

Annotated portfolios as process narratives

Sumit Pandey, Swati Srivastava & Jorun Børsting

Keywords-Process narratives; Research through design; Annotated Portfolios; Annotations through time; Interaction design.

I. INTRODUCTION

Research through design (RtD) has been given a lot of attention within the HCI community in the past few years with increasing attention being paid to understanding and framing design practice as a valid and valuable form of research and on generating knowledge from specific instances of design. The initial proposal for Research through design goes back to Christopher Frayling (Frayling, 1994) who coined the term and described it as a research practice focused on an intentional construction of a preferred future by disrupting the present through material and conceptual explorations. While this proposal was critiqued for being overly focused on the creation of artifacts and not enough on the act of reflection and the creation of theory (Findeli, 1998; Jonas, 2007), Zimmerman and Forlizzi built upon the original idea and its shortcomings (Zimmerman et al., 2007) with a specific focus on interaction design research and consequently define RtD as “*an approach to conducting scholarly research that employs the methods, practices, and processes of design practice with the intention of generating new knowledge*” (Zimmerman and Forlizzi, 2014). Further, they outline a broad framework structured around three methodological approaches to design practice — Lab, Field and Showroom (Koskinen et al., 2011). However, while this framework is helpful in providing a theoretical and methodological origin and placement for a design research project, it does little to explicate the nature and form of the knowledge gained or how to articulate it.

Articulating and framing this knowledge has been noted as a challenge by many researchers (Gaver, 2012; Höök and Löwgren, 2012; Löwgren, 2013; Zimmerman et al., 2007) with the primary issue stemming from the nature of theory and design practice itself. The outcome of a design practice is focused on the creation of artifacts which have been described as the “*ultimate particular*” (Stolterman, 2008) while the aim of research is to produce theory which is “*general and universal*” (Löwgren, 2013). In response to this, Gaver suggests that since RtD is largely generative, constructive and pluralist with influences from science, humanities, engineering arts and design, “theory produced by research through design tends to be provisional, contingent and aspirational” rather than “*extensible and verifiable*” (Gaver, 2012). Further, he argues that rather than building comprehensive theories of design, theory should be used to “*annotate*” the artifacts produced by design practice. Löwgren describes these annotations as “*intermediate level knowledge*” (Löwgren, 2013) which occupy the space

between general theory and particular artifacts. True to the pluralist perspectives inherent in RtD, many researchers have since tried to describe a range of different intermediate level knowledge forms originating from their own unique perspectives in HCI, humanities, design and so on. Out of these approaches, annotated portfolios (Gaver and Bowers, 2012) builds on an existing practice within design and art — that of creating a portfolio of selected work and highlighting specific aspects of the work both individually and as a whole to create an abstracted narrative.

In this paper, we build on the methodological framework proposed by Gaver and Bowers and argue that this approach can be used to construct a process narrative of a particular artifact, i.e. how it came to be and how theory and practice influenced each during the design of the artifact itself along with constructive and comparative narratives consisting of specific and correlated annotations emerging out of artifacts being discussed individually and in combination. This is exemplified through two projects which are individually described through three annotated snapshots in time. Finally, we discuss the evolution or change in the nature of annotations and the designed artifacts and their implications on the final outcome.

II. BACKGROUND

Graver and Bowers (Gaver and Bowers, 2012) propose annotated portfolios as a means for communicating design research. It is characterized as an inspirational, descriptive and generative methodology. One of its stated advantages is how the methodology fits well with how designers are used to annotate their designs in portfolios, and in general communicate knowledge through the artifacts they design. The annotated portfolio process starts out with the selection of a collection of designs, these are then analysed through the formation of textual annotations of themes that are embodied in the designs. Bowers (Bowers, 2012) explains how annotated portfolios can be put in use in RtD by the seven features constitution, relationships, communication, perspective, mutual informing, shaping and materiality.

Löwgren (Löwgren, 2013) builds further on Graver and Bowers annotated portfolios methodology by stating that annotated portfolios could be described as an intermediate-level knowledge practice, placing it among other such practices such as patterns and experiential qualities, in addition to Höök and Löwgren’s (Höök and Löwgren, 2012) proposed notion of strong concepts. Löwgen (Löwgren, 2013) further argue that placed together these practices combined could strengthen and broaden the intermediate-level knowledge in interaction design.

III. CASE STUDY

As described in the introduction, we construct an *investigative*/process narrative of two projects conducted as a part of a research course on RtD. This narrative is constructed out of three snapshots of prototypes in different stages of development that are annotated with theoretical considerations and research interests at each stage. The description of the snapshots is followed by a discussion around the change in annotations and common themes that emerged from each exploration. Through discussing the evolving nature of these annotations over time, we aim to highlight the important points of decision making and pivots in the design process along with how theory and practice helped inform each other during the course of both projects and how annotated portfolios help in reflection and the creation of a process narrative which highlights design as a solution centric (Cross, 2011), messy and abductive (Kolko, 2009) process but not a “*black art*” (Wolf et al., 2006). However, true to the nature of annotated portfolios themselves, we feel it must be highlighted that the number or nature of snapshots are not meant to be indicative of a specific style in any sense, but rather one way of describing the narrative of our projects.

Both projects started with a broad thematic and research focus on ‘participatory cultures’ and ‘sustainability’. One of the projects took a speculative design approach (Dunne and Raby, 2013) (Bardzell and Bardzell, 2013) while the other project used the “Lab” approach (Koskinen et al., 2011) to situate the design intent and for the exploration of the design brief. However, since both projects were conducted as a part of a short studio course, the process followed used experimental research methods and explored thematic areas using rapid prototyping and design exploration.

A. Project 1: Participatory Cultures

1) Snapshot 1: Initial Explorations

The first snapshot highlights the initial investigations and design concepts that were built to explore the concept of participation. To narrow down the focus of the concepts, an initial brief was agreed upon in the team — “*exploring the role of code based generativity in participation and culture*”. After initial ideation and discussions around multiple concepts three were selected for initial prototyping using cardboard and Littlebits (“littleBits,” n.d.): Imperfect tools (Figure 1), Lonely booth (Figure 2) and Photo booth (Figure 3). Imperfect tools focused on visual art in a very direct manner by adding computationally aided tools for designers and artists. The aspect of generativity was explored by adding behavioral traits to the object, in this case, shyness (the object moves away when approached and draws while moving away). Lonely booth played on notions of spying and surveillance and forced and/or implicit participation and using that to connect people by making random phone calls on detecting presence. Lastly, Photo booth was another exploration on the notion of forced

participation and generativity by having the photo-booth interpret the photograph taken and sharing visual and textual interpretations instead of the photographs taken. The form and finish of the prototypes wasn’t critical during this phase and the prototypes were used as a means of exploring possibilities and themes within the brief. The concepts and themes explored in this phase were also informed by real world incidents collected in the form of a newspaper collage.

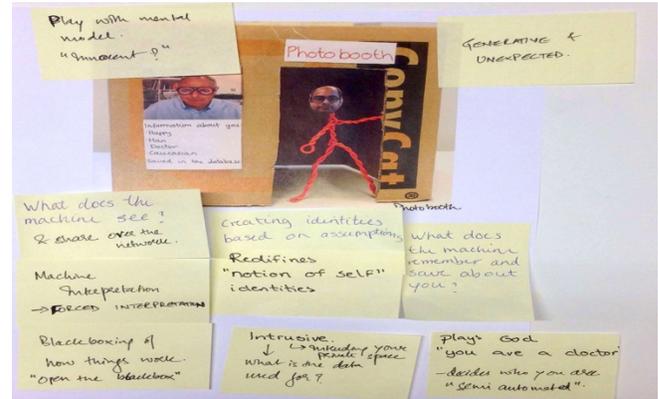


Figure 1. Annotating the Photobooth cardboard prototype.



Figure 2. Annotating the Lonelybooth cardboard prototype.

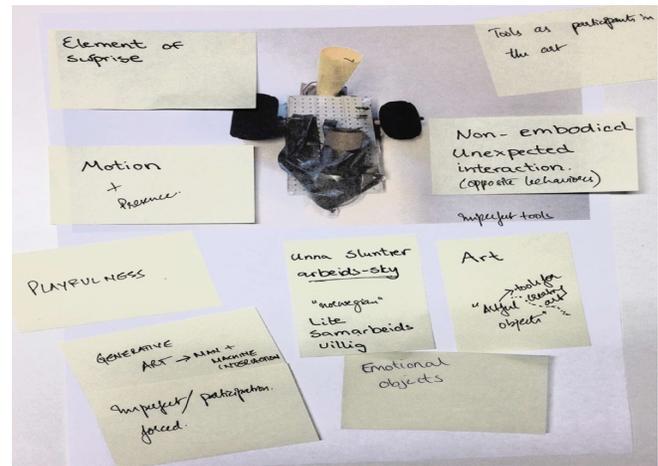


Figure 3. Annotating the Imperfect tools prototype.



Figure 4. Clustering annotations to uncover common themes



Figure 6. Comparing clustered annotations to snapshot 2.

2) Snapshot 2: Form Exploration

The second snapshot highlights the second stage of the prototyping process where the design explorations converged to a single prototype focused on form explorations. The prototype annotated here, Anti monkey (Figure 5), developed and built on the concepts and ideas evaluated in the first stage of the prototypes. Here the brief was refined to be a little more specific - “*generativity explored through semi automated devices and the nature of participation (intentional and unintentional) in such cases.*” Ideas of implicit participation through semi-autonomous devices were developed further and provocation was also discussed as a major theme. The prototype was meant to record conversation snippets and link them to recognized faces and print them out as co-related facts. These printed facts would be freely available for anyone to pick up and read. This along with the striking ‘human inspired’ forms were a critical and provocative take on always on devices and constant interpretation and implicit surveillance.



Figure 5. Annotating the Anti Monkey prototype.

3) Snapshot 3: Final Prototype - Hearsay

The third snapshot highlights the final stage of the prototyping process. Based on our form explorations in snapshot 2, some of the ‘human inspired’ forms were integrated into the design of a final prototype. The brief redefined in the second stage was kept the same, but the direct provocation was downplayed. In this prototype the machine interpretation of people was ‘black-boxed’. More precisely, it was physically hidden behind the shape of an ordinary lamp that could be placed in people’s homes. The lamp is intended to be perceived as playful by offering people a possibility to say ‘hello’ to it and it will politely answer them back. Within the lampshade there are other functionalities hidden, but easily accessed by people. The mentioned initial playfulness is in sharp contrast to the intrusiveness of the hidden functionalities. If the lampshade is lifted up, then they see the ear moving, the mouth and the screen visualizing how the machine interprets and stores what people talk about in the presence of the lamp. This final prototype is intended to expose and explore the nature of semi-autonomous human machine participation and to inspire reflections about machine involvement in people’s everyday lives.

4) Discussion: Annotations through time

Figure 1-3 show the design and theoretical considerations explored in each prototype individually as annotations. Figure 4 highlights the overlaps in these considerations by clustering annotations. This shows how some approaches and considerations start to take precedence over others through material exploration and prototyping. Some of the common themes that emerged from clustering common themes in the annotations were ‘forced machine participation’, ‘black-boxing’, ‘innocent looking’ (or neutrality in forms), ‘always on’, ‘generative’ and ‘connected’. These themes highlight an underlying interest in the generative behavior of semi automated machines and the nature of their participation in our culture.

Moreover, in conjunction with the prototypes annotated, they also underline a critical outlook towards networked and

always on devices. Lastly, common annotations like ‘unexpected’, ‘generative’ and ‘intrusive’ also highlight modes of interaction that the team was gravitating towards.

Figure 5 and 6 highlight how common themes and considerations were carried over into an artifact that looks completely different visually yet retains much of the same interactions and conceptual traits. Concepts like ‘innocent looking’ (or neutrality in forms), ‘always on’, ‘generative’ and ‘connected’ were carried forward while ‘forced machine participation’ evolved into an investigation into machine senses and interpretation through correlation. Building on the previous phase, more critical and provocative modes of interaction expressed through random correlation and highly visual and evocative forms were explored.

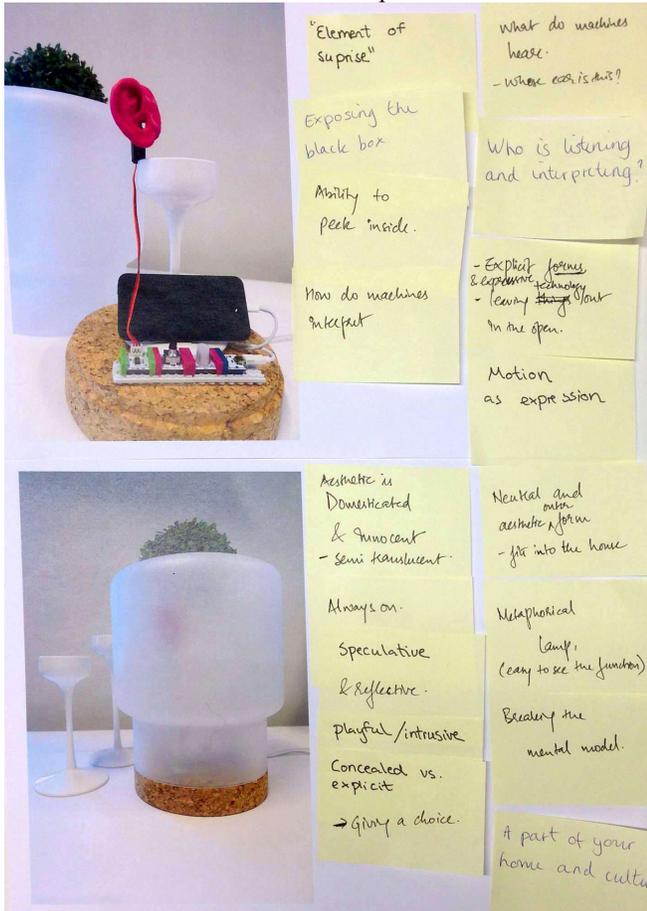


Figure 7. Annotating the Hearsay (final) prototype

In this last step in the annotation process (see figure 7), it is apparent that even though the design looks new from the perspective of the form and aesthetics, the embodied themes and considerations expressed in the annotations are still common; in fact, they can be seen as recurring to various degrees from the earlier annotated prototypes. At the same time, we can see how form and aesthetic considerations affect the nature of the designed object itself, allowing for the highly provocative and overt form to be situated in a domestic context. It can be seen how, in this snapshot, the

design intent moves back to more reflective and speculative themes rather than being overt and critical as in snapshot 2.

B. Project 2: Everyday Sustainability

The design concepts in this project were focused on the topic of sustainability, exploring approaches for enabling, promoting or imagining sustainable practices in everyday life.

1) Snapshot 1: Emotional Devices

This prototype was built to explore the concept of emotional devices. The concept in focus was that of reactive objects which when left unused for a long period of time, highlighting the unused commodities in a household and getting the attention of the owner. Figure 8 shows the exploration of this interaction, where two artifacts represent the two objects. When the user approaches and spends sometime interacting with one of the artifacts the other artifact begins to move away. Littlebits (“littleBits,” n.d.) were used as a prototyping tool for creating the interaction of moving away from someone when upset. The act of moving away was chosen to quickly recreate a more human reaction with the resources at hand in the studio. A secondary exploration was more focused on the prototyping tool (Littlebits) itself, to get an understanding of the potential of the tool itself. This was important as the interim iterations before the final concept had to be prototyped fairly fast and present a convincing picture of the concept to further or reject the idea. Wireless technology for communication between the two instances to hide the technology in order to visually portray the act of moving away as an intelligent behavior rather than a technologically enabled one, essentially to hide the technology itself. Color and form of the prototypes were not relevant at this stage as they were not required to convey the intent.

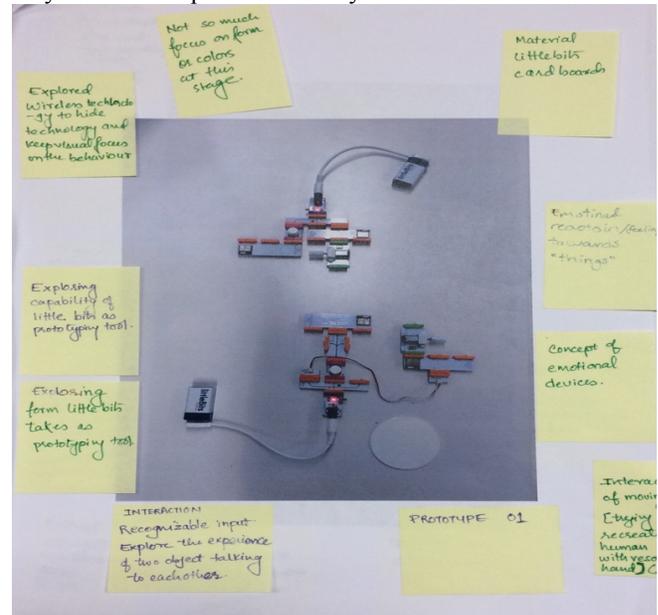


Figure 8. Annotating the Emotional Devices prototype

2) Snapshot 2: Form & Concept Exploration

This snapshot comprised of prototypes of three different concepts. The goal was to use prototypes to visualize concepts in a tangible manner to reflect on the concept and the scope of exploring and presenting the concept.

a) The Slot Machine

The slot machine used fun interactions as a way to get attention towards sustainable use of the things users own. The concept revolved around users putting things they no longer used into the slot machine and getting an object given away by others. The concept was intended to make people experience the idea of using second hand things. The form of a slot machine is meant to function as a metaphor and to create a familiarity leading to awareness. The other metaphors associated with slot machine, which were important for the concept, were fun and attractive, give something and get something back and the element of surprise.

b) The Donor Phone

The donor phone explored ideas around encouraging and facilitating reuse. This exploration used modularity as a means of reuse and waste reduction. The prototype attempted to visualise the link between convenience and sustainability through reuse. *One of the key aims of the low fidelity prototypes was to create a sense of reality of the concept for the designers who made the prototype as burden of constant mental visualization and help focus on working on instance that now exists physical (reframe).* Similar to the slot machine, the form of the donor machine imitates the form of existing mobile phones and adds modularity to it. Although the designers discovered that this concept has been and is being currently explored, the annotation of ease of use and seamlessness was a key insight from this model.

c) Subjective Value System

This was a speculative concept where the designers explored the approach of exposing information and inviting reactions or reflection from the users rather than solving a problem. A camera and radio were imagined in this scenario such that the lifespan of these objects were reflected on the outside. Although there was no way to predict the technology or parameters to establish this information but evaluating if users will make different purchase choices if information such as value in terms of lifespan was easily track able in contrast to present real world scenario.

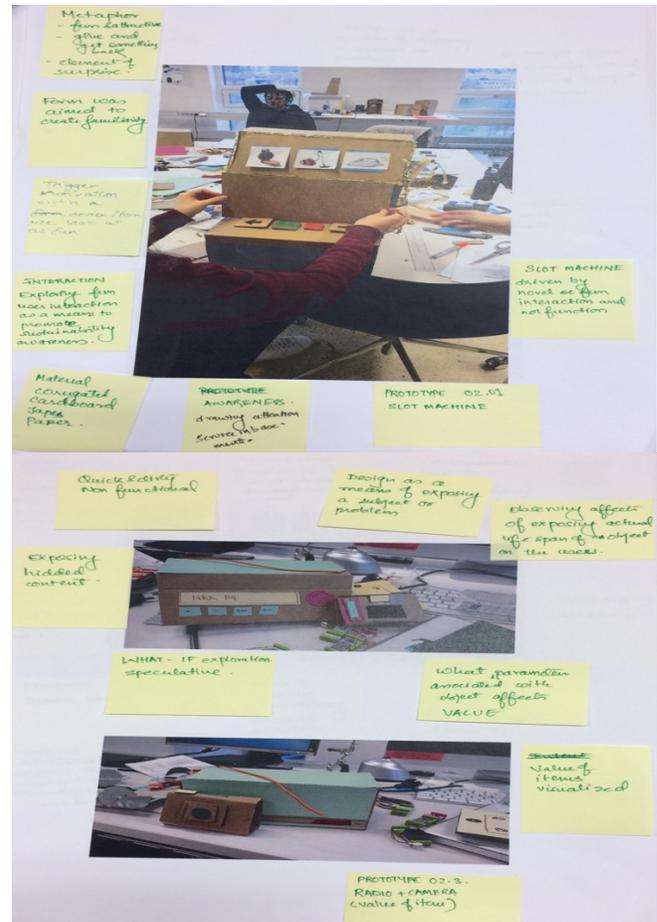


Figure 9. Annotating the prototypes created for form and concept exploration

3) Snapshot 3: Buybit

The final concept focused on second hand use but the approached the topic of sustainability by enabling second hand use as a practice through an easy service (Vezzoli and Manzini, 2008). Buybit was not designed as a completely use oriented service for facilitating sales and purchase of second hand goods. Rather it was used as a means of speculation about the nature of an object as a means to make second hand goods available for use visible to the user. It uses the metaphor of polite and informed suggestion of becoming sustainable and also enabling the sustainable action if the user chooses to do so. The object aims to be portrayed as non-intrusive, fitting into user's activities without disruption. It aims at creating small moments of reflection from the user in use through playful interactions. The form of the Buybit is intended for portability, to align with the intent of simplifying the ways to access second hand goods. The device also positions itself on the threshold to enable the use of goods locally available to the user.



Figure 10. Annotating the buybit prototype

4) Discussion: Annotations through time

IV. DISCUSSION

V. CONCLUSION

REFERENCES

- Bardzell, J., Bardzell, S., 2013. What is “Critical” About Critical Design?, in: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, CHI '13. ACM, New York, NY, USA, pp. 3297–3306. doi:10.1145/2470654.2466451
- Bowers, J., 2012. The Logic of Annotated Portfolios: Communicating the Value of “Research Through Design,” in: Proceedings of the Designing Interactive Systems Conference, DIS '12. ACM, New York, NY, USA, pp. 68–77. doi:10.1145/2317956.2317968
- Cross, N., 2011. Design Thinking: Understanding How Designers Think and Work. Bloomsbury Academic, Oxford ; New York.
- Dunne, A., Raby, F., 2013. Speculative Everything: Design, Fiction, and Social Dreaming, 1st edition. ed. The MIT Press, Cambridge, Massachusetts ; London.
- Findeli, A., 1998. Will Design Ever Become a Science? No Guru No Method Discuss. Art Des. UIAH Hels. Finl.
- Frayling, C., 1994. Research in Art and Design (Royal College of Art Research Papers, Vol 1, No 1, 1993/4) [WWW Document]. URL <http://researchonline.rca.ac.uk/384/> (accessed 11.26.15).
- Gaver, B., Bowers, J., 2012. Annotated Portfolios. interactions 19, 40–49. doi:10.1145/2212877.2212889
- Gaver, W., 2012. What Should We Expect from Research Through Design?, in: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, CHI '12. ACM, New York, NY, USA, pp. 937–946. doi:10.1145/2207676.2208538
- Höök, K., Löwgren, J., 2012. Strong Concepts: Intermediate-level Knowledge in Interaction Design Research. ACM Trans Comput-Hum Interact 19, 23:1–23:18. doi:10.1145/2362364.2362371
- Jonas, W., 2007. Design Research and its Meaning to the Methodological Development of the Discipline. Des. Res. Now 187–206.
- Kolko, J., 2009. Abductive Thinking and Sensemaking: The Drivers of Design Synthesis. Des. Issues 26, 15–28. doi:10.1162/desi.2010.26.1.15
- Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J., Wensveen, S., 2011. Design Research Through Practice: From the Lab, Field, and Showroom. Elsevier.
- littleBits: DIY Electronics For Prototyping and Learning [WWW Document], n.d. URL <http://littlebits.cc/> (accessed 7.31.15).
- Löwgren, J., 2013. Annotated Portfolios and Other Forms of Intermediate-level Knowledge. interactions 20, 30–34. doi:10.1145/2405716.2405725
- Stolterman, E., 2008. The nature of design practice and implications for interaction design research. Int. J. Des. 2, 55–65.
- Vezzoli, C.A., Manzini, E., 2008. Design for Environmental Sustainability, 2008 edition. ed. Springer, Berlin ; London.
- Wolf, T.V., Rode, J.A., Sussman, J., Kellogg, W.A., 2006. Dispelling “Design” As the Black Art of CHI, in: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, CHI '06. ACM, New York, NY, USA, pp. 521–530. doi:10.1145/1124772.1124853
- Zimmerman, J., Forlizzi, J., 2014. Research Through Design in HCI, in: Olson, J.S., Kellogg, W.A. (Eds.), Ways of Knowing in HCI. Springer New York, pp. 167–189.
- Zimmerman, J., Forlizzi, J., Evenson, S., 2007. Research Through Design As a Method for Interaction Design Research in HCI, in: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, CHI '07. ACM, New York, NY, USA, pp. 493–502. doi:10.1145/1240624.1240704