

THE ROLE OF CHOICE ARCHITECTURE IN TOILET DESIGN:
A BEHAVIORAL ECONOMICS APPROACH TO WATER CONSERVATION

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Abstract

Fresh water is a renewable, but finite, and increasingly scarce resource. Strategies to reduce water consumption are becoming ever more important in order to minimize future water shortages. One such approach is to focus upon the publicly supplied sector of water use, which includes households and also large-scale commercial and industrial enterprises such as schools, hospitals, airports, and private firms. If such enterprises were to implement water-saving appliances and fixtures on a large scale, substantial water savings could be realized. One such water-saving appliance is the dual-flush toilet, which uses a high-volume flush for solid waste and a lower-volume flush for liquid waste. This thesis uses the principles of behavioral economics, which studies human behavior and decision-making, in order to determine whether the design of the dual flush mechanism can lead the user to make the incorrect 'choice' and thus waste water. A field experiment performed in the public restrooms of a municipal building in Columbia, Missouri definitively showed that in the case of one particular model of dual flush toilet, the Sloan Uppercut[®], water usage was considerably higher than the manufacturer's projections. This was due to the fact that the default option, pushing the flush handle down, resulted in a large flush. While Sloan predicted a 2:1 urination-to-defecation (U/D) flush ratio, the observed ratio during the control period was roughly 1:4. The treatment period consisted of adding multiple signs to each stall that instructed users on how to use the toilets correctly; however, even with signs added, the U/D ratio only increased to 2:5. The implications of this research are that if water savings are to be fully maximized, the 'real-world' actions of users must be taken into account. These results are of particular relevance in areas where water is especially scarce and/or costly.