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Effectiveness of Targeted Student Behavior Change Using Community Based Social Marketing

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Abstract

Conventional laundry detergents containing phosphorus and dioxane have been linked to public and environmental health, such as algae blooms (Alternatives Journal, 2014; Sun, Lopez-Velandia, & Knappe, 2016). An alternative to conventional detergents is for individuals to make their own low-toxic detergent. This requires a change in human behavior, knowledge, and perceptions. To gain insights on USM residential student perception and knowledge of this issue, a community-based social marketing campaign was launched in the Upton-Hastings Residence Hall during the spring of 2019 with the goal of increasing awareness of the toxicity of conventional laundry detergent and changing laundry-detergent use behavior. This research examined the percentage of students who were aware of the health and environmental impacts of conventional detergent and the commonly perceived barriers to using low-toxic detergent or making their own. The survey results informed the design of a pilot community-based social marketing campaign that aimed to have students use homemade low-toxic laundry detergent, provided by the researchers, instead of their own conventional laundry detergent. Two community-based social marketing strategies were used 1) public, verbal, written commitments; 2) social norm. At the conclusion of the pilot, students were surveyed again. It was found that 63% of those who used the low-toxic laundry detergent made the public commitment, 58% said they were likely to use detergent provided by Res-Life, and 42% felt the detergent provided was better for the environment. From the data, it was concluded that students are likely to use alternative low-toxic detergent if they are informed of its benefits, the detergent is convenient, low cost, and a public commitment is made

Keywords: Water pollution, community-based social marketing, university sustainability

Introduction

Common laundry detergent has several negative environmental and public health impacts. Common household detergents contain phosphorus, a nutrient primarily responsible for plant growth and the formation of teeth and bones (Linus Pauling Institute, n.d.). When excess amounts of phosphorus are released into waterways, it can contribute to algae blooms and ocean acidification. Additionally, excess phosphorus has been shown to adversely impact aquatic and marine environments. (Gustin, 2018).

Algae blooms have been known to have an effect on public health as well. Algae is most harmful when humans swim in or drink contaminated water, or eat contaminated fish. Algae can cause dizziness, headaches, skin irritation, and eye irritation. Ingesting algae may cause vomiting, sore throats, and diarrhea. Red algae, often found on coasts, releases toxins that can irritate the lungs and cause respiratory problems. Children and animals are more susceptible to algae-related poisoning, and people with existing respiratory problems are more likely to be affected by red-algae toxins (EPA, n.d.).

In an effort to decrease the amount of estimated excess nutrients the University of Southern Maine releases into waterways from laundry, the Environmental Health Eco-Reps team examined current behaviors and attitudes around laundry habits and detergent choices.

Question

- Does awareness of environmental issues around laundry lead to changes in laundry habits?
- Can verbal and public written commitments be effective tools for changing student laundry behaviors?
- Are students more likely to adopt sustainable behaviors around laundry when given a clear and accessible choice?

Methods

- **Pre-Pilot:**Prior to implementing the pilot program, a pre-pilot survey was conducted among Upton Hastings residents. The survey was composed of 15 questions asking students about their laundry habits, understanding of the environmental effects of conventional laundry detergent, and their feelings about alternative options. The surveying took place from November 13-November 18, 2019 in Upton-Hastings using a door-to-door participation method and tabling in the laundry room as well as tabling in the laundry room.
- **Commitment phase:**Asking for verbal, written, and public commitments are all strategies stemming from CBSM and were utilized in this pilot program. CBSM was the basis to the methods used in the pre-pilot phase.From February 24 to March 3, 2019 the team sought to get students to commit to using the low-toxic, bulk laundry detergent. A table was set up in the laundry room with a sample of the detergent, ingredient list, and instructions. Students were asked to sign a commitment sheet that would be posted in the laundry room stating that they would use the detergent at least once over the course of three weeks.
- **Pilot Phase:**The laundry detergent pilot program began on March 3rd, 2019. The laundry detergent was set up on a table in the Upton-Hastings laundry room with a usage sheet so students could record if they had used the detergent. There were measuring devices, We provided Material Safety Data Sheets for all three ingredients, and instructions that were attached to the container. The pilot ended on March 27, 2019.
- **Post Pilot:** A post-pilot survey was conducted upon the conclusion of the pilot (Appendices B and C) to measure the success of the pilot, determine what prevented some students from participating, and gain more information about attitudes and behaviors. The post-pilot survey period began March 30, 2019. Two surveys were created and administered. One for students who did not use the detergent, and one for students who did use the detergent. Each survey was nine questions and was conducted for one week in the laundry room and lobby of Upton Hastings.

Post-Pilot Survey Data

Used Detergent Provided **Did Not Use Detergent Provided**

Made a Commitment to Using Detergent Provided

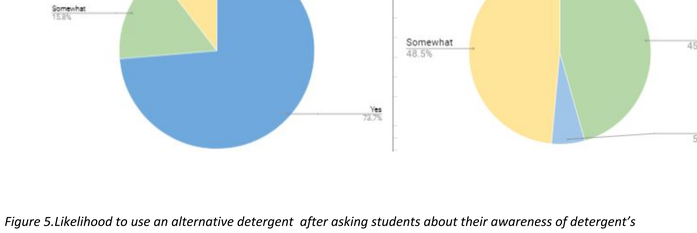

Figure 3. Percentage of student who used the detergent and committed.

Likelihood of Students to use Detergent Provided by Res-Life

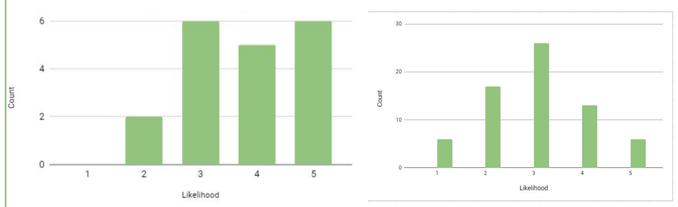

Figure 4. Likelihood of students to use detergent provided.

Likelihood of Students to find an Alternative Detergent After Learning of Negative Impact of Conventional Detergent

Figure 5.Likelihood to use an alternative detergent after asking students about their awareness of detergent's environmentmental impacts.

Pre-Pilot Survey Data

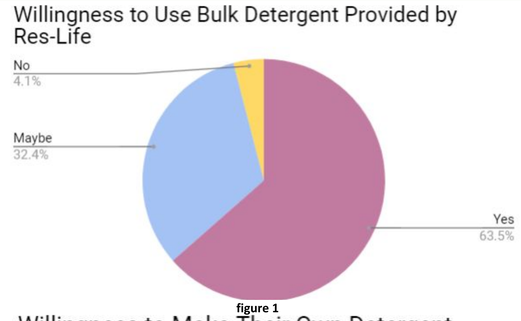

figure 1

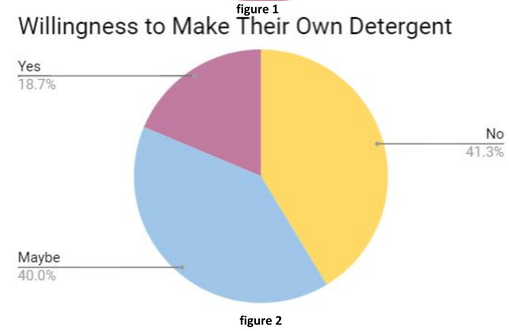

figure 2

Results

The pre-survey results indicated a lack of awareness of the health and environmental effects of conventional laundry detergent. When discussing these topics with student, researchers explained the effects of conventional detergents. Most students were not willing to make their own low toxic detergent , but were willing to use bulk detergent provided by Res-life.

The post survey data indicated that a high percentage of students who used the detergent provided did not commit beforehand. Approximately 90% of respondents were somewhat likely or very likely to use Res-life provided detergent. Approximately 45% of respondents were likely to find an alternative to conventional detergent given its negative health and environmental impact.

Further post survey data also showed students were overall more likely to use the detergent than not as seen in figure 4. The "yes" chart scews towards likely where the "no" chart is more evenly distributed. Figure 5 also demonstrates how students are willing to change behaviors based on the information provided by these surveys.

Conclusion

Based on the results of the experiment, there are several conclusions that can be made. It was evident from the post-survey results that students who made a written commitment to using the provided detergent were more likely to actually use it. Additionally, students were most likely to adopt this new behavior with fewer barriers preventing them from doing so. Furthermore, students who participated in the pilot were more likely to find an alternative to conventional detergent on their own as well.

Were this research to be studied further, it is recommendable to add a pre-pilot canvassing period to increase awareness among students. Additionally, due to staffing limitations, the pilot detergent could not be monitored at all times. Increased monitoring could provide more accurate data regarding student behavior.

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