Blended Interaction
Toward a Framework for the Design of Interactive Spaces

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Frameworks, Models, Theories?

Can we approach the design of post-WIMP interactive spaces more systematically? What are the design tools to use? Real-world UI metaphors? Abstract visual formalisms? Tangible objects? Pen or touch? Gestural or language-based commands?

→ for more efficient design, we need better understanding of human activities and cognition in interactive spaces.
Frameworks, Models, Theories?

Ultimate goal:

Conceptual framework of “Blended Interaction” for designing post-WIMP interactive spaces

as a tool for HCI researchers, but also design practitioners...
Step 1: Framing the design space.
Blended Interaction: Domains of Design

Individual Interaction

Social Interaction & Communication

Workflow

Physical Environment
Individual Interaction
Social Interaction & Communication

Jetter, Hans-Christian; Gerken, Jens; Zöllner, Michael; Reiterer, Harald; Milic-Frayling, Natasa
Materializing the Query with Facet-Streams – A Hybrid Surface for Collaborative Search on Tabletops
CHI'11: Proceedings of the 29th international conference on Human factors in computing systems, ACM Press,
CHI 2011 Honorable Mention Paper Award, p. 3013-3022, May 2011
Social Interaction & Communication
Workflows

Brainsketching (Van Der Lugt 2002)
Physical Environment
Physical Environment
Physical Environment
Blended Interaction

Step 2: Designing within the domains.
Reality-based Interaction

- Post-WIMP Framework by Robert Jacob et al. (CHI 2008)

“We believe that all of these new interaction styles draw strength by building on users’ pre-existing knowledge of the everyday, non-digital world to a much greater extent than before. They employ themes of reality [...]. They thereby attempt to make computer interaction more like interacting with the real, non-digital world.”

(Jacob et al., 2008)
Reality-based Interaction (Jacob et al. 2007)

Better metaphors?
Better analogies?
Better tradeoffs?
Blended Interaction

Conceptual Blending (Manuel Imaz & David Benyon, 2007)

• **Cognitive Linguistics** – how our language reveals how our human cognition works.

• Based on theory of *conceptual metaphors* by George Lakoff and Mark Johnson (1980s) and its extension to *conceptual blending* by Gilles Fauconnier and Mark Turner (2000s).

• Our conceptual system (e.g. for using of technology) is based on *blends*. They are at heart of “The way think”.

• **Complex networks of concepts** are blended to arrive at the forms of communication and action of everyday life.

• *(Metaphors are examples of blends, but not all blends that we use are metaphors.)*
Blended Interaction

We believe, that **blends** are a powerful description of how users conceptualize the world – and technology.

Unlike metaphors, blends have an own **emergent structure** that is not provided by two input spaces alone.
Blended Interaction

A blend can be a blend of blends.
Blended Interaction

What is reality in a digital world?

Blends of blends explain the strong socio-cultural aspect for what is experienced as “natural”, “intuitive” or “real”!