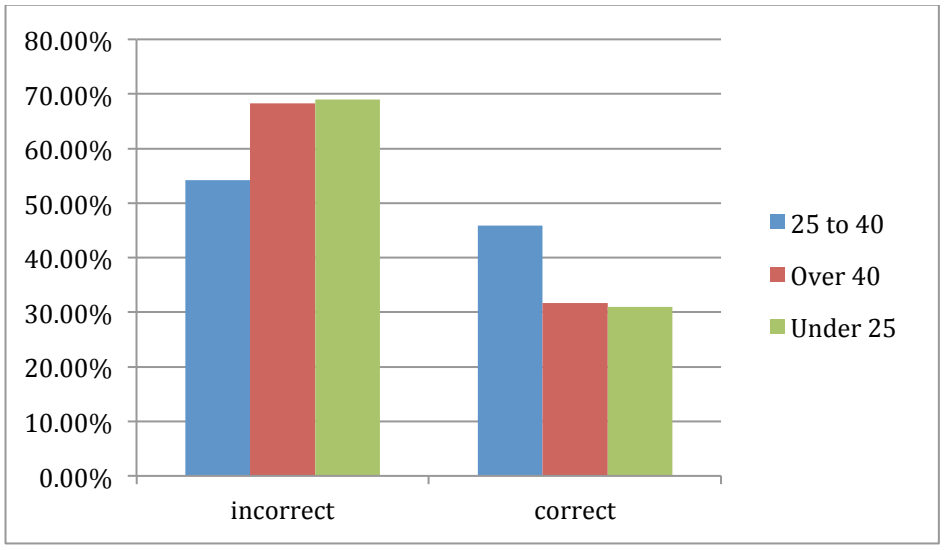
However, when asked about more detailed concepts of sustainable development the answers from the participants were less knowledgeable. For example, when asked what an effect of global climate change is, as shown in Chart 2 below, almost 70% of the participants answered the question incorrectly.

Chart 2.



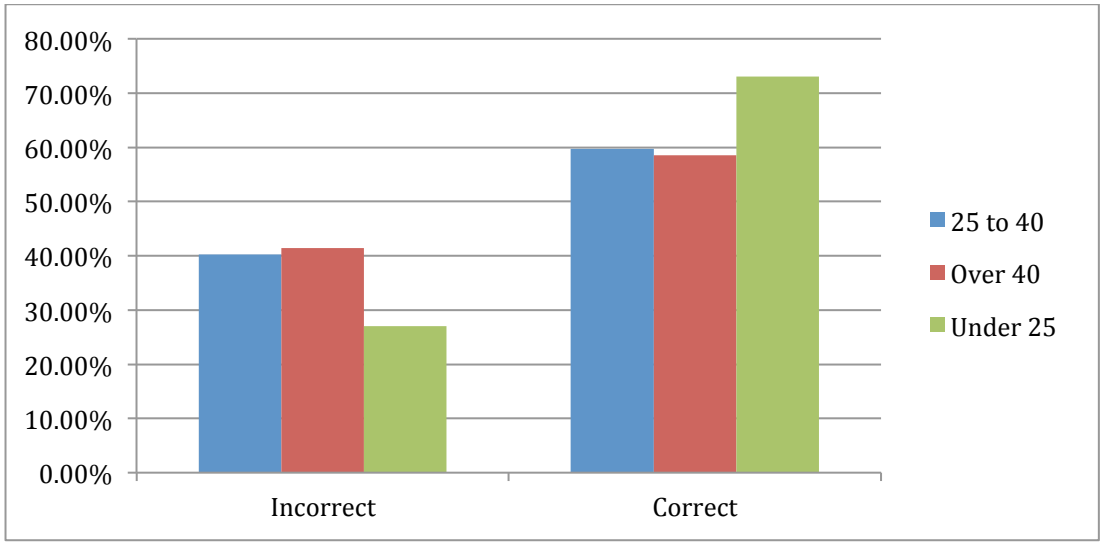
As shown in Chart 3 below, when asked what the most common cause of pollution of steams and rivers is, the answers varied. The correct answer to the question was surface water running off yards, city streets, paved lots, and farm fields. When analyzing the data, using the age of participants showed that the individuals that answered the question correctly the most were between 25-40. Also, the age group that answered the question mostly incorrect was the participants under 25.

Chart 3.



Also, the participants were told that the Ozone is the protective layer in the Earth's upper atmosphere, they were then asked what that Ozone layer protects us from. The correct answer to this question was harmful UV rays and 70% of the participants answered it correctly. Of that 70% that answered the question correctly, most were in the under 25 age category of the survey. Chart 4. below shows the percentage of participants in each category that answered the questions correctly and incorrectly.

Chart 4.



The literature survey that was conducted at the University of Ottawa by the Environmental studies class contained 15 questions, which covered sustainable development concepts. The questions and charts above are examples of some of the data found throughout this research. Out of the 691 people surveyed, 63% knew what sustainable development meant and 70% did not know what an effect of climate change is. Some of the results were analyzed using age groups as a key factor in finding patterns within the data. For example, most of the participants that answered the question, the cause of pollution in streams and rivers, correctly were between 25-40-years-old. Also, most of the participants that knew what the Ozone layer protects the earth from were under 25-years-old.

Discussion

The sustainable literacy survey was handed out to 691 people, of all different ages, genders, and relationships to the University of Ottawa. The data was analyzed with the purpose of discovering the amount of knowledge people have on sustainable development concepts. By finding out this information we can have a better understanding of what needs to be done with regards to education initiatives around the University of Ottawa.

On the survey, participants were asked what they believed sustainable development means and many answered the question accurately. Sustainable development is meeting the needs of today without compromising the needs of future generations. The participants understood what sustainable development was, however, when asked about detailed concepts, such as sources of pollution, effects on climate change, reason for loss of species, etc., the participants often did not know the correct answer. This leads to the conclusion that people are not receiving the education they need regarding the topic.

Also noted, the factor of age and occupation did affect that knowledge that the participant had on the concepts. For example, people under the age of 25 who are still students were able to answer questions about the Ozone layer with more accuracy than the other age categories. This is most likely because it is an idea that is taught in school

and is still fairly fresh information. Perhaps people of all ages need to be given more accurate and update information with regards to the environment through education initiatives, not just on campuses.

There were a couple corrections that could have been made to the study to make the results more accurate. First, the selection of people was not a random sample, it was based on people in the University community. A better way to choose participants would have been a selection of people of Ottawa in general to have a better understanding of the whole city population. Also, there were more girls, and more students, compared to faculty or other members of the community. Therefore, the results were shifted to a younger, female point of view.

Through this research survey the main observation that can be made is that many people need to be better educated on sustainable development, and the environment in general. However, it is not simply students in university that need to take part in the education initiatives, the whole community should be educated on sustainable development concepts and be taught how to be environmentally friendly.

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