TANGIBLE DIALOGUE TOOLS:

Mediating Between Non-verbal Users and Everyday Experts

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Abstract: *In this working paper we discuss the role of Tangible Dialogue Tools (TDT) as mediating objects. We define TDT as a design research approach combining tangible means with semi-structured interviews. As such TDT are not only tools or techniques for design or design research. Rather they imply an action, namely a dialogue, based on a physical object. In that light we find it interesting to discuss the role of TDT as mediating objects from a provo- and prototyping perspective presenting two examples from research involving everyday experts. One example is considered with sustainable garment and textile design, the other is about wearable assistive products and autistic adults. We use this working paper to open up a discussion about objects as mediators in a research process. Thus, we find that there is reason to further investigate and discuss ways in which the concept of mediating objects can contribute to understand and develop methods such as TDT.*

Keywords: *Tangible Dialogue Tools, Everyday Experts, Non-verbal Users, Research through Design, Unmet Needs, Personal Preferences.*

INTRODUCTION

This paper draws on two different research projects within 1) sustainable design and 2) welfare design. Both projects use design experiments and field studies to generate knowledge and build theory about garment and textile design for longevity (example 1) and wearable assistive products (example 2). Adopting a Research through Design approach (RtD) provide us with a framework to include physical objects as drivers for knowledge generation in our research (Frayling 1993; Koskinen et al. 2011). In previous work we have identified some of these objects as 'tools for dialogue' (Bang 2010) and 'dialogue tools' (Riisberg et al. 2015) and recently we coined the term 'Tangible Dialogue Tools' (Ravnløkke & Bang 2016). The core aim of this paper is to further discuss the role of Tangible Dialogue Tools (TDT) as mediating objects. On a meta-level we agree with Zimmerman et al. (2010) that in order to further strengthen the RtD approach it is necessary to *"develop protocols, descriptions, and guidelines for its processes, procedures, and activities"* (ibid. 317). Thus, we additionally see this paper as

a stepping stone to also develop RtD processes, procedures and activities, within our own research practices.

From a material culture perspective Tim Dant claims that all objects are media (1999: 153). He even compares mediating objects with relationships with other people and stresses that there are some things that we become intimate with and can merge bodily with (ibid. 174). We use this as a starting point to reflect on the role of TDT as mediating objects in order to engage ourselves as design researchers in social relationships seeking insight in users' ideas, values, experiences and emotions. We use examples from two different research projects as the basis for our discussion about TDT as mediating objects.

Independent of each other we have experienced a need for exploring, deriving and/or interpreting non-verbal users' experiences, preferences, values and unmet needs. Opposed to Dant's characterisation of mediating objects, TDT are characterised by not being finished objects. Therefore, we start the discussion by comparing TDT to provotypes (Boer 2012) and prototypes (Coughlan et al. 2007). It is our aim to explore if this may be a beneficial way to further elaborate and discuss TDT. In the present examples we demonstrate how TDT serve as support for the conversation by mediating between i) the design researcher and the everyday expert, on behalf of a non-verbal user or ii) between the everyday expert and non-verbal users. Thus, we argue and exemplify throughout the paper ways in which TDT can be used as mediating objects in early stages of design research for the purpose of knowledge generation.

CONTEXTUALIAZING TANGIBLE DIALOGUE TOOLS

TDT are defined as a *"research approach combining tangible means with semi-structured interviews"* (Ravnløkke & Bang 2016: 379). As such it is not only a tool or a technique for design or design research. Rather it implies *an action* namely a dialogue based on a physical object between the involved parties.

The use of artefacts is well known in design practice; for example, prototyping is recognized as a core approach for use in the design process (Coughlan et al. 2007). Prototypes do not necessarily imply a dialogue with other parties, but are used as artefacts to *"involve moving from the world of abstract ideas, analysis, theories, plans, and specifications to the worlds of concrete, tangible, and experiential things."* (Ibid. 3). By this, Coughlan et al. characterizes prototypes as representations of ideas created before final artefacts exist. In some industries or companies, the term prototype is reserved for highly resolved and close-to-launch versions that in essence "stand for" a final product or offering. In our use of the term, and more typically within the design profession, prototypes can be usefully thought of as "learning tools" and consequently exist at any level of resolution - from very rough to highly refined - and may be used at any stage in the design process to explore, evolve and/or communicate ideas (ibid.).

Laurens Boer (2012) re-introduces the term provotyping to be used in the front end of a new development process, as it offers a platform for collaborative ideation when exploring how a current situation might be different. Boer proposes provotypes *"as ethnographically rooted, technically working, robust artefacts that deliberately challenge stakeholder conceptions by reifying tensions that surround a use context of organizational interest"* (ibid. 1). When engaged with users, provotypes can provoke an articulation and transfer user knowledge about topics that are difficult to talk about, as it reifies a tension represented in the provotypes. Hereby, the design researcher can elicit tacit knowledge that reflects on the users' daily actions, thoughts and feelings.

In this paper we understand provo- and prototypes as being tangible artefacts of knowledge generation. Because TDT implies an action, we find it interesting to discuss the role of TDT as mediating objects from a provo- and prototyping perspective.

MEDIATING OBJECTS

We propose mediating objects as a useful concept for further discussion of TDT. According to Dant (1999) *"A mediating object is one that carries communications between people – information, emotions, ideas and impressions that could have been communicated by speech, gesture, touch or expression – if people had been with each other"* (ibid. 153). In this quote Dant defines mediating objects as artefacts that are able to pass on knowledge between people that are not together.

We use TDT as an approach that mediate (assisting in driving a dialogue) between people that are together. Our reason for doing this is a wish to reveal non-verbal, unconscious or not yet formulated experiences, emotions, preferences, values and unmet needs. In the present examples this is a particular challenge since one of the involved parties is non-verbal.

EXAMPLES

We present two examples discussing the use of TDT as mediating objects. One example is considered with sustainable garment and textile design, the other is about wearable assistive products, autistic adults and accessory design. The two examples differ in their underlying basis, yet they both explore insights of ideas, values, experiences and preferences. Example 1 includes mothers as everyday experts, interpreting on behalf of their new-borns. In this case the design researchers brought the TDT to the mothers' homes. Example 2 includes pedagogues as everyday experts, interpreting on behalf of autistic adults. In this case the design researcher facilitated a design process for the pedagogues to create the TDT.

Sustainable garment and textile design

Vigga A/S is a newly started company offering a subscription service to eco-certified baby clothing. Design School Kolding and Vigga have collaborated since Autumn 2014. New-borns grow rather fast meaning that they rarely wear out their garments. Vigga's strategy is to increase the longevity of the garments by circulating them between several subscribers. Researchers from Design School Kolding have contributed to the collaboration with expertise and knowledge about sustainable textile and garment design and have also contributed with user studies.

Example 1 is based on a user study investigating six mothers' personal preferences for everyday use of baby clothing, and their experience of value. This study investigated ways in which design aesthetics, materials and the senses have an impact on high use frequency aiming to understand longevity as a parameter for sustainability in textiles and clothing.

We conducted a series of semi-structured interviews with mothers of new-borns, 3-7 months old, using TDT in the form of textile samples and garments, to guide the conversation. The purpose of using textiles and garments for generating the dialogue, was to give the mothers access to verbalise and express experiences and preferences about baby clothing. The selection of textiles and garments were chosen to suit a baby wardrobe representing different styles and material qualities. The textile samples varied in surface structure, colour, stripes, graphic and naive print in order to foster a dialogue where the mothers could elaborate on tactile and visual sensation. Furthermore, the baby clothing enabled the mothers to verbalise preferences and experiences with shape, details and fit in daily use.

The mothers interpreted the TDT to elaborate on their likes and dislikes to express personal preferences. In one case a striped textile sample encouraged a mother to articulate: "*I must admit that I'm not up for wild prints – like the ones from X-Company. I'm more fond of douche, classic and neutral colours. […] I like stripes. Colour combinations. And I really like douche colours. The sailor-look. I don't like it when it's too vivid,*" (Transcribed audio recording).

FIGURE 1: The textile sample that encouraged one mother to articulate pattern preferences and an example from her son's wardrobe illustrating this.

This example shows how the striped textile sample (see figure 1, left) mediated in a way, which encouraged the mother to tell about colour, pattern and style preferences. Later she shows an example of a 'sailor'-like t-shirt (see figure 1, right) from her son's wardrobe. As we aimed to investigate how aesthetic preferences and personal taste may have an impact on high use frequency, the TDT provoked a dialogue on this topic.

Wearable assistive products

Spurvetoften is a facility for 37 autistic adults with significant physical and mental disabilities located in Brejning, Denmark. In November 2015 a development project started, as collaboration between Spurvetoften and Design School Kolding. The intention was to teach Spurvetoftens staff design thinking methods, to be able to better handle everyday challenges.

In support of the project, four pedagogues attended the role as designers, and identified a need for digital guides with a user-friendly interface that could easily communicate daily tasks using visual information such as taking a bath, getting dressed or having a meal. The staff also identified that the screens had to be worn closely to the body of the autistic adults to support them in their daily activities. Three autistic adults were chosen as test pilots for the design process, due to different requirements for wearing objects on the body, as experiences of over- or under-sensitivity to sounds, touch, taste's, smell's, light and colours are present. This resulted in an individual-driven design attitude rather than a technology-driven approach.

The project included two phases. Firstly, the design researcher introduced the 'Accessory Approach' (Møller & Kettley, in process), as a method to inspire the making of wearable prototypes, based on each test pilot's personal preferences. Secondly, the pedagogues started a rapid prototyping process, to visualise possible wearable alternatives to support the test pilot's to become autonomous and self-assured. The next step was a presentation of the wearable prototypes to the design researcher and a professional designer from Design School Kolding.
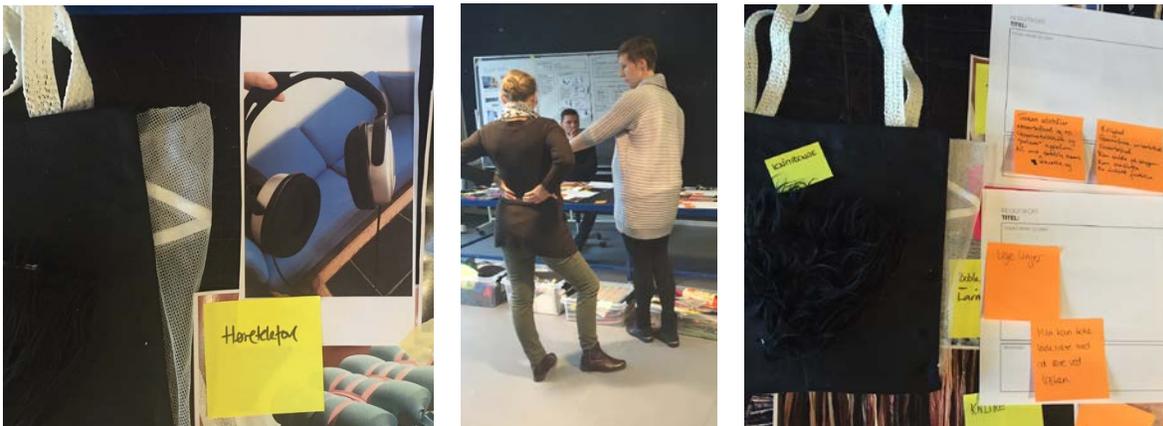
FIGURE 2: Images from the presentation session; one of the wearable prototypes, its inspiration and the insights it fostered.

Figure 2 shows a prototype in the form of a 'wearable' that carries an iPad. The making of it was inspired by one of the autistic adults' personal preferences; the touch of skin and listening to different sound stimuli. Furthermore, the autistic adults' favourite accessory was a pair of headphones that inspired the pedagogue to include felt, rubber and sound in the making of the prototype. This information was mimicked with a rubber material that functioned as the handle of the wearable - and felt as human skin. To embed sound - a small pocket was sewn on the wearable to include another material e.g. tinfoil, to generate the sense of sound and thereby stimulate further curiosity.

Later, the wearable prototypes served as mediating objects facilitating a discussion, between the pedagogues, the design researcher and the professional designer. A discussion that generated new insights of challenges and issues related to the autistic adults unmet needs and personal preferences.

DISCUSSION AND CONCLUDING REMARKS

Looking at example 1 the TDT act more as provo- than prototypes, as they consist of existing fabric presented in a way that can cause provocation; e.g. the colour of the fabric, the pattern or the structure. The textile samples and garments did not function as prototypes rather they mirrored materials, details and garments related to baby clothing to provoke reactions on the topic. We argue that in this example TDT provoke personal preferences and experiences that establish a dialogue, which reveal tacit knowledge. Thus, the TDT serve as mediating objects between the design researcher and the mother, see figure 3, example 1.

In example 2 the TDT function as a prototype designed to represent personal preferences. Thus, the example demonstrates how the method rapid prototyping helped the pedagogues to express what the non-verbal autistic adults felt. The TDT served as mediating objects between the non-verbal autistic adults and the pedagogues, to foster new insights into design research. The prototypes are based on the pedagogues' relation to, and experienced practice of, working with the autistic adults on a daily basis, see figure 3, example 2. As the relationship between the pedagogues and the autistic adults are based on something else than designing wearable assistive products, TDT becomes a generative enabler of conversation between the pedagogues and the design researcher - to improve the relationship between the autistic adults and the wearable assistive products. Thus, TDT enables actions between the pedagogues and the autistic adults, even though

these persons have no verbal language. Thereby TDT serve as mediating objects for new insights to employ values for all involved in the project to understand autistic adults' situation, their life, their worries and joys resulting in defining their unmet needs.

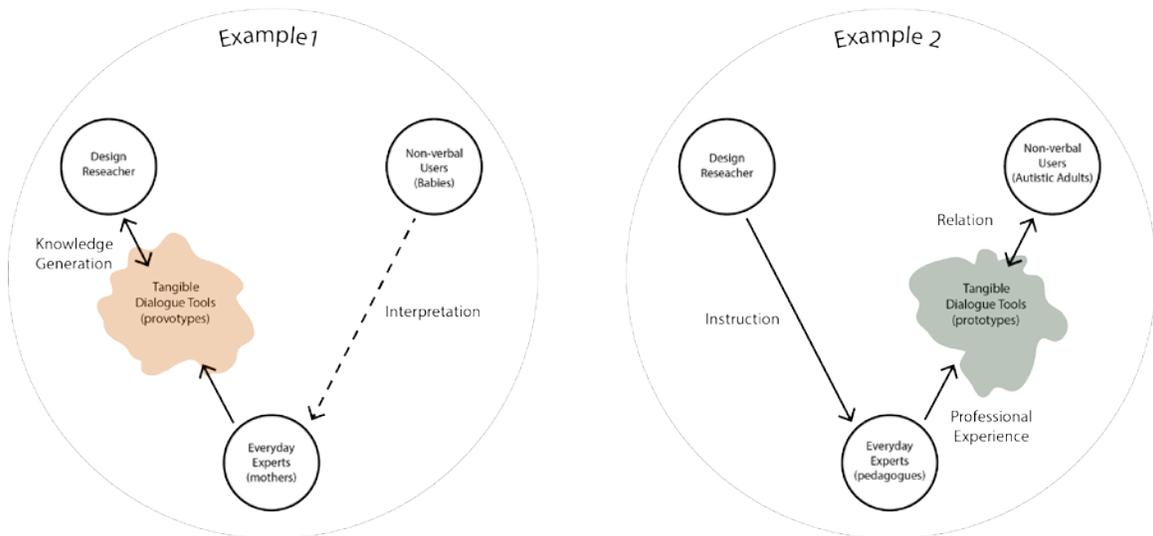Figure 3 shows the way we understand the role of TDT in the examples:

FIGURE 3: Visual representation of Tangible Dialogue Tools as mediating objects in example 1 and 2.

We set out with the purpose to discuss and elaborate on the understanding of the notion of *action* that lies in the term TDT. We did this by exploring ways in which TDT can contribute to further understanding and development of RtD processes when applying the theory of mediating objects. We used two examples to demonstrate how TDT can serve as mediating objects. Furthermore, we discussed it from a provo- and prototyping perspective underlining how TDT are dialogue tools based on a physical object between the involved parties.

We use this working paper to start a discussion about objects as mediators in research processes. The examples argue that adding a theoretical layer of mediating objects support and strengthen the understanding of TDT. Though, we cannot draw a firm conclusion or make a thorough line of reasoning on the basis of only two examples. However, we find that there is reason to further investigate and discuss ways in which the concept of mediating objects can contribute to understand and develop tools, techniques and methods such as TDT to be used in RtD processes involving everyday experts and design experiments.

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