Widening the Experience of Artistic Sketchbooks

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Abstract. Artist's sketchbooks may provide important insights into the genesis of the finished works and may also contain artworks that are at least as interesting and sometimes even more fascinating and fresh. However, sketchbooks are delicate and problematic exhibits; displaying them in a showcase leaves at most two pages visible, and allowing visitors to handle the books does not make sense. This paper describes an interactive, virtual sketchbook technology intended for the display of books which, at the same time, is faithful to the original book and provides an enhanced spatial experience, a gigantic pocketbook which you may seem to enter spatially and bodily. The installation has been shown at The Italian Culture Institute in Copenhagen (2011), two public libraries (2012-13), two Danish art museums (2014), and the Book Fair in Bella Center, Copenhagen (2015).

Key words: Interactive installation, gigantic format, bodily experience, visuospatial innovation, art exhibitions, sketchbooks, digital experience

1 Introduction

"Culture is habits" the Danish historian and Minister of Culture, Hartvig Frisch, claimed as the opening remark of his famous book "History of European Culture" [2]. What you experience meeting our (possibly) giant sized innovation, an up to four meters high interactive sketchbook, is a highly deliberate break of habits in dealing with books. From the dimensions of the book and the close distance to it, follows the fact that the field of viewing cannot be focused entirely simultaneously, knowing that our sharp view only covers little of the entire field of vision in our horizontally oriented stereo view [3, p. 113 ff].

Different media represent different potentials for experiencing space. Different media also offer different use of your body during spatial experience and familiarization. One of the greatest masters in relation to create fascination is the Danish poet Hans Christian Andersen. He very often used the parameter of size to provoke and engage our imagination. He often makes the diminutive gigantic and vice versa. An ordinary window frame can be transformed into a whole world or universe of its own. In the "The Tinder-Box", Andersen let no less than tree spatial monsters of dogs loose, the copper, the silver, and the gold protector. The size of the dogs grows bigger with the value of their protections, leading to their terrifying huge eyes. Humans in general and academics in particular pay little attention to the phenomenon of the common presence of their

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body as a basic precondition for our common and more specific behavior [8], a point of view that is sharply underlined by French phenomenologist philosopher Maurice Merleau-Ponty, who writes in "Phenomenology of Perception" [9]: "We must therefore avoid saying that our body is in space, or in time. It inhabits space and time" (p. 139). This "inhabitation" of space and time is central for understanding the experiencing person's interaction, responding to spatial signals and spaces and turning pages in an ongoing activity, getting access to the inside of the drawings, being intertwined with the life of the huge pages. "I am not in space and time, nor do I conceive space and time; I belong to them, my body combines with them and includes them. The scope of this inclusion is the measure of that of my existence" (p. 140). The experiencing person gets an opportunity to be included in an existential "being in the world" following his or her body's own concrete body-experience of being alive. As such, humans experience the surrounding world depending of the position of their body in exactly that world: "It is a space measured from me as point zero of the spatiality. I do not see the space from outside as an outer shell, but I experience it from inside, being surrounded by it. All in this world is not in front of me, but around me" [10, p. 41]. The bodily rooted phenomenon of "being inside" or "part of" the world being around us rather than in front of us is addressed spatially strongly in our interactive sketchbook project.

We describe and develop an interactive installation technology that appears as a huge book, of potentially unlimited size. It provides innovative and unseen opportunities for displaying artists' sketchbooks as part of art exhibitions, as well as a platform for innovative typologies of artworks.

Related Work & A Possible Pre-Historic Connection

Museums of various kinds use increasingly interactive technology to attract a larger audience and to indicate a continued development of their exhibitions. Interactive installations may be artworks themselves or be vehicles for displaying existing art. A good systematic analysis of the potentials of the first category is found in Kwastek's recent book [5], and we find it also very useful for the second. At first glance, our installation may belong to the second kind but borders are crossed when we develop content, such as drawings, specifically for the installation. Our physical set-up, explained in Section 3, with two projectors pointing into a corner is very similar to that of [4], developed for gaming – for which our discussion of Maurice Merleau-Ponty also will apply; see [11].

The habit of depicting important objects in our surrounding world is universal for humans, as demonstrated so clearly by the cave painters. The Paleolitics', i.e., our cave painters', experiences inside the caves are interesting phenomena to bring forward in relation to experiences with a huge, virtual book. Certain spatial phenomena related to their being in the caves may foster comparative analyses of aspects of the two forms of performances taking place inside the caves and in our book installation. Caves are dark in general (also preferred for the present installation, but not total darkness) so the cave painters themselves had to bring lights to be able to orient themselves, to work and create. The cave

painters have been: "inside", simultaneously surrounded and bodily mobile, interactively occupied of the substance of the rockwall of chalk they scratched in, drew and painted on. To specify present-day perceptions, we point at three typical different ways of experiencing sketchbooks as phenomena. They are named according to the body position of the involved person.

– "Outside the sketchbook" has got the natural quality, like any other minor thing, that the book as handheld is an entity you can grip and in most cases turn pages in and, if you make drawing, visualize impressions in.
– "Towards the sketchbook". For many other media a raised body position is the most characteristic, looking at a stationary computer screen, TV or a film.
– "Inside the sketchbook". The dimension of size is highly important here and that your bodily position is quite close to the depictions. Figure 1 shows a sketch of one of the dimensions of being inside the book.

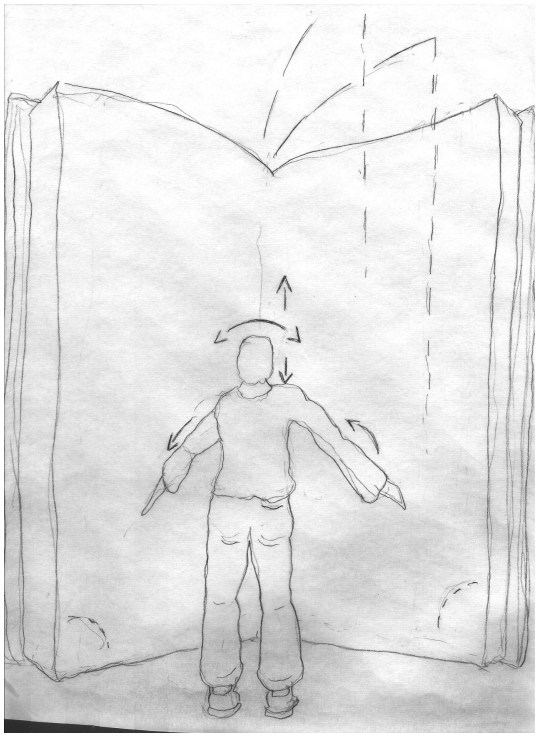

Fig. 1. An oversize book installation may materialize the sense of being inside the book, transforming Hans Christian Andersen's imaginations into spatial perceptions. The biggest version of our Viskbook installation is H=4.2m, W=2x3.2m.
(Drawing: B.Laursen)

2 Sketchbooks, What and Why

For the artist, a sketchbook may always be at hand, using it as a medium for collecting immediate perceptions and ideas, it can preserve a figurative freshness that is often difficult to transfer in the studio later. It is a flexible, semantic memory media combining multiple elaborated sketches, notes of impressions etc.

For the interested audience, sketchbooks are a wonderful source for meeting and experiencing the creation process for the completed and perhaps famous paintings. It provides also original insights into the artist's life and life time, which in turn deepens the general understanding of the artist's œvre.

However these books are rarely opened and almost never displayed for the audience. Tragically many sketchbooks reside in the eternal darkness of collections in safety boxes. The Viskbook installation makes it possible and easy to exhibit these books, giving the audience access to their complete contents. All over the world, we find this problem, and we see a large potential and upcoming demand for satisfactory solutions.

3 The Viskbook Technology

Our proposal for a technology that fulfils this purpose is the Viskbook[1] installation, which can be easily adapted to different contents and different sizes. The primary design goal has been to create a convincing illusion of an oversize book having a natural interaction of turning the pages in the book. In other words, even based on computer technology, it should not be experienced as a "computer installation", which means that help text, navigation tools, intelligent autonomy or the like are totally banished.

In order to make the installation accessible for a wide range of budgets and to make it easy to set up and take down, we have aimed at using payable and replaceable standard components, and minimize the physical requirements concerning the room and possible furniture. The standard set-up of a Viskbook fits into a corner in a room where two white-painted walls meet, typically but not necessarily in an angle of 90 °; alternatively two pieces of chipboard can be fitted to form a corner; see Figure 2. Two projectors are used, one placed at each edge, shooting at the opposite wall. The projectors need to be of the so-called short-throw type in order to produce a sufficiently wide angle, and they can be hidden by a screen as shown. The unavoidable geometric distortion is corrected by software. The figure shows also the typical position of a spectator, waving his or her hand in one or the other direction to turn a page, thus being able to go through the pages from one end to another or go a bit back and forth. Not shown in the figure are two loudspeakers behind the screens also hiding the projectors; in the basic version of Viskbook, sound is only used to produce a discrete "flap" sound when a page has been turned. In order to strengthen the illusion of the book as physical object, we use a 3D engine developed for computer games to

[1] `http://viskbook.com`

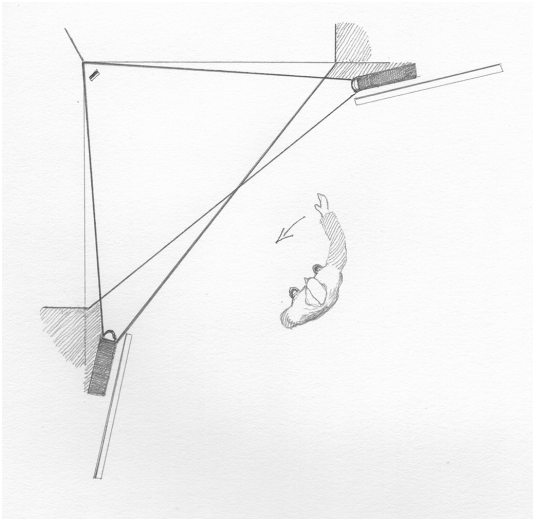

Fig. 2. A sketch of the Viskbook installation seem from above. (Drawing: B.Laursen)

obtain an effect as if the page is arching through the space in front of the book; see Figure 3. The choice of sensor for recognition of gestures for turning pages is

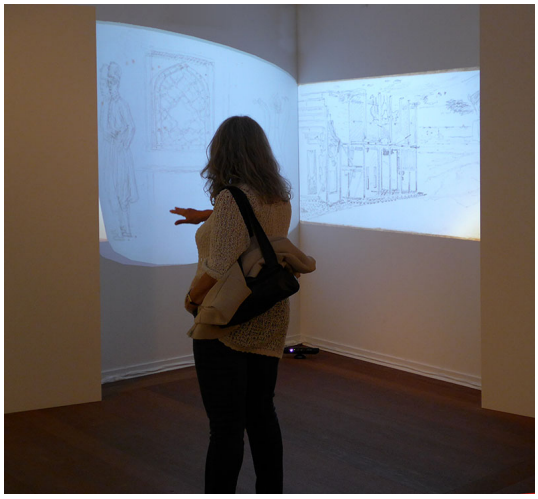

Fig. 3. The 3D effect used in Viskbook when a page is turned. (Photo: H.Christiansen)

not essential; the figure shows a Kinect sensor (developed by Microsoft for their Xbox 360 play station), but other devices have also been used. A standard laptop computer with two video outputs is sufficient to run the entire installation.

Technical Observations

From a technical point of view, the design principles seem robust and do their job. More specifically, we noticed the following.

- The 3D effect associated with the turning of a page is very convincing. The spatial design, using a real corner as opposed to a flat screen, gives a significant amplification of the computer generated and normally flat "3D images".
- Although we have made no comparative studies, it is our clear impression that the simple sound effect (the "flap") adds a lot to the feeling of materiality.
- This arrangement of the projectors with crossing beams shot into a corner eliminates completely any problems with shadows, that typically appear in installations using front-projection.
- A Kinect sensor located as shown in Figure 3 is difficult to calibrate so it perfectly fits all spectators (of different heights);[2] we are currently developing more reliable solutions with other sorts of sensors.
- The installation scales immediately to larger sizes; heights up to 4 metres have been tested in our laboratory. It will be a manageable software development task to scale to very large sizes with several synchronized projectors for each of the two pages. The real problem here will be fixing of the projectors and finding a suitable location for such an installation.
- A portable version of the Viskbook prepared in the lab can be set up and calibrated in a few hours, making it interesting also for fairs and other events.

Possible Extensions

The Viskbook technology as described above has been optimized for giving a faithful and respectful illusion of a given book. However, the technology provides a potential of going beyond what we normally expect from something that we designate "a book". The following ideas have been tested in our laboratory.

- Animated pages; e.g., a video or a drawing extended with cartoon-like effects.
- Content may be different sorts of images; we experienced that drawings are the most robust concerning the lighting condition and limited resolution of projectors, while photos and reproductions of paintings require more care.
- Adding real sound associated to the images in the book may be used without destroying the illusion of a material book.
- Cheating with the content of the book, so, e.g., going one page forth and one back again may yield a different view.
- Allowing spectators to manipulate the book content.

Using real sound has been tested in exhibitions with good results, while the others still need practical experimentation to prove their relevance. Obviously the use of such effects should be made with care, as on one hand maintain a believable materiality and on the other create interestingly enhanced experiences.

[2] Skeletal tracking (see `https://en.wikipedia.org/wiki/Kinect`) is avoided as the involved "exercises" for calibrating to each user would destroy the naturalness of using the installation as a book.

Fig. 4. A Viskbook installation in the Martinus Rørbye exhibition at Nivaagaard. The photo is taken during the exhibition, and shows how the installation creates a special attention and at the same time is an integral part of the exhibition. (Photo: H.Christiansen)

4 Experiences and Conclusions

The Viskbook has been shown publicly at the following events.

- Roskilde City Public Library, Denmark, May 8–mid June 2013. "Italian Drawings" by Bjørn Laursen; a virtual sketchbook composed of drawings from different cities in Italy: Rome, Naples, Venice and Florence.
- Istituto Italiano di Cultura di Copenaghen, November 22–December 20, 2013. "Italian Drawings" as above.
- Roskilde University Library, Denmark, September 1–30, 2014. "Italian Drawings" as above.
- Nivaagaard Art Museum and Øregaard Art Museum, Denmark. Viskbooks in two coordinated exhibitions showing comprehensive collections of Martinus Rørbye's work (Danish Golden Age painter, 1803–1852).
- National Libraries Cooperation Fair, November 4–7, 2015, Bella Center, Copenhagen.

At the Rørbye exhibitions [1], our installations displayed two specific sketchbooks, integrated as elements in larger exhibitions. This confirmed our hypotheses about a strong interest among the audience to discover the complex and varied content of the sketchbooks, and it complemented well the static exhibiting of authentic the works; see Figure 4. We experienced also that the presence of an interactive installation created new social interactions among the visitors, guiding each other in its use, leading to conversations about what was seen in the

book. In one exhibition a one-line instruction was given as part of the curator's introduction to the sketchbook; in the other, there were no instructions, but a circular marking on the floor indicating a recommended position for browsing the book. The pattern of use were the same in both cases: the visitors found out themselves. Focusing the sensor on the natural (and marked) position of the visitor "in control" of the book reduced confusion to a minumum in case of several visitors watching the book. We learned also that an ultimate robustness of the interaction is essential (as opposed to the "95% performance" of that version).

The Italian Drawings exhibitions displayed virtual books composed from several actual sketchbooks, selected in order to produce strong coherence. The location in rooms not dedicated to exhibition exposed that conditions of light were critical for the visual contrast and overall experience of the installation.

In all cases, we experienced a very positive interest for this type of installation, and further research may show whether this is due to novelty value only or true qualitative enhancements. As it appears, a more systematic evaluation of the approach is still to be done.

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