Why does real-time information reduce energy consumption?

In this article Lynham et al. answer the question: why real-time information changes energy-use behavior. They explore the causal mechanisms through which real-time information affects energy consumption by conducting a randomized-control trial with residential households. The experiment attempts to disentangle two competing mechanisms: (i) learning about the energy consumption of various activities, the “learning effect”, versus (ii) having a constant reminder of energy use, the “saliency effect”.

They obtained two main results. First, is that those who received real-time information about their electricity consumption reduced their consumption in the morning and the evening but not at other times of the day. However, the effect diminishes over time.

Second, they find that learning plays a more prominent role than saliency in driving energy conservation. This finding suggests that energy-conservation policies that target learning (e.g., educational outreach, labeling electronic appliances with their energy consumption) might be more cost-effective than the expensive process of installing in-home devices.

The findings support the use of energy conservation programs that target consumer knowledge regarding the energy use of different devices and activities.