Peer Influence on Student Water Use

Allyn Knox & Bethany Cutts

School of Life Sciences & Decision Center for a Desert City, Arizona State University

GLOBAL INSTITUTE of SUSTAINABILITY
ARIZONA STATE UNIVERSITY

What role do peers play in shaping student water-use?

Immediate peer influence predicts weekly water use (WWU) when respondents have strong friendships in the residence hall.

Introduction

- College students (ages 18-24) are in a period of identity exploration, forming lifelong values and habits.
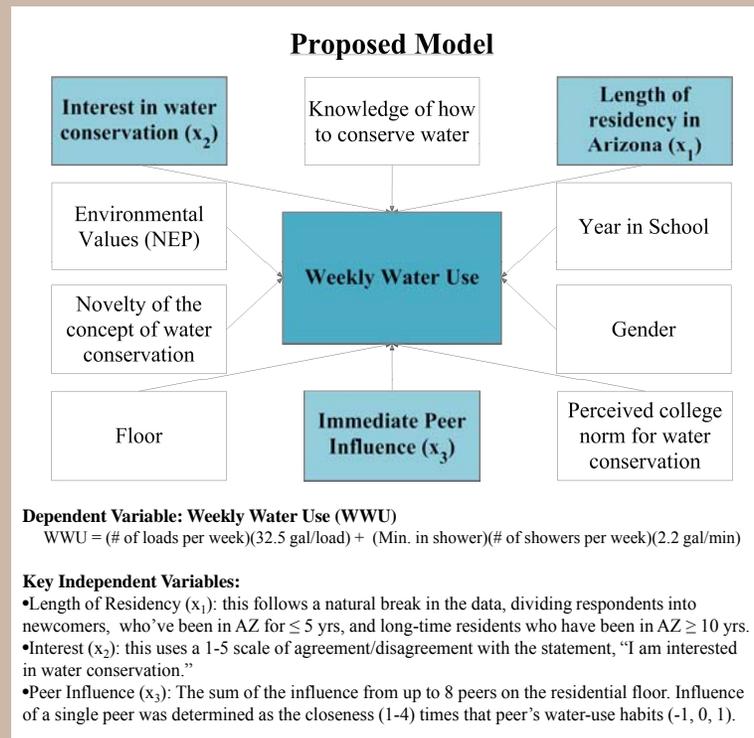- Living on campus enhances the relative impact that peers may have on decisions.

Methods

- Survey of 69 on-campus residents at Arizona State University
- Questions were transformed and normalized to form the variables tested (see chart at center).
- Two regressions were run, differing only in the peer influence variable. The resulting models are:

1. Overall: includes all valid cases

2. High Peer Awareness: includes only those aware of their peers' water-use habits

Limitations

- Reliance on self-reported data: socially desirable responses, projection of response onto peers
- Small sample size and restricted generalizability
- Exclusion of water use other than the shower and laundry
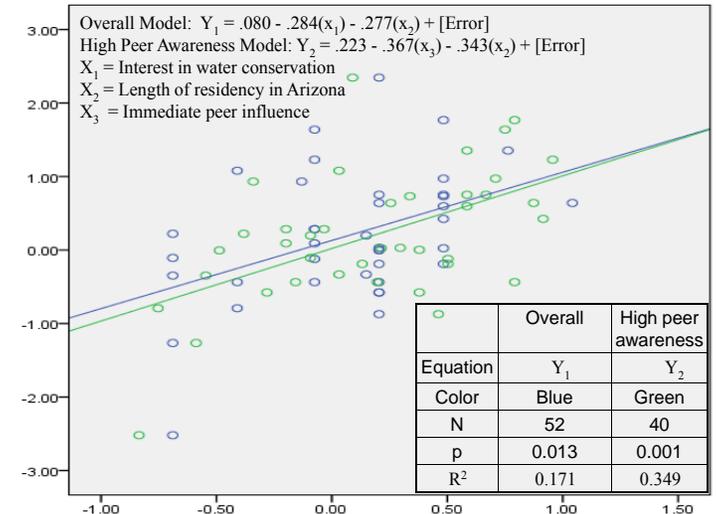- Exclusion of peers outside of the residential network

Proposed Model

Interest in water conservation (x_2) | Knowledge of how to conserve water | **Length of residency in Arizona (x_1)**

Environmental Values (NEP) | **Weekly Water Use** | Year in School

Novelty of the concept of water conservation | | Gender

Floor | **Immediate Peer Influence (x_3)** | Perceived college norm for water conservation

Dependent Variable: Weekly Water Use (WWU)
WWU = (# of loads per week)(32.5 gal/load) + (Min. in shower)(# of showers per week)(2.2 gal/min)

Key Independent Variables:
- Length of Residency (x_1): this follows a natural break in the data, dividing respondents into newcomers, who've been in AZ for ≤ 5 yrs, and long-time residents who have been in AZ ≥ 10 yrs.
- Interest (x_2): this uses a 1-5 scale of agreement/disagreement with the statement, "I am interested in water conservation."
- Peer Influence (x_3): The sum of the influence from up to 8 peers on the residential floor. Influence of a single peer was determined as the closeness (1-4) times that peer's water-use habits (-1, 0, 1).

Final Models' predictions to reported water use

Overall Model: $Y_1 = .080 - .284(x_1) - .277(x_2) + [\text{Error}]$
High Peer Awareness Model: $Y_2 = .223 - .367(x_3) - .343(x_2) + [\text{Error}]$
X_1 = Interest in water conservation
X_2 = Length of residency in Arizona
X_3 = Immediate peer influence

	Overall	High peer awareness
Equation	Y_1	Y_2
Color	Blue	Green
N	52	40
p	0.013	0.001
R^2	0.171	0.349

Note about the graph:
- This shows how the models (on the x-axis) match with actual reported data (y-axis), not how any particular variable correlates with WWU.
- Mean water use occurs at y = 0. Each whole number on the y-axis represents the number of standard deviation from the mean.
- Reported mean water use was reported as 298 gal/week ± 191.

Implications

- When respondents are aware of peers' water-use habits, peer influence significantly predicts respondents' water use practices. The relationship is weak compared to that found in other social influence studies, for example, on student alcohol use, but due to our study's limitations, this may warrant more in-depth investigation.
- Long-term Arizona residents conserve more than newcomers. This warrants further research, especially given the highly mobile nature of not only the ASU population but that of Phoenix as a whole. Is length of residency related to a higher perceived responsibility to conserve?
- Interest in water conservation is significant in the overall model. This is unsurprising and consistent with the literature.
- This study provides a snap-shot of students' estimated water use in relation to several factors that influence their water use; however, as can be seen in the line graph, there is a lot of variance that remains unexplained by these models.
- Finally, this study can help guide water conservation initiatives in ASU residence halls and may also serve as a reference for other universities.

References: Arnett, Jeffrey J. (2000). *Emerging Adulthood: A Theory of Development From the Late Teens through the Twenties.* American Psychologist. 55, 5, 469-80. Lefkowitz, Eva. S. et al. (2004). *Religiosity, Sexual Behaviors and Sexual Attitudes during Emerging Adulthood.* The Journal of Sex Research. 41, 2, 150-9. Kolmuss, Anja and Julian Agyeman. (2002). *Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior?* Environmental Education Research. 8, 3, 239-60.