Digital Curation in a Mobile World

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Abstract: Digital curation is the structuration of digital art and cultural artefacts together with their descriptive metadata for purposes of study, learning and entertainment. This professional domain has gained new importance with the widespread use of portable computers, pads and mobile phones. This paper presents a case study of a physical exhibition that integrates with digital resources *in situ* and on the web, including mobile access.

Introduction

As Norway's national *memory bank*, the National Library of Norway (http://www.nb.no/english) is digitizing its entire collection. This comprises not only books and manuscripts, newspapers, pictures, maps and posters but also the bit streams of radio and selected television channels. The material is collected in order to be available for posterity, but also for current research and for the public at large. It is The National Library's policy ito reach its users wherever they are. The organization of such materials in order to experience and study them is digital curation.

We assume that these resources will be of increasing value in teaching and learning in both formal and informal educational settings. As a consequence, we see the development of digital curation as a new and important professional domain. This paper describes an experiment where we integrate curated access to factual resources and to their digital representations in stationary and ubiquitous modes.

Digital Curation

Digital curation denotes a subfield of cultural theory and practice which impacts schools and preschools, libraries, museums, archives, galleries, publishing houses, culture administration and management, social computing, cultural tourism, traditional and new mass media, etc. This is a reversal of a longwinded historical trail where the initial coherence between scholarship and collections was broken up. The rise of the modern university *segregated research and teaching from curation demoting the latter to a secondary, supportive role, and sending curators into exile within museums, archives, and libraries*. [DigitalHumanities 2009].

Figure 1 Learning by YouTube (inset: Origami rings)

Museums and archives are now developed into *interpretive environments* (Dempsey 2000) where artefacts are ordered, juxtaposed and integrated to enhance experience and understanding. Sometimes they are located in publicly available physical space. And more often than not, new developments are rooted in virtual space as a standalone resource or

to supplement and enhance the physical collections. As one consequence the modern museum may be tightly integrated with school and classroom activities. This also extends outside the school context. Figure 1 shows a 13-year old who learns the art of making artful rings by the origami or paperfolding craft. She learns from an instructional video on YouTube.

Digital curation is part of a new field that we may loosely referr to as the *digital humanities*. This is not in itself a well-defined subject area. We rather understand it as a multivalent interdisciplinary *tendency*, where multivalence refers to the ability of one activity or topical domain to integrate with added benefit with several anothers. This will always include *informatics* which is (precisely) the integration of computer science with some specific application area, - in this case the repsenenation and access to art and cultural heritage artefacts.
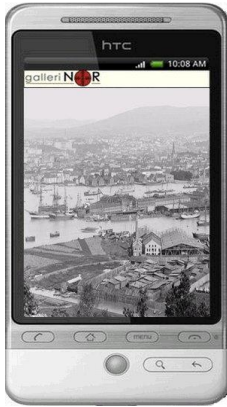
Vade Mecum – Go with me

Figure 2 Overview of Oslo harbour late 19th century

The Latin phrase *vade mecum* literally means *go with me*. It has also come to denote a *pocket dictionary*. As mobile phones have surpassed land lines in number and is now challenging the personal computers as a primary access point to the Internet, the phrase takes on new significance. How can online material become more accessible on these small screens and more relevant and usable in the contexts where they are used?

This is a current challenge for digital curators along with (digital) newspaper and book publishers, travel agencies, banks, universities, - you name it. As one example, consider the rendition of an older photograph of Oslo harbor taken from a vantage point in the Ekeberg hill recreational area (Galleri Nor 2010). It is part of a vast Natiional Library collection of such items. Compare this to a screen shot of the more traditional browser access to the same photographs (ibid.) The following is a potential use case for mobile access to this collection:

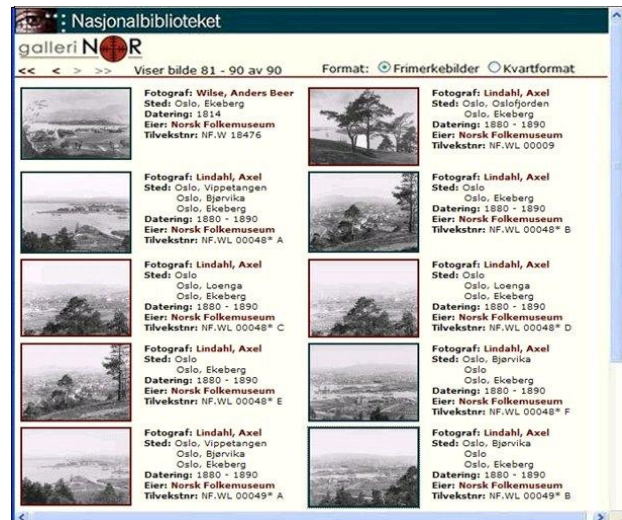*Imagine a group of foreign visitors to Oslo. A local host takes them on a hike to the Ekeberg hill. When they overlook the city with its old and new architecture, the panorama is enhanced with a quick search for historical pictures like these.One of the visitors might take a particular interest in the new opera house that dominates the current shoreline. A new search brings forth descriptions and a video of the areas's development. One may search by typing the relevant terms or maybe some pattern recognition software translates a picture that is taken with the phone camera into such input to the database.*

This illustrates how a mobile phone may add "intelligence" to an experience. Combining GPS or mobile tower location information with pictures and other input, the phone may look up pertinent information and display this as an overlay.

Figure 3, Web interface to Galleri Nor, National Library of Norway

But web pages may contain huge amounts of information. The mobile web site should therefore not only be a portable edition of the ordinary desktop version, even with the aid of reformatting software. It should offer an independently and well designed version that fits the format and contexts of use. A mobile web version may also act as an overview and a digest with links and references to the original web site. With the introduction of ubiquitous access to the digitized collection, there may thus be a need for holistic designs. The mobile solution should be of interest as a stand-alone *app*. But from the perspective of the digital curator, there will be a growing need for holistic designs that brings together the physical collection and various modes of digital acess.

The following is a description of an illustrative case.

Bjørson's Anniversary

The author-politican Bjørnstjerne Bjørnson (1832-1910) was a contemporary of the playwright Henrik Ibsen who is better known internationally. He was active as a writer, editor, and theatre director, as a national cultural icon in political battles and as the author of the Norwegian anthem. Together with Ibsen and two other writers he is regarded as one of the "four great" of 19th-century Norwegian literature. Bjørnson was awarded the Nobel Prize for Literature in 1903.

Since 2007 the National Library of Norway has been in charge of public events relating to personalities in the literary domain including the centennial of Bjørnson's death in 2010. This assignment was resolved by a combined physical and virtual exhibition of the author's work and we use this as our case study.

The exhibiton that was developed by The Norwegian National Library has five delivery modes:

Figure 4 Bjørnson exhibition floor plan, Norway National Library

1. the physical exhibition that was hosted on the library's premises in Oslo
2. a locally hosted digital exhibition that was available only from this physical space
3. a globally accessible and general website
4. a globally accessible exhibition
5. a small test version designed with mobile screens in mind

The floor plan for the physical exhibition is rendered in Figure 4. A square room was made into an octagon with display cases and stands for books and printed matter on each of the eight sides. Another and smaller octagon with two entry points was erected in the middle. In the middle of this again was a larger statue of Bjørnstjerne Bjørnson. Both the inside and outside of this wall contained a number of PC's that supported the locally hosted digital collection.
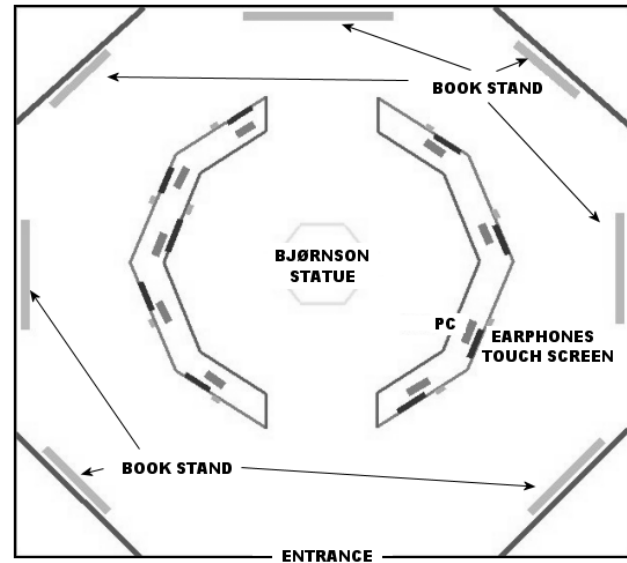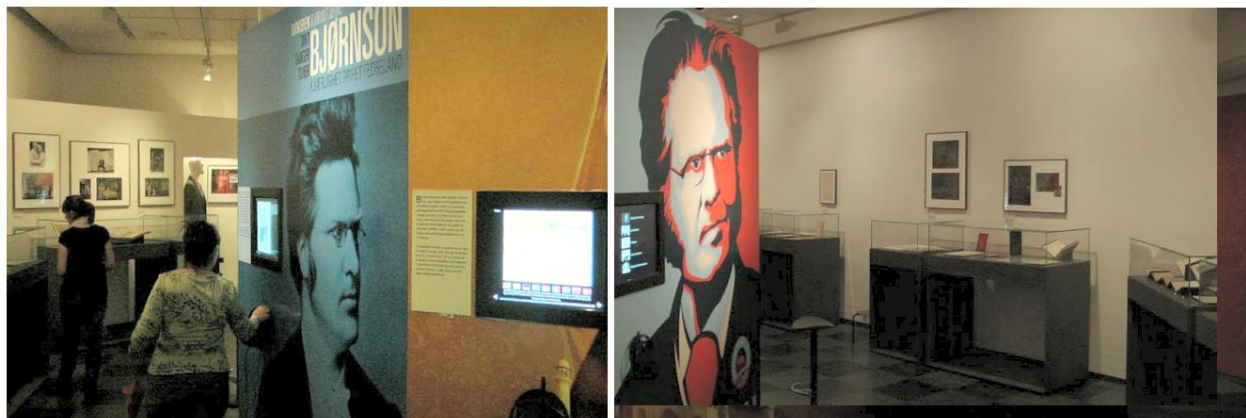

Figure 5 Left and right part of exhibition hall.

Each workstation was dedicated to material by and about one specific dimension of the authors' public life like national politics, engagement for the liberation of women, poetry, linguistics etc. Moving from workstation to workstation, the visitor could browse these materials, read, watch and listen.

This content was also consolidated and made available at the global website that was structured on four levels with material by and about Bjørnson in words, pictures, video and audio recordings in several languages. As a

small test, an access point for mobile phones which came in addition to the standard web interface was also developed with a rendition of the national anthem (Høivik, J.1 2010).

Above and in addition to this, an online presentation on Google Docs gives a presentation of the exhibition in its physical and virtual incarnations. (Høivik, H. 2010). The latter presentation is part of an on-going development project for a new Master Degree course in Digital Art and Cultural Heritage dissemination between Norwegian, Chinese and Polish partners (ACHRON 2010).

Further work

But digital curation may amount to more than creating the environment for study and entertainment and integrating such presentations in organized study programs. Building on constructivist principles in pedagogy, digital curation comprises user activation. We may ask

- What about mobile user's contributions to the collections, their experience, interest, and opinion?
- How do we design entry points for them to act not only as users but also as partners?
- How can museums, archives, libraries and other collections of art and cultural heritage artefacts be more proactive in learning design?

As a practical next step and a practical investigation of these questions, we are developing access to digital resources so that users may create their own modes of interaction. We find it particularly intriguing to do this in such a way as to facilitate end-user configuration, explorationen and development of applets.

This has recently been greatly simplified with the App Inventor framework and Open Blocks programming for the Android operating system (GoogleLabs 2010).
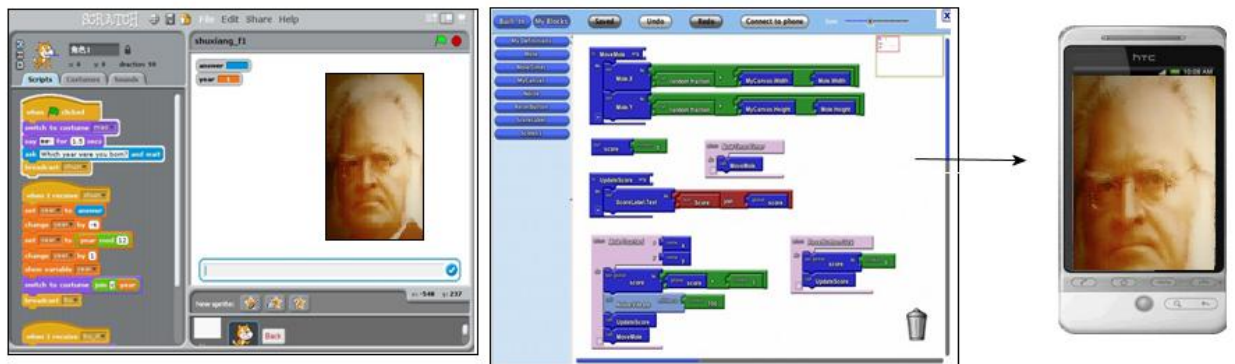

Figure 6 Scratch (left) and Andrdoid Open Block (right) programming environments

Benefiting from many years' development of user-friendly programming environments that resulted in the the Scratch programming environment and social network (Lifelong Kindergarten Group 2010), Google has repurposed the interface for the modified Java language on Android phones, pads and portables. This has created an amusing and close to instant world-wide community of young programmers that can work in either or both of these environments.

Our next step is here should be to develop Application Programming Interfaces (APIs) to digital art and cultural heritage resources in Norway and China as well as with other partners. They should be addressable using the web functions of the Android Open Block programming environment. These resources will be a welcome addition to the course design toolbox for teachers and learners in the fild of art and cultural heritage curation.

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