



Energy Use in University Residence Halls and Behavior Change

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Introduction

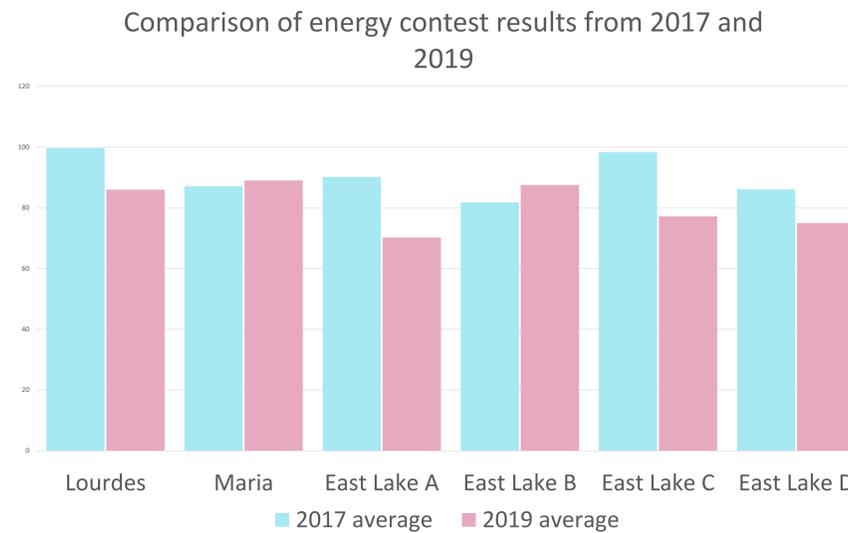
- Sustainability is meeting the needs of the present without compromising ability of future generations to also meet their needs.
- Goal of study
 - Bring awareness to sustainability to try to make Winona State a greener campus.
 - Determine most effective messaging manner to cause behavior change
 - Educate the college community about better ways to be more sustainable in their everyday lives.

Materials and Methods

- Nine residence halls into three groups.
 - Control
 - Posters
 - TV monitors
- Surveys were used to gather data
 - Spring 2018: "Messaging Preferences" survey
 - Fall 2018: "Environmental Issue Awareness and End of Semester" survey
 - Spring 2019: "Post Energy Contest" survey
 - Sent to all residents living in residence halls at the time of the study except for the "Messaging Preferences" survey which was given to a large 200 level class.
- Goal was to understand how students best receive messages about energy use, and to determine if messaging actually affects behavior.
- Behavior Intervention Energy Challenge
 - Energy contest 2/4/19 through 3/3/19
 - Residence halls were challenged to reduce their energy use during a 4 week period and energy and water use was tracked during that time

Results

- **"Messaging Preferences" Survey**
 - Students respond more positively to information displayed on TV monitors and/or posters
 - Understanding messaging preferences may have helped overall contest results relative to 2017.

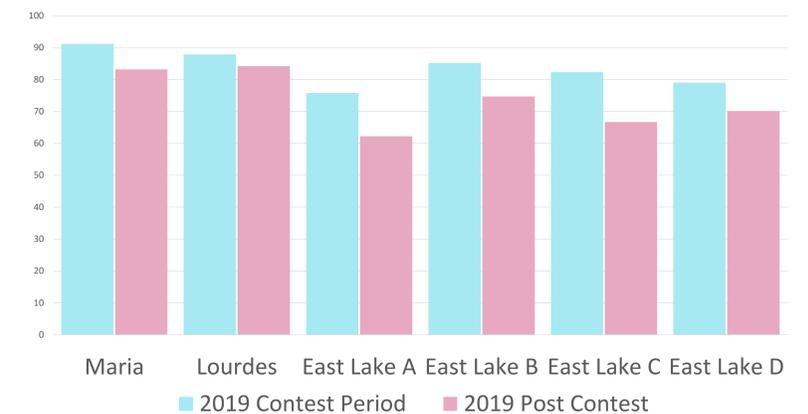


- **"Environmental Issue Awareness and End of Semester" Survey**
 - Assessed the knowledge student had regarding sustainability for baseline.
 - Students feel they are moderately aware that they should be more conscious about energy and water use.
- **"Post Energy Contest" Survey**
 - 52% of students were consciously trying to conserve energy during contest
 - 53% said posters were most effective
 - 44% thought contest was moderately effective
- **Energy Challenge Contest results**
 - In 2019, 6 residence halls had statistically significant reductions in their electricity use during contest period.
 - Compared to 2017 results there had was a significant difference
 - Energy use in 2017 was slightly higher than in 2019
 - Maria, Lourdes, and East Lake buildings conserved the most energy within the contest period.

Discussion

- Research has shown that attitude change depends on people's motivation. When people are either distracted or the topic of issue does not relate to them, they tend to glance over it (Wood, 2000).
- We tried to relate to the students to have a more positive outcome in the study.
- There is still plenty of room to improve with messaging for further energy and water reductions.
- Next things to try:
 - Engaging with students more through the use of meetings and events
 - Sending out a weekly/monthly email to encourage students even more to develop behavior change
- Overall, this study has impacted students and will help make Winona State a more sustainable campus.

Do behavior changes made during contest continue?



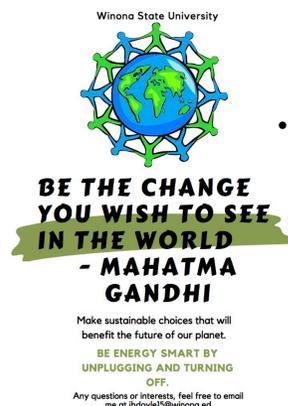
- Electricity use was monitored for 3 (occupied) weeks after the contest to see if there was any long term behavior change
- If behavior change continued, would expect to continue to see drop in electricity use because of longer days
- If behavior change stopped, electricity use would be at or above contest period
- Saw continued drop in electricity use

Acknowledgements

- Chemistry 436 class
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- Scott Kliver

References

Wood, W. (2000). Attitude Change: Persuasion and Social Influence. *Annual Review of Psychology*, 51(1), 539-570. <https://doi.org/10.1146/annurev.psych.51.1.539>



Examples of messaging used during study period.