

Organization

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Title

Massification of the Intangible. An investigation into embodied meaning and information visualization.

Abstract

The thesis addresses two related problems. Drawing on several theoretical strands, it is argued that the materiality of physical artifacts serves the purpose of expressing abstract information. In contrast, the intangible materiality of information technology artifacts is of such a kind that it poses different, sometimes limited, conditions for expressing abstract information. The *background problem* of the thesis concerns conditions and possibilities of designing information visualization artifacts that retain the experiential qualities typically associated with physical artifacts.

By way of addressing the background problem, *massification design* is introduced as a *design ideal* that explicitly aims towards a design of information visualization artifacts that cater to the need of intersubjective understanding of abstract and intangible information, mediated through concrete user interface representations. The ideal of massification design is further articulated as a kind of design where the designed artifact as such bears witness of its own meaning. This ideal is put in contrast to design that depends on arbitrary, interpretative conventions for people's understanding of visualization artifacts.

It is argued that visualization design striving towards this ideal should be theoretically informed. In this context, an argumentation is presented that suggest that the notion of artifacts as *embodiment of theory* is problematic and that the notion of artifacts as *expression of theory* is a more feasible stance.

The *main problem* of the thesis concerns to what extent the theory of embodied realism can serve as an informing theory for realization of massification design. In order to investigate embodied realism as a candidate for informing massification design, *two design projects* are presented. The first aims at expressing abstract information of web page collections. A prototypical virtual reality interface was designed and informed by embodied realism, followed by an evaluation with respect to the prototype's theory expression. The second aims at expressing temporal data through two different kinds of theory informed design that also were evaluated.

Based on the design projects and the evaluations, it is suggested that an embodied realist foundation for massification design has the capacity to *structure the design process* by means of constraining and suggesting form for expressions of abstract information. It is suggested that embodied realism may also inform design in such a way that it *affects the experience* of using the artifacts. The evaluations also suggest that design that draws on embodied meaning may come *in conflict with expected and conventional ways* of expressing abstract information.

In order to further investigate a theoretical foundation for massification design it is suggested that there is a need to investigate theoretical outsets that also stays sensitive to entrenched, conventional expressions. Additionally, by way of reflecting on the general outlook permeating the thesis, it is suggested that massification design can be understood as striving towards authentic experiences of IT.

Keywords

Information visualization, theory driven design, embodied realism, massification design, human-computer interaction

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