

EMPOWERING NON-DESIGNERS THROUGH ANIMATION-BASED SKETCHING

ARTICULATIONS

DANWEI TRAN LUCIANI

LINKÖPING UNIVERSITY

DANWEI.TRAN.LUCIANI@LIU.SE

DYNAMICS

PETER VISTISEN

AALBORG UNIVERSITY

VISTISEN@HUM.AAU.DK

ABSTRACT

This paper asks whether it is feasible and valuable to facilitate early stakeholder involvement in the design process by applying animation as a common temporal sketching language. We build on the notion of sketching as an efficient activity for designers to think with and communicate ideas through. Not much research has sought to involve non-designers in the sketching process and assess which sketching media might be suitable for this purpose. We present the findings and learnings from a one-day workshop of using animation-based sketching techniques with non-designers as a way to empower them in the early concept exploration phase. We then discuss whether animation could be a suitable mediator of the sketching mind-set in stakeholders with varying preconditions for participating in the early exploratory phase of design.

INTRODUCTION

Sketching has been broadly recognized as the principal expressive activity in design for opening up design spaces and exploring possible futures by posing ‘what if’ questions (e.g. Jones 1992; Fallman 2003; Buxton 2010; Vistisen 2015). It has been extensively documented how a designer engages in a reflective conversation with a sketch and is able to gather new

insights from the materialized thought compared to what was present prior to the creation of the sketch. This seminal piece of knowledge examines sketching as understood as something done with pen and paper (e.g. Schön & Wiggins 1992; Goldschmidt 1994; Goel 1995; Ferguson 1994). However, in Buxton’s (2010) much cited work about sketching within design, it is argued that sketching should be defined by *how* a technique is used, rather than *what* the technique is. From this, Buxton derived a continuum of criteria differentiating sketching from more time-consuming and committal prototyping. The criteria emphasize the evocative, explorative, non-committal, and tentative nature of sketches. Thus, a sketching technique needs to be fast, easy and create disposable outputs. In a later work, Vistisen (2016) has aligned this with the early need in the design process to reduce uncertainty about which design possibilities exist, whereas prototyping serves the later need to reduce the complexity among a wide palette of design alternatives.

Recent works from the latest decade have opened the sketching discourse to encompass various other expressive media, such as artifacts (Jørgensen & Strand 2014), the body (Oulastira et al 2003; Arvola & Artman 2007), video (Ylirisky & Buur 2007), and even programming code (Lindell 2012; Forsén et al. 2010). These explorations into other expressive formats for sketching have been largely driven by an attempt to find suitable ways for early explorations within the domain of interaction design. Fallman (2003) described the sketching challenge of interaction design as being caused by the discipline’s explicit focus on expressing experiential factors such as interactivity, temporality, and immersiveness in addition to the examination of the aesthetic form and rational function of the designed object. In that sense, as also noted by Löwgren (2004), a sketch in interaction design needs to both be static and temporal at the same time, while avoiding turning into ‘the product’ itself.

The challenge with sketching within interaction design becomes even more evident when the explored design involves technologies or interaction concepts which lack established conventions or interaction idioms – what Löwgren (2016), Lindell (2012) and Vistisen (2016) discussed as being non-idiomatic design situations. In these situations, the lack of temporal information makes it hard to fill the gaps of a sketch suggesting how the interaction design might work. That is, the lack of experiential idioms of conventions make it harder for designers to mentally simulate the effects of the sketched output.

One promising approach to accommodate temporal sketching within interaction design is to leverage animation as a sketching capacity. The principal advantage of animation is the ability to achieve ‘full control’ of the transitional material, as opposed to traditional film (Stephenson 1973). Adapting animation as a sketching capacity originates from over a century of development in animation techniques, but distinguishes itself from the aesthetic and storytelling ambitions of traditional animation or art films (Wells 1998). Instead, animation-based sketching has been proposed as a way to pose the designerly ‘what if’ questions about possible futures through the temporal information gained from animation (Vistisen 2016). Using animated motion in design was proposed earlier by e.g. Vertelney (1989) and Mackay (1988), though they clearly marked the use of animation as a way to augment video by creating a high visual and temporal fidelity. This could hardly be labeled as ‘sketching’, but is more a means of prototyping. Later, Löwgren (2004) proposed the use of short and sketchy animated user scenarios to gather feedback in the fuzzy front-end of design. Similar accounts can be found in the works of Zarin et al (2012), Fallman & Mousette (2011) and Bonanni & Ishii (2009), who applied stop-motion techniques, and Eikenes (2010) who applied computer animated motion graphics to explore interface interactions. Furthermore, Quevedo-Fernández et al (2012), Davis et al (2008) and Sohn & Choy (2010) all experimented with creating specific digital tools for animation-based sketching. Vistisen (2016) built upon these results, with a broader empirical examination of more than 200 designers and design students using various fidelities of animation for sketching, and formulated a set of principles for animation-based sketching as a design approach. Sketching seems like a promising way to empower designers in non-idiomatic design situations (Tran Luciani & Lundberg 2016), and the research into animation-based sketching has shown its potential as a temporal and narrative sketching tool for such design situations. However, prior contributions on animation-based sketching all fall into the category of being primarily ‘designer-driven’ (Sanders & Stappers 2008) and focus on introducing the approach to people with design skills. How are we to proceed when earlier boundaries between design disciplines and other stakeholder disciplines are becoming more permeable? Could non-designers, such as developers or business

analysts for example, also be empowered and get a creative voice through extended sketching techniques, like animation-based sketching? In an attempt to shed some light on this question, we have experimented with how non-designers can create a common space to explore new non-idiomatic design situations through animation-based sketching.

THE WORKSHOP

We needed an experimental setup to work with participants with limited design knowledge who might be considered possible stakeholders in an interaction design process. To do this, we organized a one-day workshop on animation-based sketching in collaboration with the annual developer conference Øredev (Øredev 2016a), which took place in Malmö, Sweden. Eleven participants from five different countries signed up to learn how to use animation-based sketching as a method to explore and communicate early concepts. The workshop was divided into a series of blocks from 9.00 to 17.00, starting with an introduction to sketching, moving on to hands-on work, and ending with a critique session.

The only prerequisites listed for the workshop were for the participants to bring their own laptops with the video editing software Adobe Premiere installed and an “open mind to explore the early fuzzy front end of design” (Øredev 2016b). Prior to the workshop, we sampled the participants’ backgrounds and their proficiency in sketching. It is fair to say that most of them were unfamiliar with sketching even in general, with two of the participants working with design and characterizing themselves as not being highly proficient in sketching, and the rest being developers.

The workshop started with a presentation of the fundamentals of design sketching, followed by a 20-minute warm-up exercise in traditional sketching with pen and paper, all in order to prepare them for both the rapid pace of sketching as well as its non-committal nature. The exercises were built from the lessons of e.g. Greenberg et al (2012) and McCloud (1994), in which basic geometric shapes are gradually created and combined to form basic idiomatic figures (such as faces, devices, household items, and so forth). At the end of the exercise, the participants were asked to combine these idiomatic figures into scenarios of their morning routines as a way of introducing the notion of temporality to their sketching mind-set (Figure 1). By moving from scribbling lines and shapes, to combining them into figures, and to storytelling, we tried to encourage expression through sketching, and prepare them for adding extra temporality through animation. The emphasis in the exercise was to build a ‘sketching’ not ‘making art’ mind-set in which the skill to rapidly sketch idiomatic assets is established, forming the basis for animation-based sketching techniques to come.

participants might have been to learn the sketching technique and get familiar with the sketching media, the sketches produced in the process were well-made considering the limited resources. Each group produced rather expressive sketches using the same materials, case, and timeframe. This provides some basis for claiming that animation-based sketching is feasible to introduce as a co-design tool for non-designers as a way to empower them to explore non-idiomatic design situations.

When they were creating assets and making the stop-motion frames using analogue material and lightboxes, they were all familiar with the materials. The lightbox was self-explanatory and all participants quickly mastered its usage. When they continued on to the next stage, where they were to put together their stop-motion frames and sketch temporality, the progress slowed down. The reason could be because the sketching tool, Adobe Premiere, was not self-explanatory and easy to grasp. The software is not primarily intended to be used for creating animation-based sketches, and its interface presents many available functions that may not even be relevant for sketching. If a tool for sketching temporality had been made for this purpose, or at least if the options available had been limited, perhaps it would have been easier to focus on adopting the sketching technique. We could have provided kits with premade sketching assets, but that might have affected participants' design concepts. If the workshop had included another iteration, the participants would have been more familiar with the sketching media and be more equipped to use Adobe Premiere as a sketching tool. With their newly gained animation-based sketching literacy along with increased user proficiency in the production tools, perhaps more time is all that is needed.

In conclusion, we propose this as basis for further experiments to be carried out with introducing animation-based sketching as a way to empower non-designers in the early design process. This includes introducing some ready-made idiomatic assets, and limiting the creation of sketching assets to the non-idiomatic aspects, as well as building up a more developed sketching language in the production environments used to sketch animation. In addition, it would be interesting to see how this would play out in a real-world design situation compared to a constructed workshop setting, as described in this paper.

REFERENCES

- Arvola, M. and Artman, H. (2007) 'Enactments in interaction design: How designers make sketches behave', *Artifact*. 1(2), pp.106-119.
- Bonanni, L. and Ishii, H. (2009) 'Stop-motion prototyping for tangible interfaces', *Proceedings of the 3rd International Conference on Tangible and Embedded interaction*, 2009. ACM, pp.315-316.
- Buxton, B. (2010) *Sketching user experiences: getting the design right and the right design*. Morgan Kaufmann.
- Davis, R.C., Colwell, B. and Landay, J.A. (2008) 'K-sketch: a kinetic sketch pad for novice animators', *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, April 2008, ACM, pp.413-422.
- Eikenes, J.O. (2010) 'Connecting motion form to interface actions in web browsing: Investigating through motion sketching', *FORMakademisk-journal for design and design education*. 3(1).
- Fallman, D. 2003. 'Design-oriented human-computer interaction', *Proceedings of the SIGCHI conference on Human factors in computing systems*, April 2003. ACM, pp.225-232.
- Fallman, D. and Moussette, C. (2011) 'Sketching with stop motion animation', *Interactions*, 18(2), pp.57-61.
- Forsén, G., Lundin, T. and Löwgren, J. (2010) Pinpoint: A Design Study in Interactive Visualization for Finding People in a Large Organization, *Information Visualization*, 9(2), pp.141-151.
- Gaver, W. (2012) 'What should we expect from research through design?' *Proceedings of the SIGCHI conference on human factors in computing systems*, May 2012, ACM, pp.937-946.
- Goel, V. (1995) *Sketches of thought*. MIT Press.
- Goldschmidt, G. (1994) 'On visual design thinking: the vis kids of architecture', *Design studies*, 15(2), pp.158-174.
- Greenberg, S., Carpendale, S., Marquardt, N. and Buxton, B. (2011) *Sketching user experiences: The workbook*, Elsevier.
- Jones, J.C. (1992) *Design methods*, John Wiley & Sons.
- Jørgensen, K. M. and Strand, A. M. C. (2014) *Material storytelling*, Nova Science Publishers, Incorporated.
- Lindell, R. (2012) 'Pining for the Materiality of Code', *From Materials to Materiality: Connecting Practice and Theory in HCI*, Workshop at the 2012 Conference on Human Factors in Computing Systems (CHI) conference, 2012, Austin, ACM.
- Löwgren, J. (2004) 'Animated use sketches as design representations', *Interactions*, 11(6), pp.22-27.
- Löwgren, J. (2016) 'On the significance of making in interaction design research', *Interactions*. 23(3), pp.26-33.
- Mackay, W.E. (1988) 'Video Prototyping: a technique for developing hypermedia systems', *CHI'88 Conference Companion Human Factors in Computing Systems*, April 1988.

- McCloud, S. (1994) *Understanding comics: the invisible art*. William Morrow.
- Oulasvirta, A., Kurvinen, E. and Kankainen, T. (2003) 'Understanding contexts by being there: case studies in bodystorming', *Personal and ubiquitous computing*, 7(2), pp.125-134.
- Quevedo Fernandez, J., Schouren, J.M. and Martens, J.B.O.S. (2012) On the development of idShare, a platform to support interaction design activities of small co-located teams.
- Sanders, E.B.N. and Stappers, P.J. (2008) 'Co-creation and the new landscapes of design', *Co-design*. 4(1), pp.5-18.
- Schön, D. A. and Wiggins, G. (1992) 'Kinds of Seeing in Designing', *Creativity and Innovation Management*. 1(2), pp.68–74.
- Stephenson, R. (1973) *The Animated Film*, Tantivy Press.
- Tran Luciani, D. and Lundberg, J. (2016) 'Enabling Designers to Sketch Immersive Fulldome Presentations', *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, May 2016, San Jose, ACM, pp.1490-1496.
- Vertelney, L. (1989) 'Using video to prototype user interfaces', *ACM SIGCHI Bulletin*, 21(2), pp.57–61.
- Vistisen, P. (2015) 'The Roles of Sketching in Design', *Nordic Design Research (Nordes)*.
- Vistisen, P. (2016) *Sketching with animation: using animation to portray fictional realities – aimed at becoming Factual*, Aalborg Universitetsforlag.
- Wells, P. (1998) *Understanding Animation*, Vol. 1998, Routledge.
- Ylirisku, S. and Buur, J. (2007) *Designing with Video: Focusing the User-centred Design Process*, Springer Publishing Company Incorporated.
- Zarin, R., Lindbergh, K. and Fallman, D. (2012) 'Stop Motion Animation as a Tool for Sketching in Architecture', *Proceedings of DRS, 2012*.
- Øredev. 2016a. *Øredev 2016*, [Online], Available: <http://www.oredev.org/2016> [30 March 2017]
- Øredev. 2016b. *Session*, [Online], Available: <http://oredev.org/2016/sessions/experience-how-animation-based-sketching-can-help-you-develop-your-early-concepts> [30 March 2017]