

## ABSTRACT

### *I DON'T WANT TO DROWN THE FROG!* A COMPARISON OF THE EFFECTIVENESS AND ACCEPTANCE OF FOUR DESIGN STRATEGIES TO REDUCE OVERDOSING OF DETERGENTS

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For many products, the use phase has a major environmental impact but efficiency gains accomplished through new technical solutions may be overridden by unsustainable use patterns. It has been suggested that the impact of use can be reduced by applying different eco-design strategies. Few of these strategies have, however, been empirically tested.

The aim of the study reported here was to examine the effectiveness and the acceptability of four different design strategies applied to the problem: overdosing of detergents. Four strategies for sustainable behaviour were chosen to match different consumer profiles and applied in prototypes:

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| Strategy                       | Operationalisation and explanation  |
|--------------------------------|---|
| <i>Eco-Affective Design</i>    | A measuring cup with a plastic frog on a stone where the frog's feet represented a suitable dose for most washes. If more detergent was used, the frog drowned in detergent. The design was intended to evoke negative emotional reactions to overdosing. |
| <i>Competence and Autonomy</i> | A dosing kit with a wheel chart, a measuring cup and a laundry basket with a scale. By weighing the laundry the user could set the wheel chart and dose accordingly. The aim was to make the user feel competent and autonomous.                          |
| <i>Scripting</i>               | A package where pouring of detergent was constrained to predetermined amount of detergent.  |
| <i>Habit Intervention</i>      | Tablets of washing detergent in a tube. The intention was to make the previous habit to dose by estimations impossible and to facilitate formation of a new habit.  |

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Altogether 29 consumers in 16 households participated in the study run according to a within/between subject design. The participants documented their dosing behaviour by weighing the package of washing detergent before and after dosing and noting down the weight. This was during a total period of four months; prior to receiving the prototypes (one per household), during an obligatory use phase and during a voluntary use phase.

In sum, all strategies – except Competence and Autonomy – were effective and accepted by a majority of the participants. For instance was the effectiveness of the Eco-Affective solution high. The frog served as a reminder to dose moderately and also guided the participants in this endeavour. The participants' acceptance seemed to remain unchanged or even to grow stronger during the study. In general, low acceptability did not seem to stem from an aversion towards the design strategy per se; rather to flaws of the specific prototypes. Additional findings of the study were that a few participants had learnt how to dose moderately and could later manage also without the prototype, while the others had not. Continuous access to the prototypes was in these cases necessary to maintain moderate dosing.

The results from the study provides further input to our knowledge of how different design strategies can be used as tools for behavioural interventions. In the specific case, learning effects can be observed, but more importantly the prerequisites for a certain strategy, implemented in a product design (a prototype), to cue and help maintain a desired behaviour.