

Concept Generation for Persuasive Design

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Abstract. Designing ‘persuasive’ products and services for social benefit often involves adopting and adapting principles and patterns from other disciplines and contexts where behaviour change is a goal. This poster briefly reports on a series of controlled trials of an idea generation toolkit which aims to make this transposition of patterns easier, with designers and students applying the toolkit to four ‘design for sustainable behaviour’ briefs to generate new concepts for influencing user behaviour. While only a small sample, results show that using the toolkit does lead to an increase in the number of concepts generated for a majority of participants, compared with the control condition.

Keywords: Design, persuasive technology, behaviour change, idea generation, sustainability, environment

1 Introduction

Persuasive Design is burgeoning with new products and services designed to influence people’s behaviours, drawing on principles from human-computer interaction, behavioural and cognitive psychology, behavioural economics and rhetoric. It is arguable that exploratory adoption and adaptation (*transposition*) of methods from other domains allows an accessible route into engaging with behaviour change for stakeholders ‘outside’ the Persuasive Design community. Young, discussing the Design & Behaviour project [1] run by the RSA in the UK, emphasises drawing on other fields: “By looking at how others have used design to influence behaviour it is easier to transpose those ideas to the behaviours that you are trying to change [...] We need that idea-generating process to help policy-makers work with designers, behaviour experts and people to make the leap into practice.”

The Design with Intent (DwI) toolkit [2,3] aims to address this gap: helping designers and other stakeholders generate Persuasive Design concepts to investigate further, by bringing together examples and insights from different disciplines: it is effectively a ‘suggestion tool’ to help guide brainstorming on behaviour change problems, using a ‘design pattern’ style, loosely modelled on Tidwell [4]. The patterns are grouped into six ‘lenses’ representing different perspectives on behaviour change. A report of a limited pilot study using an earlier iteration of the DwI toolkit (v.0.8) was presented at Persuasive 2009 [5]. This poster continues this work, briefly reporting on trials with participants using two variants of the toolkit (v.0.9). As shown in Fig. 1, the two modes, *inspiration* and *prescription*, are parallel ways of generating concepts for new Persuasive Design products or services, and the study aimed to compare their effectiveness.

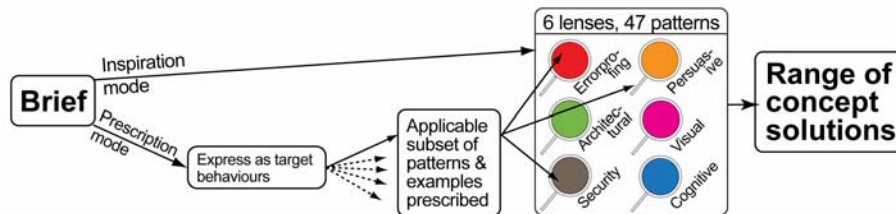


Fig. 1. Comparison of the inspiration and prescription modes of the DwI method.

Inspiration mode. Here, designers take inspiration from a *smörgåsbord* of design patterns applicable to Persuasive Design. The use of illustrated examples in an ‘idea space’ allows designers to understand and recognize the patterns quickly—and relate them to the problem at hand.

Prescription mode. Designers formulate the brief in terms of one or more target behaviours, from a list of 11 provided; for each, a subset of applicable design patterns is presented, typically 15–25 applicable patterns which have been applied to analogous problems; a range of concepts can thus be generated, all of which have precedent in analogous behaviour change contexts.

2 Outline of the study

A full explanation of the trials and analysis of the results are in a paper currently under review by a design journal, hence the treatment in this poster is brief.

Forty-eight ‘workshop’ trials were carried out using the DwI toolkit in inspiration and prescription modes, and a control condition (no stimulus material), by 16 participants (design students and practising designers) individually and in pairs, working on four different Persuasive Design briefs focused on sustainable behaviour: *using electric kettles more efficiently, closing curtains to conserve heat at night, printing documents more efficiently, and turning off the water tap while brushing one’s teeth*. In each case user decisions (or lack of them) are responsible for a significant proportion of the products’ environmental impact.

Aside from details of the concepts themselves, and revealing empirical usability information to allow improvement of the toolkit (to be discussed in separate papers), the basic measure being assessed was the *quantity* of concepts generated in response to the briefs, under each condition. It is difficult to assess the effectiveness of idea generation, since most methods are, in practice, used in contexts where there can be no control group. While Sutton and Hargadon [6], in an ethnographic study of IDEO’s brainstorming processes, suggest that assessment of *quantity of concepts generated* is too simplistic, it is notable that IDEO’s current ‘Rules of Brainstorming’ are at least partly geared towards generating as many ideas as possible (including “Go for quantity (not quality): Set an outrageous goal and surpass it”)—drawing directly from Osborn’s 1953 recommendations for group brainstorming, “*Quantity is wanted*. The greater the number of ideas, the more the likelihood of winners” [7]. This suggests that while not a proxy for effectiveness, the quantity of concepts generated under different conditions can be worth studying.

Each participant (individual or pair) tried out four conditions (a within-subject test), always in the same sequence: control, inspiration mode, a guided prescription mode (with the target behaviour supplied), and a self-guided prescription mode.

Afterwards, participants' notes, sketches and transcripts were reviewed and categorised: only concepts which influenced user behaviour via the (re)design of the system were counted, and any duplicate concepts within subject were discarded.

3 Results: quantity of Persuasive Design concepts generated

Fig. 2 shows the total number of concepts generated under each condition. In both variants of the prescription mode, DwI overall performed similarly to the control condition, but when used in inspiration mode, DwI resulted in the most concepts.

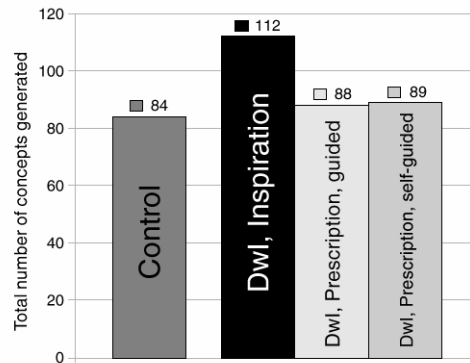


Fig. 2. Total quantity of Persuasive Design concepts generated under each condition.

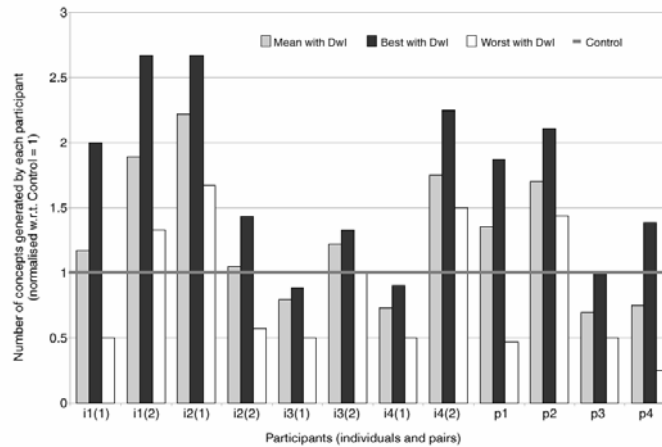


Fig. 3. Quantity of concepts generated under each condition by each participant.

For individual participants (and pairs), however, as Fig. 3 shows, it was not always the inspiration mode which performed best: both the self-guided prescription mode and the control condition outperformed it in some cases. This suggests that a one-size-fits-all approach may not be ideal: it thus seems worthwhile to provide different ways of using the toolkit.

Normalising the quantity of concepts generated under the control condition for each participant at 1, the mean ratios for all three DwI conditions were calculated, and these range from 0.69 to 2.22, being >1 in 8 out of 12 cases, with a mean of 1.28, i.e. a 28% increase in concepts compared with the control. Taking the mean of the *best* DwI condition in each case (i.e. the one which a designer might choose to use if experienced with the method) gives 1.71, i.e. a 71% increase compared with the control condition. However, the mean of the *worst* DwI conditions is 0.85—equivalent to 15% fewer concepts than the control.

4 Discussion

Within the constraints of this poster it has not been possible to explain the DwI toolkit, the study process or analyse the results in anything more than a cursory fashion. However, it is hoped that the work is interesting, given that DwI, at least in inspiration mode, does appear to offer *some* quantitative benefit to idea generation for Persuasive Design, along the lines of that proposed by Young [1]; individual designers may also find alternative variants useful.

Since the trials described in this paper, the authors have developed a series of card deck versions of the DwI toolkit, which afford activities not possible with the poster format, such as card-sorting exercises. The most important test of an idea generation method is probably whether it is found useful by its users—whether they continue to use it, and embed it in design decision-making—and trials of the DwI toolkit cards [8] are currently taking place in a number of organisations.

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