

## Design's Contribution to Humanity

### Design Thinking, Practice and Products

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#### Abstract

The literature and recent conference proceedings have clearly identified the importance of epistemology and ontology in validating design as a discipline, establishing its position in relation to other disciplines and areas, and in distinguishing its potentially unique contribution to scholarship and knowledge. Despite the widespread acceptance of the significance of these issues, there has been little exploration of their implications, and the arguments for their consideration at the core of design. The paper explores the meaning of design; the spectrum of design knowledge and capabilities; design as a mode of thinking, processes, practice and artefacts; scientific-rationalism in the 'modernist' paradigm, and the resultant disconnection of design from humanity. The paper proposes a re-conceptualising of design to embrace the social and cultural aspects and to relate it to humanity as one of the fundamental human capabilities and the means of extending humanity with artefacts and environments. It also seeks to reveal the habitat and environment as a crucial part of human physicality, society and culture, and the nature of 'being'. This conceptualisation provides the basis for an ontology of design.

#### Keywords

Design, Artefacts, Discipline, Practice, Ontology, Humanity

## Computer Support for Collaborative Design

### Analysis of tools for an integrated collaborative design environment

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#### Abstract

The collaborative nature of design has been recognized for many years. Although collaborative design has emerged as a notable research area in recent years, the tools and the strategies to build an integrated environment to assist design teams have not been fully explored. The objective of this research is to examine computer-based tools and methods for collaborative design and to identify the issues to be addressed for a future generation of computer-based design tools to support the collaborative nature of design. We first clarify the three scopes of collaborative design research: collaboration between designers, collaboration between designers and other participants in the design process and collaboration between designers and end-users. We then suggest a taxonomy of collaborative technologies to be employed in a collaborative design environment by dividing them into four categories: Information sharing & archiving, Communication, Coordination & Management and Co-working. A structure for an integrated environment to incorporate these technologies is proposed. We also report our experience of using a prototype real-time collaborative 3D CAD system as an example of synchronous interactive collaborative design technology to be incorporated in the environment. Finally the paper highlights some issues to be addressed for an integrated collaborative design environment and a new generation of Computer Aided Design tools to support collaborative design.

#### Keywords

Collaborative Design, CSCW, Computer Aided Design, Integrated Design Environment, Design Tools