

Design Framework of Household Appliance for Users' Sustainable Behaviors

Yueh-Te Cheng¹, Li-Hsing Shih¹ and Jack Ha^{2*}

¹*Department of Resources Engineering, National Cheng Kung University,
Tainan 701, Taiwan, ROC*

²*Department of Mechanical Engineering, Far East University, No.49, Zhonghua Rd.,
Xinshi Dist., Tainan City 74448, Taiwan ROC
E-mail: jackha@cc.feu.edu.tw*

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ABSTRACT Residential sectors consume one-fifth of global energy that all sectors have actively invested in the enhancement of residential energy efficiency. User behaviors could affect residential energy efficiency that it is regarded as a foresighted research to change unsustainable behaviors with product design. This study aims to discuss the psycho-social determinants in individual energy-saving behaviors and ensure the product design strategies and methods of the mapping determinants to reduce the difference between sustainable design intention and real product operation. With the mode for goal-directed behaviors to study the determinants in household appliance energy-saving behaviors, personal desire could directly affect energy-saving Behavioral Intention and individual Perceived Behavioral Control, Positive Anticipated Emotion, Attitude, and Frequency of Past Behavior would indirectly affect energy-saving behavioral intention through personal desire. The design strategies of ego-information, ego-feedback, and ego-selectivity are the best household appliance intervention design strategies in energy-saving behaviors. Based on the research results, a product designer could establish the mapping relation matrix between product design intervention strategy as the tactic, and psycho-social determinants in energy-saving behaviors as the objective to design the more practicable household appliance for sustainable behaviors.