

# The Tangible Interaction Framework Cards - Introduction

*The following card set is based on the 'Tangible Interaction Framework'. The cards pose provocative questions for a brainstorming exercise which can be used in order to generate design ideas or to analyse a given design or system. The exercise works best if you already have an initial understanding of your problem space and the core aims of the project and if you still have the freedom to make something out of the ideas and insights generated.*

Print the following pages out one-sided, if feasible on thick paper, and cut them into separate cards using a guillotine (or scissors).

For a group of up to four people doing a brainstorming session, one set of cards will be enough. For larger groups, you may want to print two sets.

Each card has one or two provocative/sensitizing question on it, plus 1-2 pictures which illustrate these.

In addition the concept from the original framework that the question belongs to is given in small print. The cards are furthermore colour-coded according to the framework themes. Focus on the questions and images in working with the cards - they are to help you brainstorm and to serve as inspiration and provocation to think about.

Sessions will usually take between one and two hours. This means you will sometimes need to pace the brainstorming as you can easily get into long and very interesting discussions triggered by one card. In this case you might want to take notes and return to an idea later-on.

## How to work with the cards:

To start: mix the cards and distribute them so everyone has "a hand". Then, you take turns, as in usual card games.

The following describes a basic process, but you are free to vary this. You can write on the back of the cards, use additional post-it notes, or experiment with including other materials in the brainstorming process (e.g. photos from your own ethnographic studies of the use context).

## Core rules and process:

Pick a card from your hand that you think is relevant (or that you think is irrelevant) and explain why.

The group has to agree on this (the discussion outcome might be other than the initial suggestion) - negotiating and discussing why or why not it might be relevant and what ideas it gives you is the main point of the exercise!

Seemingly "irrelevant" cards can sometimes inspire new ideas, so give yourself freedom to think outside the box and to ask 'what-if' questions. Be playful in disagreeing with each other ;-)

You have freedom to interpret the cards as it fits your project or to decide that you should do the exact opposite. The cards are merely things to think about, not guidelines or rules.

Once the group has agreed, the card is placed according to the outcome with the other relevant cards (or the irrelevant ones). What works

well is to spread relevant cards out, clustering them into themes on your work surface.

Usually there is also a cluster of half-relevant cards, which somehow are not interesting or don't fully apply. This is OK as well.

The next person having their turn has to pick a new card from their own hand.

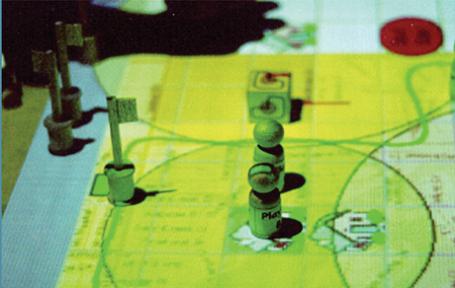
What works well as a (softly applied) game rule is to require picking a different colour or arguing for a different decision regarding relevance/irrelevance (referring to how the previous card was played out).

The main aim of this is to prevent groups from getting into a routine of 'this is irrelevant, this is irrelevant...', to give people something that triggers new ideas when discussion falters, and to make them move between the themes of the original framework.

The Tangible Interaction Framework was developed by Eva Hornecker. Get in touch with her via [eva@ehornecker.de](mailto:eva@ehornecker.de) or <http://www.ehornecker.de>.

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*Can users grab, feel and move  
“the important stuff”?*



Tangible Manipulation > Haptic Direct Manipulation

*Is there rapid feedback  
during interaction?*



Tangible Manipulation > Lightweight Interaction

*Can users proceed with small,  
experimental steps?*



Tangible Manipulation > Lightweight Interaction

*Can users experience the  
interaction straight away,  
from the start?*



Tangible Manipulation > Lightweight Interaction

*Do people and objects meet and invite into interaction?*



Spatial Interaction > Inhabited Space

*How can the human body relate with the space?*



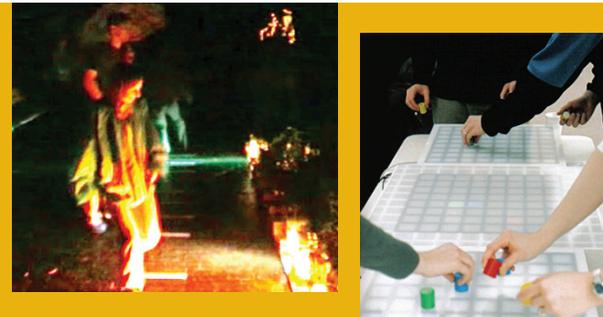
Spatial Interaction > Inhabited Space

*Can you create a meaningful place with atmosphere?*



Spatial Interaction > Inhabited Space

*Does shifting stuff (or your own body) around have meaning?*



Spatial Interaction > Configurable Materials

*Can everybody see and follow what's happening?*



Spatial Interaction > Visual Access

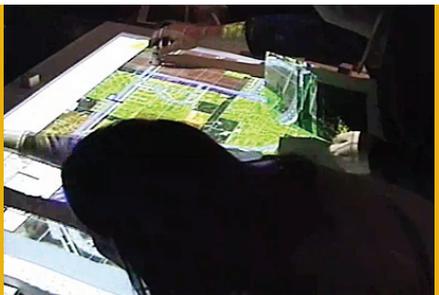
*Can you use your whole body?*

*Bodily interaction is enlivening, expressive, observable, performative.*



Spatial Interaction > Full-Body Interaction

*Can users take ownership of space by physically moving there?*



Spatial Interaction > Full-Body Interaction



*Can users be proud of skilled body movement?  
Can they develop skill over time?*



Spatial Interaction > Full-Body/Performative

*Can you communicate through your body movements while doing what you do?*



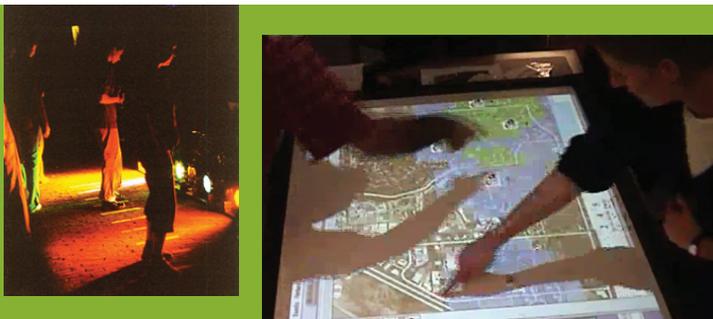
Spatial Interaction > Performative Actions

*Are actions publicly available?*



Spatial Interaction > Performative Actions

*Does the physical set-up lead users to collaborate by subtly constraining their behavior?*



Embodied Facilitation > Embodied Constraints

*Is there a physical focus that draws the group together?*



Embodied Facilitation > Embodied Constraints

*Can all users get their hands on the central objects of interest?*



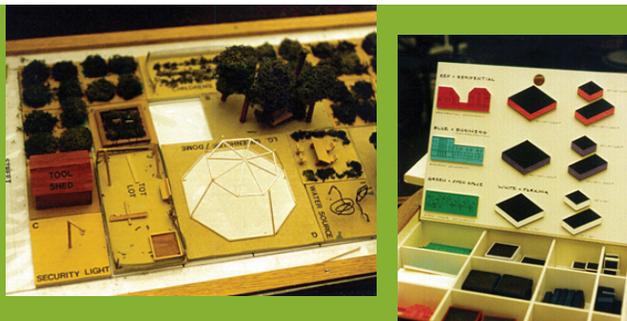
Embodied Facilitation > (Multiple) Access Points

*Can you hand over control anytime, and fluidly share an activity?*



Embodied Facilitation > (Multiple) Access Points

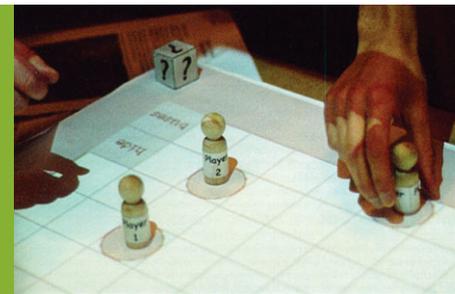
*Does the representation build on users' experience and connect with their skills?*



Embodied Facilitation > Tailored Representations

*What is the entry threshold for interaction?*

*(Can you provide a simple syntax of interaction regardless of the semantics?)*



Embodied Facilitation > Tailored Representations

*Are representations legible, meaningful, and expressive?  
Are they of lasting relevance?*



Expressive Representation > Representational Significance

*Are physical and digital representations of similar strength? Can they augment and complement each other?*



Expressive Representation > Representational Significance

*Can users think or talk with/through objects, using them as props to act with?*



Expressive Representation > Externalization

*Does the representation give discussions a focus and provide a record (trace)?*



Expressive Representation > Externalization

