The Display of Environmental Information to Promote Energy Saving Practices: Evidence from a Massive Behavioral Platform

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Abstract : While several strategies, such as the development of more efficient appliances, the financing of insulation programs or the rolling out of smart meters represent promising tools to reduce future energy consumption, their implementation relies on people's decisions-actions. Likewise, engaging with consumers to reshape their behavior has shown to be another important way to reduce energy usage. For these reasons, integrating the human factor in the energy transition has become a major objective for researchers and policymakers. Digital education programs based on tangible and gamified user interfaces have become a new tool with potential effects to reduce energy consumption4. The B2020 program, developed by the firm "Économie d'Énergie SAS", proposes a digital platform to encourage pro-environmental behavior change among employees and citizens. The platform integrates 160 eco-behaviors to help saving energy and water and reducing waste and CO_2 emissions. A total of 13,146 citizens have used the tool so far to declare the range of eco-behaviors they adopt in their daily lives. The present work seeks to build on this database to identify the potential impact of adopted energy-saving behaviors (n=62) to reduce the use of energy in buildings. To this end, behaviors were classified into three categories regarding the nature of its implementation (Eco-habits: e.g., turning-off the light, Eco-actions: e.g., installing low carbon technology such as led light-bulbs and Home-Refurbishments: e.g., such as wall-insulation or double-glazed energy efficient windows). General Linear Models (GLM) disclosed the existence of a significantly higher frequency of Eco-habits when compared to the number of home-refurbishments realized by the platform users. While this might be explained in part by the high financial costs that are associated with home renovation works, it also contrasts with the up to three times larger energy-savings that can be accomplished by these means. Furthermore, multiple regression models failed to disclose the expected relationship between energy-savings and frequency of adopted eco behaviors, suggesting that energy-related practices are not necessarily driven by the correspondent energy-savings. Finally, our results also suggested that people adopting more Eco-habits and Eco-actions were more likely to engage in Home-Refurbishments. Altogether, these results fit well with a growing body of scientific research, showing that energy-related practices do not necessarily maximize utility, as postulated by traditional economic models, and suggest that other variables might be triggering them. Promoting home refurbishments could benefit from the adoption of complementary energy-saving habits and actions.

Keywords : energy-saving behavior, human performance, behavioral change, energy efficiency

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