Materialities Influencing the Design Process

Anijo Punnen Mathew, Tom MacTavish
IIT Institute of Design
350 N. Lasalle St,
Chicago, IL 60654
{anijo, tomm}@id.iit.edu

Jared Donovan, Laurens Boer
SPIRE, University of Southern Denmark
Alsion 2
6400 Sonderborg, Denmark
{jared, laurens}@mci.sdu.dk

ABSTRACT
The use of material artefacts within the design process is a long-standing and continuing characteristic of interaction design. Established methods, such as prototyping, which have been widely adopted by educators and practitioners, are seeing renewed research interest and being reconsidered in light of the evolving needs of the field. Alongside this, the past decade has seen the introduction and adoption of a diverse range of novel design methods into interaction design, such as cultural probes, technology probes, context mapping, and provotypes.

Yet, interaction design does not have a cohesive framework for understanding this diverse range of practices. Such a framework would assist practitioners in comparing and choosing between methods across the different stages, contexts and stakeholder relations within a design process. It seems that one fruitful place to start in addressing this lack is to focus in on the common characteristic that these practices share of materialities influencing the design process.

Keywords
Prototyping, materiality, design process, interaction design

ACM Classification Keywords
H.5.2 [Information Interfaces and Presentation] User-centered design, Prototyping

INTRODUCTION
Interaction design is about people, and a central concern is how to design for meaningful actions in use [1]. This raises difficult challenges for designers such as how to engage users in an exploration of what will make an interaction meaningful and how to manifest the interactions that a design will enable. The types and complexity of problems that designers now tackle are expanding. Designers must represent interrelated services and environments as a holistic solution. They must visualize, communicate and evaluate offerings, which are to be real but are not real yet. In response to these challenges, there has been renewed interest in early stage design methods over the last decade. However, what the field still lacks is a comparative understanding of the ways that materialities work across a number of different methods, for different objectives, and at different stages within a design process.

MATERIALITIES IN THE DESIGN PROCESS
Questions of materiality and the role that this might play in design have a particular resonance for the field of interaction design. Whereas established design disciplines such as architecture, product design and graphic design have a clear relation to their materials of design, for interaction design this relation is less clear, dealing as it does with the shaping of what have been described as materials without qualities [2].

It is perhaps not surprising then that there has been a continuing interest within interaction design into the development of design methods in which materialities play a central role. Examples of such methods include mock-ups [3], cultural probes [4], technology probes [5], context mapping [6], and emerging methods such as ‘provotypes’ [7] and the critical artefact methodology [8]. Various methods for ‘sketching’ within the design process have also been proposed, such as paper models, flip books, acting with props, object play, hybrid photo/graphics, and wizard of oz techniques [9]. Clearly there is no shortage of approaches from which interaction designers may choose. The challenge is rather to know when and what to choose in relation to an unfolding design process.

A shortcoming of models of the design process which present design as a movement from analysis to synthesis (such as the Kumar model) is that they miss the active move from one state to another, the transition or transformation that is at the heart of designing. Alternative models have been proposed, including a ‘bridge’ model, where designers move from ‘what is’ to ‘what could be’ by a process of modelling possibilities [10]. Though this addresses the problem of how to move from analysis to synthesis, it introduces another problem by tending to locate design methods at particular phases of the process. A good example is the way that prototyping is predominantly seen as a method for converging toward a final solution at the later stages of the design process which the opportunities for employing prototyping earlier in the process as a way of opening up the design space.

Elaborating on the ways in which materialities play a role in the design process provides an alternative perspective on the design process. We suggest the notion of materialities
as a way to expand the established character of design methods (such as prototyping) and as the glue that connects different parts of the design process together. To say that materialities play a central role in many of the approaches of interaction design is not to say that they play the same role across them. We suggest instead that materialities are of benefit in the design process in a variety of different ways. For example, they could be thought of as a way to bridge thoughts and people, stimulate narratives and enable learning through reflection.

THE WORKSHOP

Through the workshop, we are aiming to extend the list of design and research methods where materiality plays a role, and identify characteristics of materials, in order to make a comparative understanding in how materiality influences the design process. We invite participants to submit position papers describing their interest in the workshop. These position papers can be of three types:

• Design cases
• Innovative design methods/tools for interaction design
• Perspectives on frameworks for understanding materialities in the design process

From the submissions, organizers will chose 15 workshop participants. All participants will be asked to read the accepted papers and discuss the papers before the workshop. Papers will be made available at the workshop website (http://sites.google.com/site/materialitiesdis2010/).

At the Workshop:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
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<tbody>
<tr>
<td>9:00</td>
<td>Introduction</td>
</tr>
<tr>
<td>9:15</td>
<td>Video presentations of participant design cases</td>
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<tr>
<td>10:00</td>
<td>Video mapping – Where do cases fit?</td>
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<tr>
<td>10:45</td>
<td>Break</td>
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<tr>
<td>11:00</td>
<td>Design activity</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch</td>
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<tr>
<td>13:00</td>
<td>Analysis of another group’s design activity</td>
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<tr>
<td>14:30</td>
<td>Presentation of analyses</td>
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<tr>
<td>15:15</td>
<td>Break</td>
</tr>
<tr>
<td>15:30</td>
<td>Re-mapping – Has our understanding shifted?</td>
</tr>
<tr>
<td>16:30</td>
<td>Take home points + directions for moving forward.</td>
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<tr>
<td>17:00</td>
<td>Finish</td>
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</tbody>
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After the Workshop:

Following the workshop, we aim to be able to pass on to the community a comparative understanding of different uses of materialities and strategies that are/can be employed in the interaction design process. We plan to present the results of the workshop through two portals:

1. Poster at DIS2010 – the poster will describe the workshop and present a summary of findings to the DIS audience

2. Through the web – the results of the workshop will be published on the workshop website after the conference

ORGANIZERS

Jared Donovan is a postdoctoral researcher at the SPIRE centre at the University of Southern Denmark where he teaches Interaction Design and User-Centered Design.

Laurens Boer is a PhD student at the SPIRE centre at the University of Southern Denmark. His PhD research is concerned with Ethnographic Provocations. He has a background in Interaction Design.

Tom MacTavish is a visiting Associate Professor at the Institute of Design and teaches courses related to Interaction Design history, theory, and practice. For the past nine years, he directed Motorola Labs’ Center for Human Interaction Research with research laboratories in Phoenix (AZ), Schaumburg (IL), and Shanghai (China).

REFERENCES