



FINDING JUSTICE IN ENERGY SAVINGS

Designing and Implementing a Peer-to-Peer Led Behavioral and Energy Reduction Program for Low-Income Neighborhoods

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ABSTRACT

Reduction in energy consumption from fossil fuels is a necessary step toward combating climate change as more studies are revealing the catastrophic outcomes if the current trends do not change. Residential programs generally managed by energy utilities promoting energy cost savings and reduced consumption are being enacted to decrease the greenhouse emissions. However, thus far, little to no measures have been taken to extend the reach of such programs to low-income communities. Reducing household energy consumption would be extremely beneficial for particularly these communities as it would lower utility bills for low-income households. These households typically spend a substantially greater portion of their income on energy bills compared to other households. While installation of energy efficient appliances and envelope modifications dominate the emphases of these programs, there is substantial room for energy savings through behavior modification. Using peer-to-peer methods, this research seeks to determine the most effective techniques for promoting and realizing energy reduction behaviors in low-income communities. With a means to track and measure savings from behavioral modification using smart Wi-Fi thermostat and consumption (energy and water) data, behavioral models will be designed and implemented to deduce what education and intervention methods produce optimal energy behavior results, how demographics impact energy behaviors, and what factors most strongly correlate to an increase or decrease in energy consumption.

OBJECTIVE: Reduce utility bills for low-income households through energy savings behavior

HOW?

Implement an energy reduction behavioral program with the help of a peer educator and analyze energy savings

WHERE?

Twin Towers Neighborhood in East Dayton

WHO?

Residents of 84 rent-to-purchase homes and whom choose to opt-in to participate in the energy behavior program

WHAT IS PEER-TO-PEER?

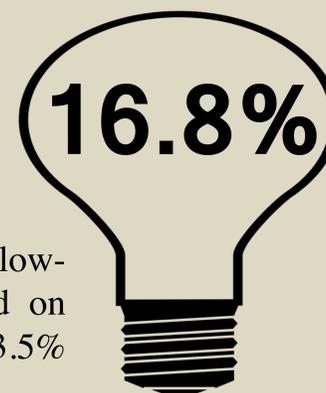
A method of educating and/or coaching participants by individuals from the same or similar demographics and communities

FIELDS IT HAS BEEN UTILIZED:

- Diabetes
- Nutrition
- Expecting mothers

BENEFITS OF PEER-TO-PEER METHODOLOGY:

- Cognitive and social congruence in learning
- Provides employment opportunity for community member to serve as a peer educator
- Optimal reach to participants



The percent of income low-income households spend on utility bills compared to 3.5% for typical households¹

WHAT HAS LEAD TO SUCCESS:

- Trust between participant and peer educator
- Social interaction
- Flexibility and adaptability of program
- Partnership with community networks and programs
- Feedback
- Co-designed program to empower and increase commitment

Install Smart Wi-Fi Thermostats

Questionnaires & Baseline Data

Hire and Train Peer-to-Peer Educator

Register Residents to Participate

Implement Energy Reduction Behavioral Program

Measure Savings

Analyze & Correlate Energy Savings to Energy Behavior and Demographics

¹Lin, Jessica. "Energy Affordability and Access in Focus: Metrics and Tools of Relative Energy Vulnerability." Behavior, Energy & Climate Change Conference. Behavior, Energy & Climate Change Conference, 2018, Washington, DC.