
A Worth-Focused Creative Design Lens on Values in Computing

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Abstract

STEM disciplines have been shaped by rationalism, empiricism and the fear of getting something wrong. Creative constructive disciplines have been shaped by hedonism, intuition and the inevitability of getting something wrong. This workshop position paper presents 11 positions on disciplinary, process and project values, both positive and negative, through the framing of design purpose as worth and evaluation as the measurement of achieved worth.

Author Keywords

Engineering Design; Creative Design; BIG Design; Worth-Focused (Wo-Fo) Design; Values.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Background Fear as a Driver of Rationalism and Empiricism

On November 10 1619 René Descartes had three dreams. The first had him terrified by a constant fall, the second brought thunderclaps and sparks, and the third quiet contemplation. Bewilderedly praying, he made a creative leap from the details of the dreams to the unification and illumination of the whole of science, even the whole of all knowledge, by the method of

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reason, “which was truth-revealing and certain”, “guaranteed always to produce answers”, “a universal method whereby all human problems, whether of science, law, or politics, could be worked out rationally, systematically, by logical computation” [6].

There is no explicit fear in this vision, but there are implicit fears “of fancy, ... legend and hearsay, ... nonsense, of doctrine and dogma, ... prejudice, ... and ... chaotic and misguided procedures.” [6] Descartes’ thinking was core to the seventeenth century’s Scientific Revolution. With other key thinkers such as Spinoza, his belief in guarantees of rationality needed specific beliefs on the essences of objects. Epistemologies placed requirements on ontology. To guarantee truth, much must be coerced to comply.

The overview for this workshop [7] echoes the metaphysics of the Scientific Revolution, with closures and systematic procedures. Descartes sought a totalizing method for *all* knowledge. The word ‘all’ appears 5 times (mentions of ‘all organisers [and] submissions’ excluded), in three distinct contexts [7]:

- all human values in computing, all the values at play in computing research and development endeavours
- systematical discovery and representation [of] all the values in a project
- question, or perhaps ‘bracket, all forms of knowledge including what we know is right or wrong

Closure and other disciplinary values are in play here from the STEM disciplines, i.e., Science, Technology, Engineering and Mathematics, which have each staked claims to the disciplinary foundations of computing: no doctrine, dogma, fancy, hearsay, legend, nonsense or prejudice must misguide (‘bracketing’ will help here).

Systematic discovery must expel chaos, bringing guarantees in its wake. Such objective rationalist values tend to exclude all others as being subjective. STEM values become the only legitimate values.

Values are expressed through people, places and things. Values have to be lived through actions and experiences. They cannot lie dormant once they have been “embedded into software or into the design of human-computer interfaces” [7]. Such thinking is essentialist, and complies with the ontology that rationalism requires. It alienates values from human practices, burying them deep in artefacts where they lie in wait with their deterministic *implications* (another key word in the rationalist lexicon [5]).

Ambitious Humility as a Driver of Subjectivity and Intuition

Creative design practices are millennia old. Scientific rationalism is not yet half a millennium old. Creative work has focused more on outcomes than process. Method is a cause for suspicion, and rationalized processes are regarded as disabling constraints.

The experiences and outcomes of ownership and usage are unavoidably value-laden, and this is what designers design for: to reduce negative experiences and outcomes and to increase positive ones. Designing without regard to meaningful values is impossible. Reflection within design work is inherently evaluative: the good is appreciated and the bad becomes a focus for improvement or replacement. The idea of suppressing subjective consideration of values, however tacit they are in practice, has no place in work that relies on subjectivity and intuition. STEM values have not colonized creative design practice (despite

many attempts at rational 'design methods', often with human science drivers). The promise of some guaranteed truth holds little attraction when the goal of design is to produce something worthwhile. We are in the realms of value here and not fact. The two don't mix well [10]. Values-based practices tend to be nurtured by ambitious humility, aiming as high as possible but accepting that actual outcomes will not match expected ones, and often pleasantly and surprisingly so.

We Can See Your Problem

Exposing *some* values is not a problem for creative design practices. Critique is inherently evaluative, and true evaluation must focus on values (testing, assessment, verification and validation – STEM words all – are different). The questions raised for the CHI 2017 workshop would not arise in creative design. Nor however are sensible answers possible in response to any discourse that is trapped by a rationalist lexicon.

Computing has problems with values because STEM disciplines have problems with values beyond those favoured by rationalist empirical practices. These disciplinary values are often not even recognized as such, i.e., as values, as opposed to what is required to guarantee truth through systematic method. Although much technology practice in computing research is highly creative and mirrors creative design, the STEM lexicon coerces computer technologists [5] to present themselves mathematically and scientifically as systematic engineers (much as [7] does).

11 Positions on Wo-Fo Design

Worth-Focused (Wo-Fo) Design offers alternatives to STEM values and is founded on the following positions:

1. Moral and other forms of axiological overload [7] can only be avoided through subjective design purpose: design teams must make choices in a world with thousands of human values (www.unintelligible.org/projects/homeval.php)
2. The overall purpose of all design is to deliver worthwhile experiences and outcomes, where positive benefits clearly outweigh negative costs and risks. Users' interpretations of positives and negatives are not givens. As with other forms of media, interaction is subject to user reception where a range of 'readings' are possible [9].
3. Benefits, costs and risks can be expressed in ways that allow some forms of evaluation measures and targets to be designed (and hence require choices that in part are inescapably subjective and intuitive [8])
4. Worth results from use and not from artefacts: it is achieved through use that is enabled by artefacts, but realised through interaction. [2]
5. Artefacts have capabilities and qualities that enable experiences and outcomes [2]. Values cannot be embedded in artefacts or implied by them [7]. People with artefacts co-create worth.
6. *Achievable* worth can only be established by analysis of likely interactions. Analysis of artefacts without reference to usage contexts results in a deterministic essentialist ontology that is incompatible with the relational emergent nature of human-computer interactions.
7. All major aspects of design work (artefacts, beneficiaries, purpose, evaluations) co-evolve, and thus the values that are explicitly in play may not stabilise until project completion [4].
8. Co-evolution in creative design work is guided by connecting, or integrating across design arenas [4], i.e., the four major aspects in 7 above.
9. Integrations in design and use differ. Design team's (dominant) readings may not emerge in

- use [1]. Users' readings of interactions may be negotiated or oppositional (as in Reception Theory [9]), or due to the additional properties of interactive media, they may be *appropriative*.
10. Neglect by, and credit to, design teams are not easily established when worth is co-created [1] through user experiences and usage outcomes.
 11. WoFo Design Patterns are integrations that extend beyond artefacts to integrating *axiofacts* [5]. Stronger concepts result when capabilities and qualities of artefacts are related to experiences and outcomes (achieved design purpose) for specific beneficiaries via evaluations that reveal how much worth, and not just an artefact, has been made

Case Studies in Relation to the 11 Positions

Information, examples and arguments in support of the above positions can respectively be found in:

1. Example values chosen for a project: [3]
2. Fatoumata's PhD thesis [1] (also for 9 and 10).
3. Jenni George's PhD thesis [8]
4. Design examples in [2] (also for 5 and 6)
7. BIG Design [4], George's PhD [8] (also for 8)
11. A New Lexicon for Creative Wo-Fo Design [5]

The experiences and findings from the sources above, relative to the positions on Creative Wo-Fo Design, will support my contributions to the workshop. Three distinct Wo-Fo development processes [1,3,8] have realized selections from the 11 positions above, supported by design approaches and resources that integrate explicit project understandings of design purpose as worth with other aspects of design work (i.e., artefacts, beneficiaries and evaluations). Together they evidence ways of *becoming* systematic in discovery, representation [7] and integration of all the identified positive and negative values for a project.

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