

////////////////////////////////////

# TOWARD DISCURSIVE DESIGN.

Andrew Morrison, Timo Arnall, Jørn Knutsen, Einar Sneve Martinussen & Kjetil Nordby  
Institute of Design, Oslo School of Architecture and Design  
andrew.morrison@aho.no

## ABSTRACT

Design research needs to explore and communicate the potential for design practice to be speculative and motivate discourse as and in design. This may be achieved via Discursive Design. Such a view comes out of practice-driven research on interaction and communication design within a sociocultural perspective. It is informed theoretically by Discourse Analysis in Applied Linguistics, with core concepts from social semiotics and studies of multimodality. Together these concepts form a fuller frame for design and design research at the level of mediated articulation and discourse through design. We link the discursive with developments in hybrid products that are medleys of physical form, technologies, interactions and services. We illustrate Discursive Design by referring to a span of artifacts and articulations from a large research project in interaction design. We close with a set of key concepts.

**Keywords:** discourse, social semiotics, mediation.

## INTRODUCTION

This paper argues that design research may be enriched further by taking a discursive turn. This turn is informed by humanistic, mediational and cultural practices and scholarship. It refers to a means of meeting the increasing articulation of the complex processes and outcomes of design and resulting design research via a medley of media and multiple modes of communication. Such a medley also may be understood as constituting a discourse of design. This discourse is also embedded within design artifacts now often hybrids of physical products, interactions and services. A number of key questions may be posed to further investigate these developments and their communication design.

These questions relate to the growing complexity and need to perceive, embody and enact via design that is communicatively realised through our engagements with technology in cultural contexts of use. What analytical framings might help us interpret and critique these multiply composed and mediated artifacts? How may such framings be related to practice-based design research that investigates links between materials, modes and mediations in grappling with relations between the technical and the interpersonal?

We address these issues by first providing an interdisciplinary framework for Discursive Design. This covers the design of multimodal discursivity in design and the location of the discursive in design. Here our concern is to address meta-level questions about Discursive Design akin in a sense to earlier approaches to critical design (Dunne 2005) and more recent work on multimodality (Kress & van Leeuwen 2001). This research is linked with the emergence of social semiotics, critical theories of technology and sociocultural approaches to design and mediated meaning making (Morrison 2010). Our approach to Discursive Design draws closely on these writings and their methodological and analytical orientation to research through design (e.g. Morrison & Sevaldson 2010).

Second, we situate our perspective on Discursive Design by referring to its implementation in a large funded research project called Touch (2006-2009; [www.nearfield.org](http://www.nearfield.org)) in the domain of tangible interaction. Touch investigated the design of interactions and products using Radio Frequency Identification (RFID) technologies. Put simply, RFID technologies allow an active, powered RFID-reader to detect and identify wireless, batteryless RFID tags

over short distances. In the Touch project we worked with near-field RFID that typically operates on 10-15 cms; it is an inexpensive and already widely used logistic and is used for example for electronic ticketing on public transport. RFID is also starting to appear in payment-systems and RFID readers are being embedded in smart-phones. However, there is still need for the technology to be investigated from design and communication perspectives. To date 'Both the physical affordances of RFID systems and their symbolic, communicative potential remain largely unexplored in design and technology research.' (Morrison & Arnall, in press 2011).

We close the paper by stepping back from these practice-based and theory informed discursive experiments that draw on our collective design and research expertise. We do this to better relate developments in multimodal discourse specifically to interaction and communication design. In conclusion we suggest that Discursive Design has applications in other areas of design, especially the growing domain of Service Design. We close by offering a number of key concepts that may be taken up in a discourse in design and discourse as design view.

### FRAMING DISCURSIVE DESIGN

The term Discursive Design appears sporadically in the research literature. It surfaces in political science on deliberative democracy theory (Couldry 2003) and in design related writings on multimodality, social semiotics and interaction and communication design (e.g. Arnall & Martinussen 2010). Researchers grappling with emerging and new technologies have needed to refer to the immense body of research in Human Computer Interaction (HCI). However, humanist and social science researchers, especially those not trained in design, may experience difficulty in engaging fully, and critically, with the formats and types of studies conducted in many areas of the computationally centred research of HCI (Morrison 2010a). Alongside needing to know about developments in technologies, there has been a demand to connect developments in 'new' media studies with ones emerging in interaction and communication design. This is the approach that we take in reference to Discursive Design. What is important is that this

includes both the shaping of products, screens and graphics, but also media and interaction and the potential for interventions in culture.

In such a view on designing communicatively, the concept of *articulation* is key. For Silverstone (1999), information and communication technologies are doubly articulated: they are media that operate in their own right and they are media that bear meaning. Following this logic, the design of complex interactional media and artifacts asks that we consider more fully the multiple modes of communication that may be involved, how they intersect and ways they may allow different relations and types of expression to be realised. In the past decade, in the field of Applied Linguistics volumes of research have appeared on the topic of multimodality (e.g. O'Halloran 2005).

*Multimodality* refers to the growing realisation that communication is constituted by more than words and linguistic analysis - it needs to be understood as composed of a mix of media, modes of communication, such as gesture, and their interrelations. Kress and van Leeuwen (e.g. 1996, 2001) have been prolific in their promotion and explanation of multimodal discourse. For them, this is a discourse that draws on advances in discourse analysis into discourses both as product and process. The notion of discourse practices as 'discourses' (lower case) is distinguished from wider institutional levels as 'Discourse' (capitalised) (Gee 1999).

Kress and van Leeuwen have argued that discourse concerns modes and media. Their approach draws heavily on social semiotics, seeing communication as culturally and historically flavoured. This is in contrast to more product semantics centred views advanced by leading design researchers applying semiotics to design (e.g. Vihma 2010, Krippendorf 2009). While this body of research on social semiotics and multimodality has increasingly attended to the dynamics of visual communication. It has been linked to the role of space and to our cultural expressions via a medley of media. However, it rarely engages substantially with matters of design that is informed from inside *design practice* and related design centred research.

Morrison (2010, 2010a) has argued that such multimodal communication and the domain of 'digital design' need to be seen as *compositions*: they are designed, they are often co-created, and they emerge and have force within contexts of communication. Prior and Hengst (2010: 1) see that understanding multimodal expressions and communicative products, events and processes may fruitfully be understood by looking into semiotic remediation and practices. In semiotic remediation, the semiotic is to do with signs across media and modes. *Remediation* covers not only how we mediated using various 'technologies' but also how messages and materials are put into use, and how these are practiced through our socio-cultural activities and situated discursive exchanges. These researchers argue that we need to move beyond the semiotic analysis of artifacts, to engage with the production of discourses.

We agree with this perspective. However, we also argue that these views need to work in concert with one another. Here we return to the work of Poggenpohl (2006) who, concerning interaction design, argues that we need to include the notion of designing with and as communicative *ecologies*. These are ecologies that are built and understood by appreciating a communicative whole. In this whole, we argue, what is brought together is a complex of design knowledges and practices and their articulation through media and products.

A social semiotic view helps us understand design as multiply constituted in a mix of material, modes and media. Yet this view also needs to be seen more widely in terms of addressivity and articulation (Morrison 2010). These aspects centre on how what is designed provides potential for the performative enactments of discourses made in a variety of modes and media (Skjulstad 2007). This is an issue of highlighting the rhetorical in design. By doing so, we are able to hold in focus the manner in which persuasion, empathy and involvement are all part of an effective designed artifact or process.

Understanding the role of the rhetorical in design and design research is further an issue of acknowledging compositional and developmental

aspects. This is especially important concerning emerging technologies. Such an approach is not only motivated to study product semantics or practices of use. It has the intention of being open to discursive practices of designing. This encompasses the approach advanced by Prior and Hengst concerning the semiotics remediation of discursive practices mentioned above. It also connects to research on discourse in and as action.

Discourse in and as action has been championed by Norris and Jones (2005). They argue for a mediated approach to discourse analysis that is based on the notion of the nexus of objects, actions and mediational means. 'We suggest that the relationship between discourse and action is dynamic and contingent, located as a nexus of social practices, social identities and social goals' (Norris & Jones 2005: 9). These scholars write of discourse as action and discourse in action (2005: 6-11). Concerning the first distinction, one needs to ask what is the action that is being taken and, only then, second, what is the role of discourse in that action. We extend their powerful distinction into the domain of discourse and design. We propose that Discursive Design may be better understood via the concepts *discourse as design action* and *discourse in design action*.

It is the intersection or nexus of a host of social practices is important here. For this to be 'realised', as we show below, a further notion is needed, namely *addressivity*. Drawing on the work of Bakhtin (e.g. 1986), addressivity acknowledges that all discourse is socially shared. It draws on a dialogical interplay with other voices and social, cultural and schematic conventions and emergent practices. That said, much of our own work engages with exploration of emerging technologies such as RFID. This requires us to engage in shaping discourses in action that are not yet located in dominant practices and knowledge of such technologies. This is a dynamic process of developing formative interdisciplinary design discourses (small d) as well as situating them within wider institutional Discourses. This dynamic, 'dialogical' status and flow is in keeping with the important role of designing to also be speculative. Here the goal and the discourse in and on action is to suggest possibility and potential. This contrasts with

approaches to design that tend to be framed as providing solutions and proving hypotheses.

While concentrating on RFID and its technological affordances and material properties, our design and research has concentrated on the ‘materialisation’ of this largely invisible technology by way of design experiments, artifacts and mediations. The outcomes are Discursive Designs: our design artifacts are discursive ones. The artifacts include the physical articulation of experiments with RFID. They involve mediation via a mix of modes, materials and means.

Below we take up the oscillation between making and reflecting in our own design processes and Discourses. We present how we have articulated design practice and analysis in addressing a variety of needs and publics. Here we have heeded the suggestions by Koskinen et al. (2007) for design research to actively investigate design specific means of conceptualising and reflecting on contexts for design and for research. These researchers refer to the experimental science laboratory, the field of social research and the gallery as ‘venues’ for artistic research. They see venues as important forerunners and sites for design research. These scholars do ask us, though, to think about moving beyond these settings and research approaches. This is what we do in engaging discursively in the shaping of interactive physical products (Figure 2) and in seeing and making discursive relations between them in and as design as action and in action.

Here we have been influenced by the approach discourse. Discursively designed artifacts may be related to one another, thereby contributing to a *nexus* of discourse (e.g. Scollon & Wong Scollon 2004) that is built via chains of connections and distinctions. In Touch, our experiments have sometimes been speculative offerings of potential uses. At other times they have been a mix of materials and media placed in wider communicative contexts, such as online films nested in research papers and gallery exhibitions open to students and a wider public. Together these works are also motivated to point to the communicative potential of a technology and its position in popular cultural imaginations and emerging and potential practices.

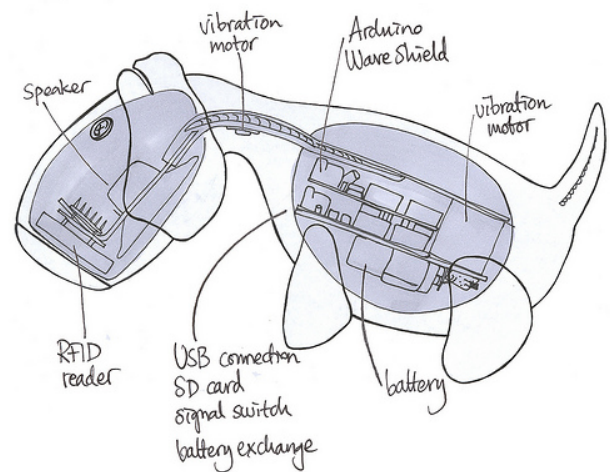


Figure 1. Drawing of Sniff prototype showing multiple technologies included for multimodal mediation in a hybrid artifact (Sara Johanssen).

Drawing on critical practice, mixed compositional and research methods and interdisciplinary post-structural theory, for us Discursive Design is at the same time dynamic and transformational. Yet it is speculative and communicative. It moves out of the lab, field and gallery and into design spaces and spaces for design experimentation. This is something that matters for engaging with new tools and technologies and their impact on our practices and analysis.

## DISCURSIVE REALIZATIONS

In Touch we created concepts, sketches and prototypes and investigated how they manifested aspects of RFID in products, physical artifacts and digital mediations. These artifacts have been part of an inter-related design and research process to understand the complex layers of technology, design and research. Material in this section has been adapted in part from the extensive project blog ([www.nearfield.org](http://www.nearfield.org)) and is further connected to subsequent refinements in our understanding of Discursive Design through analysis and research publication (e.g. Knutsen et al. in press). We now turn to a number of main areas from the Touch project in which we have realised our approach to Discursive Design in design practice and research analysis. These examples are: Graphic language, Products and demonstrators, Exhibitions, Blog, Online films, and Publications. Our argument here is that these various means of communicating about the project make up a set of linked discursive articulations on design.

### Graphic language

The design and application of brand icons (e.g. Arvidsson 2006) is especially important concerning emerging technologies so that designers and publics are able to efficiently identify and locate a brand and fathom its offerings. When beginning to work with RFID we quickly understood that users of this technology would need to be able to identify its specifically field based qualities. It was important to find ways to connect a seemingly invisible field technology with user generated content and the activities of consumer-producers in contexts of modular and networked media.

For the Touch project this meant finding ways 'to use visual design and communicative media as a means to unpack the qualities, potential and implications of RFID technology.' (Touch blog). A number of needs were connected: to create a symbol of project identity on RFID, to generate an iconic marking of field for RFID, to develop a signal and a point of engagement to function as a symbol of interactional retrieval and reception (Morrison & Arnall in press 2011).

First, we worked experimentally in co-designing with RFID, drawing on design techniques (sketching, visual diagramming, modelling and prototyping, Arnall 2006). We did this to understand its properties and interactional potential (Nordby 2009) to perceive what interactions might be enabled and what types of engagement might motivate for potential users.

Second, workshops were used farther afield as a means of taking the Touch work to participative arenas in professional design events, such as conferences, and seminars. This formed an important part of the project as it allowed the designing with RFID to be linked to interaction and communication.

Third, a 'visual language' for RFID, drawing on knowledge of digital icons and graphic design, was further developed in a series of workshops with master's students interaction design and project members (Figure 2). We examined RFID as a material for interaction (Nordby 2010a) and developed a set of visual icons for the types of interactions in relation to fields and the gestural movement for

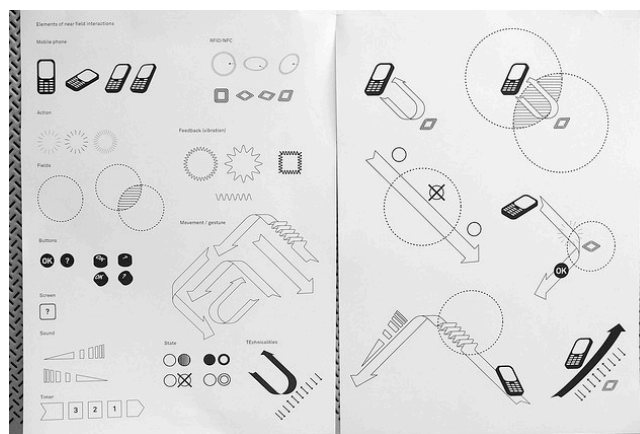


Figure 2. Examples of development of visual and gestural elements of working with RFID as material and medium.

interaction (Nordby 2010a) and developed a set of visual icons for the types of interactions in relation to fields and the gestural movements of the users of mobile devices (Nordby 2010b). Our visual experimentation with the RFID as a material for designing offered us and others points for productively connecting invisible fields to interactions through design outcomes.

### Products & demonstrators

The 'Orooni Table' was developed as an early demonstrator in Touch to test the technical feasibility of RFID in objects, in this case a table with movable objects (Figure 3). The Orooni Table also functioned as probe, trialled with over 800 participants. It probed people's approaches and reactions towards the physically interactive objects of the table. The circular dashed icons used in Touch indicated active areas on the table; the visual iconography of the table linked with the physical figures produced via 3D printers.

The table enabled students in interaction design courses and visitors to public events to engage with RFID technologies afresh. Familiar with RFID functions such as travel and door cards, participants were easily able to see direct relations to core principles in tangible interaction through the manipulation of physical objects over a table (Figure 3). The multimodal mix of shape in the different figures and the matching activities between tactile and visual markings introduced participants to various movements of artifacts in chains of activity and relations. The table provided the project with a key early experiment with RFID as embedded





Figure 3. The Orooni Table being actively used by a group of young children.

contexts of playful physical activity that allowed multiple actors agency through movement and their spoken interactions.

A second discursive artifact was fashioned in *Skål* (bowl in Norwegian; [www.skaal.no](http://www.skaal.no); 2007; Figure 4). In contrast to the explicitly digital aesthetic and computer generated figures of *Ooroni*, in *Skål* attention was placed on wood as material. Made from solid oak with carefully hidden electronics, *Skål* used an RFID reader to detect individual objects that are placed in the bowl. The reader makes it possible to detect small RFID tags embedded inside physical objects, such as toys, dolls and figures.

Drawing more broadly on our experiments in token-based media for children (Martinussen & Arnall, 2007), *Skål* was not about filling a bowl with the correct object to reach a result. It was designed as a 'media player for the home that acts as the interface between physical objects and related digital media on a television' (Touch blog). Imagine this bowl on a living room table. A figurine of the Moomin character Little My is placed in the bowl. A sequence from the Moomin cartoon where she is featured then plays. *Skål* can also be used to control a spread of digital media types from channels in *YouTube* to *flickr* photo streams and online radio. This product brings together traditional woodworking, electronics and screened media, and has been used to explore potential for RFID in playful and domestic contexts. *Skål* differs from other similar products (e.g. *Touchatag* and *Mirror*) by focusing specifically on



Figure 4. *Skål* in use, with the selected object being placed in the bowl to identify and activate a mediated sequence on television.

direct and immediate tangible interaction with rich digital media designed for the home to 'speak' in non-technical language. *Skål* itself functions as a Discursive Design artifact: it offers a demonstrator of potential uses of this unseen micro-technology and it offers a speculative view on the application of RFID outside of established contexts of logistics and security. Designs for discursive elaboration are thus offered and demonstrated through such *discursive products*.

### Exhibitions

Relations between domains of making and reflection are central to the ongoing discursive texture of design research. Conferences and online journals are largely presentational formats with the authors in primary speaking position. The design exhibition offers a different point of access for publics. The project took part in exhibitions and related events.

First was at the international event *Design Engaged 2005*. Here we displayed a set of posters, a triptych, showing signs for RFID and related actions/functions, a set of proposed ones, and a set of speculative images or 'mock ups' of products using the dashed line icon developed a part of Touch's graphic language for RFID. This enabled us to engage in face-to-face discussion with visitors to the event and to also discuss RFID in interaction and design terms. In 2007, two projects from Touch were shown as functional demonstrators at 'The YoungTalent'

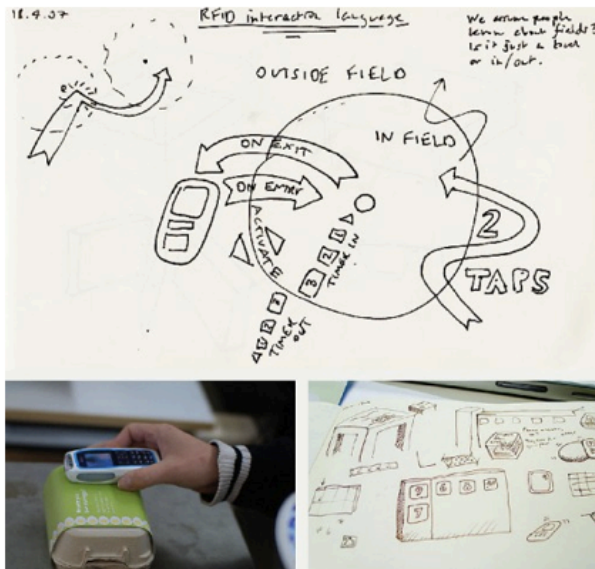




## Two new articles on RFID interaction

By TIMO | Published: 28 APRIL 2010

Touch project PhD researcher Kjetil Nordby has just published two journal articles on interactions with RFID and NFC. These articles pull together concepts from ubiquitous computing and HCI, integrated with high-level interaction design practice, alongside analysis from activity theory, and come up with novel theories for the field of design research.



In the [Journal of Personal and Ubiquitous Computing](#) the article [Multi-field relations in designing for short-range RFID](#) analyses some of the conceptual foundations for multi-field inputs with RFID enabled artifacts:

*"Multi-field inputs are techniques driven by multiple short-range RFID-enabled artifacts like RFID-tags and RFID-tag readers. The technology is useful for designers so as to enable the construction of advanced interaction through the physical world. To take advantage of such opportunities, it is important to understand the technology in terms of what interactions it*

Figure 7. Post from Touch blog on publication of two research articles, showing multimodal mediation.

design events, professionals and academic arenas. Here it is not only a matter of moving beyond the lab, field and gallery (Koskinen et al. 2008) - a space we also cherish and occupy for design research - but also 'above' them. This signals a discursive, reflexive shift into meta-level linkages and reflections on the materials, modes and mediations of the research in devising or composing for the Web. The project site served as repository and as a space for discursive Discursive Design. Over time posts moved from reports on events, investigations of other related artifacts or technological developments to include media rich representations of research.

In Figure 7, a post is shown that is a project update, from sketches to physical prototype. Discursively, this entry shows the richness of multimodal communication across the project. Referring to an

online journal site of publication, the post also includes a quote that helps explain and situate the research undertaken. Blog posts were also designed to give the many design readers access to research, through orientation, visual prompting and an extract. Blog tools too have matured since their early inverted diary structure. The Touch site took care to provide multiple thematic points of entry and a lattice of relations. This formed a communicative ecology, or an assembly, that included illustrations of design probes, reflections on processes of development and shifts between the digital and the physical, and the moves from still to moving image as a means of conveying the outcomes of the project. The blog demonstrates a Discursive Design arena that is multimodal and hybrid at the same time and in which design knowledge and production are co-existent and symbiotic with research processes, methods and reflections. For us this is a matter of being able to compose such a discourse through a variety of media and in respect to the motivations and activities of designing along with formal academic writing.

### Online films

The Touch blog was also used to reach a wide audience, initially made up largely of designers and technologists, but increasingly also researchers. A primary means to reaching these audiences was through presentational, and later, explanatory film. We employed film as a material to explore, conceptualise and communicate the emerging technology of RFID (Arnall & Martinussen 2010).

In practice, film was a means for us 'to probe the depth and materiality of emerging and often invisible technologies'. We used the concept of depth of field to unpack the how audio-visual media might be taken up in the design and the development of hybrid artifacts. Discursively, the 'immaterial' character of RFID as a technology was better understood by making it visible in the hybrid products we designed. Film helped to show how this was done and how we also reflected on its uses in research articles (see below). We took up a number of audio-visual media techniques: long exposure photography (Figure 8), stop-frame animation, and compositing. These techniques were employed





Figure 8. Film exploring the spatial qualities of RFID, visualised through an RFID probe, long exposure photography and animation.

discursively to assist us in understanding the materiality of the seemingly immaterial technology of RFID. This we could then take up in designs and as part of their analysis. Material discoveries were carried through into new design work. As we have noted (Morrison & Arnall, in press 2011), the visual 'mark-up' of the technology becomes an important Discursive Design manifestation that communicatively uncovers hidden materials, and potentials and implications dialogically. Film has a huge impact for both the design and the research. It can reach large online audiences and allow us to engage with a mixed discourse community of designer-researchers. That said, this dialogue extended beyond into discussion with product, information and service designers.

### Publications

Large research projects are often driven by quantity of publication in order to meet needed goals. In the Touch project research publication grew out of the design work over time and through our increased understanding of how RFID worked, can be used as design material and may be communicated via a range of discursive mediations.

We satisfied formal academic publication with an interdisciplinary spread of articles from inside HCI (Nordby 2011) to ones on film as a medium for conveying the dynamics of practice-integrated design research. This was a demanding move for designers learning to be researchers, however it was importantly supported not only by our shared expertise but also through finding ways to best articulate the research via a mix of publication types.



Figure 9. Book cover for *Sniff*. ([www.nearfield.org/sniff](http://www.nearfield.org/sniff)).

Whereas the blog could cover a multitude of interests, need and media, we also turned to print publication to provide material in support of the sub project called *Sniff*. Led by Sara Johansson, *Sniff* produced a sensorially affective toy dog designed for touch, sound and vibration. *Sniff* was tested with children and shown at conferences, seminars, master courses and exhibitions.

A book on its design processes and outcomes was developed (Figure 9). Here we chose to use the format of producing a book on demand via the service Blurb ([www.blurb.com](http://www.blurb.com)). This was an additional means of engaging productively with modes of mediation and changing dynamics design publication, allowing visitors to the site or exhibition to generate a copy of their own via this service. Physical copies were also presented at such events, and circulated to research institutions, libraries and interested parties.

In Touch we also took up potential for mediating research online in formal peer reviewed journals. This was a deliberate move to make our design research widely accessible internationally; it was also selected to make more apparent the activities involved in designing over time, with access to the project blog. In addition, we were interested to engage further with film as part of conveying the research online.



The iPhone RFID film was created to engage with a critical mass of discourse around the iPhone and to provoke a subtle reframing of the discussion of RFID to include media, play and tangible manipulation. In this film, the iPhone RFID reader is a non-interactive prop that plays a sequence of clips that allowed us to enact a pre-prepared set of interactions between the phone and objects, which then seem to trigger media playback on the iPhone. This simulates the experience of using physical objects to play media and communicates a simple example of that experience. This rapid prototyping process through film allowed us to quickly experiment with product experiences without extensive technical development. The significant re-framing here was between the concept of an iPhone as a screen-centric device, and an iPhone that interacts directly with the physical world. The film is then a speculative object from which to see the possibilities for the rich, playful interaction between mobile devices and the world.

Figure 10. Screenshot of a video in research article for online journal *FORMakademisk* in 2010.

In this regard, a full peer reviewed research article with video was published for an online-only journal *FORMakademisk* (Arnall & Martinussen 2010; Figure 10) in a special issue on Research by Design (Morrison & Sevaldson 2010: online). This article gives ‘... a discursive account of how film has played an intricate role in our design research practice, from revealing the materiality of invisible wireless technology, to explaining complex technical prototypes, to communicating to a public audience through online films that may fold broader social and cultural discourses back into our design research process.’

## SOME CONCLUSIONS

The notion of Discursive Design provides design research, and by extension design education, with an some means to addressing links between practice and analysis. It helps us account for the mix of materials and media as physical and digital articulations, communicative affordances and mediated events that are now prevalent in many domains of daily and professional life. This is important as Interaction and communication design continue to need to be explicated in design research as cultural constructs.

These are constructs that mediate meaning in contexts of motivation, interest and use. This, for example, is likely to have some use in the growing

domain of service design. Yet, these are constructs that are speculative and at the same time are embodied in hybrid artifacts and materialised in multimodal discourse (Morrison 2010).

In this paper we have presented a number of interconnected core meta concepts that we consider to be central to Discursive Design. These concepts complement one another in a wider social semiotic and sociocultural discursive framing of interaction and communication. This framing includes a critical and performative perspective on realising the properties and potentials of emerging technologies in cultural, not only computational, experimentation.

The concepts are: *Nexus*, *Hybridity*, *Addressivity*, *Articulation* and *Cultural conceptions and contexts*. We now turn to these as we see them as central to further understanding of working with innovation, emerging technologies and communication design. They are further useful, we argue, for understanding and critiquing innovation, technologies and mediated communication - and their relations to one another.

*Nexus*: Interaction and communication designer-researchers build knowledge through their practice and lift that practice into frames for its analysis. This entails connecting aspects of inquiry that is ‘speculative’, taking up challenges of the technical and shifting them into cultural, communicative planes. Various layers of experimentation, of materials and the mediated artifacts and their communicative uptake, need to be seen as constituting a nexus of Discursive Design. Research in discourse studies provides some means to shaping this, but needs to be extended to understanding of discourse as a mix of modes and mediations. This is so, for example in the several online research articles that connect processes of designing with modes of writing with a mix of media types.

In shaping such a communicative nexus of practice and research rhetoric. This is akin to the views of Koskinen et al. (2008) who note that ‘... a growing number of design researchers pursue integrated approaches where design work and research is interwoven. Accordingly, design work becomes inseparable from research.’

**Hybridity:** Design artifacts that are mix of materials, modes and media need to be closely investigated as both products and processes of articulation in and at the level of their design. Much social semiotic oriented research skips over this entirely. A Discursive Design approach accentuates that these hybrids are not merely mixes of materials but also discursive hybrids in their own right. Importantly, such hybrids are possible to shape and to understand by acknowledging that designers are often at the front of grappling with emerging technologies, but not just technically. Their interactional and communicative sensibilities and their own practices are conjoined in the activities of engaging with emerging technologies and their impact on existing practices and use of materials.

**Addressivity:** Matters of address and, thus those of the embedded character and speaking positions of technologies as actants (e.g. Latour (1987), need attention when we look into discourse in design action (Norris and Jones 2005). Discursive artifacts allow for performativity for users and participants. Yet these artifacts cannot be realised communicatively unless the designed object and environments are themselves outcomes of considered design research practice that includes the conceptual and practical.

**Articulation:** Our communicative devices and the arenas in which we use them and are involved in dialogical exchanges with content, persons and institutions need to be seen as cultural artifacts. An approach to design as rhetoric is important here. It allows designers and researchers to appreciate a nexus of discursive relations and realisations via communicative affordances they offer to others in dialogue. Discursive Design is therefore also enacted through its being part of a wider community of design venues, events and for a that complement formal academic, research based ones. The co-articulation of these knowledge domains with their varied modes of convention and circulation is an area for further research.

**Cultural conceptions and contexts:** The reason why articulation and discourse is important is that we need to see design as part of cultural contexts.

Online, physical and popular cultural contexts may be oriented towards particular ways of engaging in cultural developments and domains. This is especially important for new technologies that are not yet set and whose roles in society are not yet fixed. Here design has a key role to play in offering not just given discursive cultural frames but opening out to potential ones that are made through our engagements with them. In short, Discursive Design, needs to constantly and dialogically develop an interplay between practice and research in order to explore its communicative and cultural potential beyond mere functionalism.

Taken together, these concepts may help us to better understand relations between discourse as design action and discourse in design action. They allow us to approach and occupy positions of agency, sites of practice and the mediational means to the articulation of design and research.

## ACKNOWLEDGEMENTS

Our thanks to the Touch project members, to colleagues at the Institute for Design (AHO) and to Berg, London. Our research has benefitted from many comments and participation in classes, workshops and online. Touch was funded by the VERDIKT programme, Research Council of Norway. All images are from the project repository: [www.flickr.com/photos/timo/tags/touch](http://www.flickr.com/photos/timo/tags/touch)

## REFERENCES

- Arnall, T. (2006) A graphic language for touch-based interactions. In *Proceedings of Mobile HCI Conference, Mobile Interaction with the Real World*, Espoo, Finland, September 12-15.
- Arnall, T. & Martinussen, E. (2010) 'Depth of field - Discursive Design research through film'. *FORMAkademisk*, Vol. 3, No. 1. Available: <http://www.formakademisk.org/index.php/formakademisk/article/viewArticle/68>
- Arvidsson, A. (2006) *Brands: meaning and value in media culture*. London: Routledge.
- Bakhtin, Mikhail. (1986). *Speech genres and other late essays*. Austin: University of Texas Press.
- Couldry, N. (2003) 'Digital divide or Discursive Design? On the emerging ethics of information space'. *Ethics and Information Technology*, Vol. 5, 89-97.
- Dunne, A. (2005) *Hertzian tales: electronic products, aesthetic experience, and critical design*. Cambridge MA: The MIT Press.
- Dunne, A. & Raby, F. (2001) *Design noir: the secret life of electronic objects*. Basel: Birkhäuser.
- Eikenes, J.O. (2010) 'Connecting motional form to interface actions in web browsing: investigating through motional sketching'. *FORMakademisk*. Vol. 3, No.1. Available: <http://www.formakademisk.org/index.php/formakademisk/article/view/67>
- Gee, J. (1999) *An introduction to discourse analysis: theory and method*. London and New York: Routledge.

- Johansson, S. (2009a) *Sniff: adventures of an interactive toy dog*. Available: <http://www.blurb.com/bookstore/detail/845631/>
- Johansson, S. (2009b). *Sniff: designing characterful interaction in a tangible toy*. In *Proceedings of IDC '09*, June 3-5. Como, Italy. ACM, New York, NY, 186-189.
- Knutsen, J., Martinussen, E., Arnall, T. & Morrison, A. (in press 2011) 'Investigating hybrid products: towards an "Internet of products".' Special issue: *Computers and Composition*.
- Koskinen, I., Binder, T. & Redström, J. (2008) 'Lab, field, gallery, and beyond'. *Artifact*, Vol. 2, No. 1, 46-57.
- Kress, G. & van Leeuwen, T. (1996) *Reading images: the grammar of visual design*. London: Routledge.
- Kress, G. & van Leeuwen, T. (2001) *Multimodal discourse*. London: Arnold.
- Krippendorff, K. (2006) *The Semantic turn*. Boca Raton: Taylor & Francis.
- Martinussen, E. & Arnall, T. (2009) Designing with RFID. In *Proceedings of 2009 Conference on Tangible and Embedded Interaction* (Cambridge, UK, February 16-18)
- Martinussen, E., Knutsen, J., and Arnall, T. (2007) Bowl: token-based media for children. In *Proceedings DUX '07*. (Chicago, November 05-07). ACM, New York, NY, 3-16.
- Morrison, A. (2010). *Inside multimodal composition*. Cresskill NJ: Hampton Press.
- Morrison, A. & Sevaldson, B. (2010) 'Getting going': research by design. *FORMakademisk*, Vol. 3, No. 1, Available: <http://www.formakademisk.org/index.php/formakademisk/article/view/63>
- Morrison, A., Stuedahl, D., Mörtberg, C., Wagner, I., Liestøl, G. & Bratteteig, T. (2010a) Analytical perspectives. In I. Wagner, D. Stuedahl, & T. Bratteteig (Eds.), *Exploring digital design*. Vienna: Springer, 55-103.
- Morrison, A., Mainsah, H., Sem, I. & Havnør, M. (in press) 'Designing location-based mobile fiction. In Jones, Rodney. (Ed.). *Discourse and creativity*. Longman: New York.
- Morrison, A. & Arnall, T. (in press 2011) 'Visualisations of digital interaction in daily life'. Special issue: *Computers and Composition*.
- Nordby, K. (2010) Conceptual designing and technology: Short-range RFID as design material. *International Journal of Design*, Vol. 4, No.1. Available: <http://www.ijdesign.org/ojs/index.php/IJDesign/article/view/625>
- Nordby, K. (2011) Multi-field relations in designing for short-range RFID. *Personal & Ubiquitous Computing*, Vol. 15, 175–185.
- Nordby, K. & Morrison, A. (2010) Designing tangible interaction using short-range RFID. *FORMakademisk*, Vol. 3, No. 2. Available: <http://www.formakademisk.org/index.php/formakademisk/article/viewArticle/78>
- Norris, S. & Jones, R. (2005) (Eds.) *Discourse in action: introducing mediated discourse analysis*. London: Routledge.
- O'Halloran, K. (2004) (ed.) *Multimodal discourse analysis*. London: Continuum.
- Poggenpohl, S. (2006) 'Interaction as an ecology.' In Bagnara, S. & Crampton-Smith, G. (Eds.) *Theories and practices in interaction design*. Mahwah NJ: Erlbaum, 287-299.
- Prior, P. & Hengst, J. (2010) Introduction. In Prior, P. & Hengst, J. (Eds.) *Exploring semiotic remediation as discourse practice*. Basingstoke: Palgrave Macmillan, 1-23.
- Scollon, R. & Wong Scollon, S. (2004). *Nexus analysis*. New York: Routledge.
- Silverstone, R. (1999). *Why study the media?* London: Sage.
- Skjulstad, S. (2007) 'Communication design & motion graphics on the Web.' *Journal of Media Practice*, Vol. 8, No. 3, 359-378.
- Vihma, S. (2010) (Ed.) *Design semiotics in use*. Helsinki: Aalto University.