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Citation: Cockton, Gilbert (2012) Making Designing Worth Worth Designing. In: CHI 2012 (ACM SIGCHI Conference on Human Factors in Computing Systems), 5-10 May 2012, Austin, Texas.

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Making Designing Worth Worth Designing

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Abstract

This position paper on *Methods to Account for Values in Human-Centred Computing* summarises the *Working to Choose* framework as an option for addressing several of this CHI 2012 workshop's topics. It also lists worth-focused design and evaluation approaches that my collaborators and I have developed, applied and assessed.

Author Keywords

Worth-focused Design, Design Work and Choices, Design Approaches and Resources, Working to Choose

ACM Classification Keywords

H.1.2 User/Machine Systems.

General Terms

Design, Theory, Human Factors, Measurement.

From Value-Centred Design to W2C

For the last five years I have developed, applied and assessed worth-focused design and evaluation approaches. Over the last two years, this has been integrated into a broader *Working to Choose (W2C)* framework that structures understanding of how the resources within all design and evaluation approaches support choice making in design work.

W2C: Working to Choose

W2C = ADS+M-P4D+A/R (!)

Methods result from design work, and do not pre-exist it. Pre-existing inputs to design are *resources*, often grouped into *approaches* with specific scopes and intents, which support different forms of design work for different types of choice.

Abstract Design Situations (ADSs [9]) are structured by coordination of the types of design choice that they commit to (e.g., purpose, artefacts, beneficiaries and evaluations).

Meta-Principles for Designing (M-P4D [5]) express values for design work as *virtues* (e.g., acquisitiveness, inclusiveness) or *potentials* (e.g., expressivity, viability).

Approaches divided into resources (A/R [11]) is a constructivist position on design methods as unique realisations of *approaches*, i.e., loose collections of resources that each support specific forms of design work.

Designing for Worthwhile Human Outcomes

In 2004 I critiqued usage-focused user-centred design [1,2]. I proposed adding *value-centred* approaches to prioritise human outcomes over guises of usability, fit to context and positive experiential emotion. In 2006, I extended my focus on value to *worth* [3]. Although value and worth can be synonyms, worth has a distinct sense when used as a predicative adjective with complements, e.g., *you are worth it: are* creates predicative usage and *it* is a complement. Worth relates benefits to costs: the benefits to *you* are worth *it* (i.e., whatever the costs are).

Worth-centred approaches have the advantage of focusing on both positive and negative values, i.e., on benefits and costs. This contrasts strongly with usability and much initial value-sensitive research, which respectively focused on negative experiences and outcomes of computer usage. Design aims at creating value, not at avoiding (or ignoring) costs at all cost.

Worth better aligns user-centred approaches with established design paradigms, because the balance between achieved benefits and incurred costs is a viable and (inherently) valuable focus for design purpose, but that is not all there is to design. *Centredness* is an inadequate metaphor that distorts understandings of design, which isn't a shape and thus has no centre. Instead, design is a complex multi-faceted activity where success can never be guaranteed by having the right centre (nor does failure inevitably follow from not having it).

Design Teams Work to Choose: The W2C Framework
More recently, I have explored the nature of balance, integration and generosity within *Abstract Design*

Situations [9]. Good design is not centred but **BIG** (Balanced, Integrated and Generous). Balance is more important than having the right centre. Hence designing for human outcomes should be *focused*, not centred, on worth. This is not exclusive, but is balanced against, and closely integrated with, other foci on creative and technical inventiveness, potential contexts of usage, and evaluation plans. Abstract Design Situations, as co-ordinations of different types of design choices, are the first part of *W2C* (left box). They result from *committedness* to specific different types of design choice and specific co-ordinations of them.

Balance in design takes several forms. There has to be balance *between* types of design choice and also *within* each. The latter is addressed by second part of the *W2C* framework, *meta-principles for designing* [5] that express generic values for designing. Design work for each type of choice needs to balance acquisitiveness, tenacity and expressivity. *Acquisitiveness* (receptiveness in [5]) requires proactive openness to ideas and opportunities, creating the options from which design teams will choose. *Tenacity* (credibility in [5]) retains options that can withstand critical challenge. *Expressivity* communicates options (tenacious or otherwise) within and beyond design teams.

Committedness to design choice types and their coordination brings further complex meta-principles into scope. Two were introduced alongside committedness in [5]: *inclusiveness* (for beneficiaries) and *improvability* (for evaluations). Complex meta-principles require co-ordination between one choice type and others to integrate choices, e.g., involve *beneficiaries* in user *evaluations*, draw on *all* types of design choice to understand *evaluations*. Since [5],

Resource Types and Meta-Principles

Resource types identified for (E) evaluation methods [11] can be generalised to span (D) design methods and can also be aligned with (M) meta-principles for designing:

E: procedural, process

D: directive

M: tenacity

E: instrumentation

D: harvesting

M: acquisitiveness

E+D: expressive

M: expressivity

E+D: scoping, axiological

M: committedness

Committedness scopes Abstract Design Situations as co-ordinations of specific types of design choice. The commitment of design and evaluation approaches is expressed by *scoping* and *axiological* resources, respectively as intended coverage, and as motivating values and proscribed practices.

missing complex meta-principles for integration with artefacts and with purpose have been seen to admit uncoordinated design decisions, which can be avoided by adding two further complex meta-principles: *desirability* (of artefacts) and *viability* (of purpose). This results in *generic values for designing* expressed as three simple meta-principles (acquisitiveness, tenacity, expressivity) and five complex ones (committedness, inclusiveness, improvability, desirability and viability).

W2C's third part is *approaches divided into resources* (A/R), which recognises that design and evaluation methods are project specific realisations of approaches and their reusable resources [11]. The MAUSE COST ACTION (www.cost294.org, WG2) identified different types of resource for evaluation methods (e.g., *procedural* and *expressive* resources) that can be aligned with meta-principles for designing (see box to left). *Knowledge resources* underpin all other types of resource. To *construct* viable methods, design teams must adapt and/or configure an approach's resources and complement these with project-specific resources. In this sense, methods are always post-hoc abstractions over concrete design practices. Approaches mould their component resources through scoping and axiological resources that indicate what an approach can do, and why we value this in design, but only design teams can cook up real concrete methods from these and other ingredients.

Relevance of W2C to Workshop Topics

For this workshop, W2C can guide the selection of abstract *approaches*, rather than concrete methods, which can only be *constructed*, not *selected*. Only looser, open, incomplete approaches can be selected. W2C supports the combination of a values focus with

other design methods by identifying the consequences of committedness, i.e., the need for methods that support e.g., acquisitiveness for beneficiaries, expressivity of purpose, tenacity for artefact features, viability of purpose as revealed through evaluations, or expressivity for an artefact's achievement of purpose. This makes W2C relevant to two workshop topics:

- factors that structure the incorporation of values into the design process
- opportunities for new methods and tools that help designers more effectively design for values

From the above, W2C identifies values at three levels:

- *professional ethics for design* for all activities, expressed as *meta-principles for designing*
- *approach specific values* (axiological resources) that motivate specific design and evaluation work
- *project-specific values* acquired for design purpose, profitably expressed as a balance of worth between positive benefits and negative costs and aversions

W2C thus identifies factors that structure incorporation of values into the design process through committedness to abstract design situations, approaches' axiologies, and resources' support for coordination, acquisition, expression and critique of project-specific values as the constituents of projects' design purpose.

By auditing existing design and evaluation methods, W2C can identify gaps, e.g., *harvesting* resources for *acquiring* design purpose, or resources to *co-ordinate* artefact features *with* design purpose. Identified gaps constitute *opportunities for new methods and tools* that help to design *for* values, as well as *with* and *through* them. Effective and efficient methods are needed to *make designing worth worth designing*.

Some Novel Worth-Focused Approaches

Worth Maps and Sketches [4] are expressive resources that coordinate artefacts and purpose, and can be extended to also coordinate beneficiaries and evaluations.

User Experience Frames (UEFs, [6]) are expressive resources for (groups of) user experience(s) that coordinate artefacts, purpose and beneficiaries.

Worth Delivery Scenarios [6] support similar design work to UEFs, but express single user experiences in more detail. They must end with worthwhile outcomes that express design purpose.

Worth-focused Sentence Completion [7] is a harvesting resource for design purpose.

Worth-focused Field Research [8] uses ethnographic results to harvest design purpose, expressing this where audiovisual assets have been gathered through *Worth Boards* (Mood Boards adapted for design purpose).

New Approaches for Worthwhile Design

An interaction design is worthwhile if it facilitates the achievement of worth through the experience and/or outcomes of usage. I have worked with research colleagues and PhD students spanning different disciplines, application domains, and countries to develop new value focused design approaches (see box to left). I can contribute examples and experiences of their use at the workshop. They are at varying stages of development, but I would argue that the most mature such as *worth maps* [4, 5,6] are state of the art in values focused methods.

W2C has been used to identify further *opportunities for new methods and tools that help designers to more effectively design for values*. Small changes to existing methods are often enough, e.g., *Worth Delivery Scenarios* [6] require endings that express design purpose through worthwhile outcomes. Similarly, *Worth Personas* require skeleton elements that clearly express design purpose as motivating goals (as Alan Cooper originally intended for Personas).

One of my PhD students, Jennifer George, is creating new methods during design and evaluation of a social network to support care circles of children with major motor impairments [10]. Jennifer has adapted questionnaires to investigate *tenacity* of worth sketch elements, *desirability* of artefact features, and *tenacity* of assumptions about beneficiaries' possible values and aversions. She is also exploring proposed new approaches such as *L-ERG-IKK* (a structure for acquiring design purpose [6]), and *worth webs* (a structure for expressing beneficiaries' social interrelatedness and resulting obligations to care circle members, expressed as worthwhile outcomes [9]).

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