Dismantling urban history
Cultural heritage in public spaces using new media technologies

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Abstract: *Information and communications technologies (ICT) can be very important to provide access to urban cultural heritage collections. Urban archives contain a lot of (historical) information about people, places, events, objects, trade and artefacts. Its worthwhile to make this information accessible for a bigger public. The core challenge nowadays is to explore the role and meaning of ICT in disseminating this historical knowledge in public spaces. In this paper, we will research the theoretical background of the information value chain in archival science and of the use and context of new media technologies in public spaces. Our research method was a combination of desk research and a case study, in which new interactive media technologies were used to reconstruct historical images of Amsterdam in public spaces. The case study blended digital historical content with physical interactions to provide a user experience of urban history by using innovative storytelling techniques. The resulting prototype made it possible to disseminate historical information from Amsterdam urban archives.*

Keywords: public spaces, urban history, cultural heritage, new media technology, digital archiving.

Introduction

It's an overall requirement that urban public spaces are accessible to all groups of people of various ages, gender, and ethnic background. It is this diversity that creates what has often been called 'urban culture'. It is a blend of different ideas, backgrounds, identities and lifestyles that stimulates innovation and downplays social control (Simmel, 1997). Cultural public spaces can be interpreted as experiences; there are collective rhythms and confrontations as we pass by and interact with each other. These inevitable confrontations with unknown others are very important. As strange as it may sound: through these confrontations a community will be forged, innovation is achieved and trust is created. It can be seen as a collective rhythm (Waal, 2008). The view of this 'urban culture is changing. The increase of outdoor media and new ICT, such as screens, cameras and human-computer interactions in public spaces has been growing rapidly over the last years (Veenstra, 2013; Lange & Waal, 2013). Nowadays, to imagine modern cities without media technologies is impossible. The effect of those technologies in public spaces on urban conglomerates is considerable. The behaviour of city inhabitants or visitors can be changed with the use of these technologies in public spaces.

Research question and method used

Much historical information about people, places, events, objects, trade and artefacts has been recorded and archived. A large part of this information is (or will be) digitized and contains exceptional, unexpected (historical) views on cultural heritage objects and historical development of a city. One of the challenging questions the Amsterdam Municipality asked us was how to disseminate this (historical) information through new public space media technologies. How to connect a landmark in public space with a virtual platform to disseminate digital historical information? To find an answer it's really of importance to

know which (new) media or which combination of media and technology are used in a specific situation. McLuhan (1964) described the importance of the 'medium' in the transmission of information. He believed that electronic media would change the world into a 'global village' in which the 'medium' itself would be the message. According to McLuhan (1964), the media have a bigger impact on human consciousness and behaviour than the information they contain. This hypothesis is nowadays still one of the leading ideas when designing an interactive ICT platform for public spaces. Designing these interactive platforms with new media ICT for diverse venues and different contexts has become increasingly popular (Liu, et al., 2007). The research method we used was a combination of desk research and a case study, in which a prototype was developed of a mobile platform connected with a physical (cultural heritage) object in public space. Within this case study, the research methodology was used suggested by Leurs (2012) for user centred design. This methodology consists of five phases: research & analysis, concept, design, develop and implement (figure 1). The research team attempted to improve the outcome of the project by continuously iterating the process of analysing, creating, and testing. This is one of the most essential characteristics of Leurs' research methodology. A wide range of design methodologies and tools were used at each stage of the design process.

Figure 1. Leurs' research methodology of user centred design

Digital Archiving: the information value chain

Archival science is concerned with the reconstruction of images of organizations, objects or cities in the past. It uses historical information of those organizations, objects and cities as evidence for their historical and societal importance. It emphasizes the provenance and the preservation of information for (re-) use in the future. It is concerned with methods and techniques to appraise and select information for long-term (or indefinite) preservation and with methods of accessibility to that information (Shepherd & Yeo, 2003). To realize all of that, archival science uses the information value chain. This chain includes all information processes, from creation or receipt to capture, storage, processing, distribution, structuring, publication, (re-)use, appraisal, selection, disposal, retention, security, auditing and preservation (Van Bussel, 2012). In literature, this chain is also referred to as the 'knowledge chain' (Holsapple & Jones, 2004), although the concepts are not quite the same. Digital Archiving concentrates on the information value chain, the effects of this chain on business processes, the reconstruction of past policies, products, actions and transactions, and the dimensions and quality requirements of information. Creating access to digital (historical) information is a subject of several information processes within the information value chain. Scholarly work on access to archival information is increasing. Archivists have started to wonder how the wealth of archival information can be converted into digital forms and be more exposed to users (Zhang, 2012). Mass media is redolent with archival images and sounds, and a growing number of initiatives use once-obscure archival information as exciting, relevant, and culturally interesting (Prelinger, 2007). With more and more archival information digitally available, archivists need to 'unlock' archival information to meet user needs. When users are empowered to interact with archival information, new results are bound to occur. This implies the archival descriptive tradition enters into an age of transformation to meet the needs of virtual representation of digital archives (Zhang, 2012).

Dismantling cultural heritage

This transformation of archival accessibility to the needs of virtual representation (or maybe, as Manovich (2012) calls it, media visualization) can be referred to as the 'dismantling' or the 'unlocking' of archival information in digital (or digitized) texts, sound, video, statistics, databases and photographs. Digital archival information is cleaned up, organized and indexed as a result of the existing archival descriptive tradition, but it has to be confronted with Manovich's (1999, 2001) new cultural algorithm: [1] Reality, [2] Media (capture, storage and processing of information), [3] Digitization (converting information to digitized forms), [4] Database (appraisal, selection, disposal, retention and preservation of information), [5] Analysis (analytical query design: use, (re)use of information), [6] Narration (storytelling, distribution (dissemination) of information). This algorithm is closely related to the information value chain and, thus, archival science. Let's illustrate. The historical archives managed by the Amsterdam City Archives or the Dutch Institute for Sound and Vision are extremely big; together they have many terabytes of digitized or born digital (historical) information. This information can be accessed in various ways, using the archival descriptive methodologies, intelligent information retrieval, Big Data analytical technology, or with virtual representations or visualizations. ICT can access this archival information and supports the 'unlocking' of this cultural heritage: ICT captures, processes and analyses this information and constructs a narration or tells a story as an answer to a specific question (Geser & Mulrenin, 2001). In the case study for this paper, the research team tried to build a prototype of media technology, a mobile platform which connected a physical object to 'unlock' cultural heritage information of the city of Amsterdam, with as ultimate goal to tell a story about the historical and cultural value of the object. The research team used McLuhan's (1964) hypothesis that media have an important role in the transmission of information: 'the medium' itself is 'the message'. It means that 'the medium' has much more impact on human consciousness than the information it contains. McLuhan's point is the best description of the contents of Lev Manovich' theory in 'The Language of New Media' (2001), in which he investigates the impact of new media. In this book Manovich develops a theory of new media, by drawing a parallel between its development and the development of cinema. His theory for new media has four layers: the influence of older forms (or cultural interfaces), the influence of media technology (or operations), aspirations of media makers (or illusions) and emerging genres (or forms). Manovich's theory offers a way of looking to new media, to the way new media create illusions of reality, how they address the viewer, and how they represent space and time. His five 'principles of new media' (numerical representation, modularity, automation, variability and transcoding) are present in most new media objects. They 'should be considered not as absolute laws but rather as general tendencies of a culture undergoing computerization' (Manovich, 2001, p. 27). Manovich's theory was a starting point for this project to use new media technology to disseminate digital historical information. Of course, we know perfectly well that Manovich's mathematical communication theory does not mean that disseminated information can be comprehended by a viewer or a reader. Most communication theories do not take comprehensibility into account: 'the meaning of the message' is marginalized. But it is ultimately the 'understanding' of the message that is of importance for human decision making or knowledge creation (King, 2004). For this project, the 'meaning' of the message was not subject of research.

'Hybrid' public spaces

The research question of the Amsterdam Municipality challenged the research team to investigate how historical or heritage information could be used in public spaces in such a way that this information could be shown to a target audience. The current experiences in public spaces are determined by tension between 'strangers', natives, immigrants and tourists.

A public space is a common world full of differences where people act and create together. One of the main innovations of the last decennium is to connect strangers in public spaces through connected media technology, such as internet applications, apps, screens and mobile phones. This advent of ICT and new media technology creates 'hybrid spaces', as Souza e Silva (2006) calls them. 'Hybrid spaces' are mobile spaces, created by continuous movement of users who carry portable devices that are connected to the Internet and to other users. 'Always connected' means a transformation of experiences of space within a city, by combining remote contexts within a present context. The experience of 'hybrid space' is varying from person to person, because everyone interprets objects, buildings or information differently (the 'understanding' dimension we talked about above). Cultural heritage institutions like museums are already developing platforms where physical and virtual public spaces are mixed to 'unlock' cultural heritage and historical information.

Case study: Blending Amsterdam reality

The project 'Blending Reality' was an initiative from the MediaLAB Amsterdam and defined as an interactive platform in public space to explore Amsterdam history. It tries to blend digital historical information with physical interaction to provide users with a memorable experience of urban history using innovative storytelling techniques. Participating stakeholders were (among others) the artistic collective Wiseguys, the City Archives of Amsterdam, the Netherlands Institute for Sound and Vision, and UNESCO. The research team consisted out of research staff of MediaLAB, participating stakholders and students. The Municipality of Amsterdam wanted to find a way to design (and use) objects in public space to spread awareness about cultural heritage in the city in a fun and informative way. The final prototype of the project, developed according to Leurs' (2012) research methodology, is an interactive installation in the form of a book that is designed to be easy of use and involving, while taking into consideration factors of ergonomics and human appeal. The prototype is based on re-usable and extensible code running on open and easily available hardware, housed in a styrofoam body with a stable base and comfortable angle of tilt to provide good affordance and usability. It uses a robust touch screen to display content and a physical control based interface for navigation and discovery, with visual feedback. At the same time, heritage information can be accessed via a mobile platform, connected with the prototype. In that way a 'hybrid space' was created, in which a physical and a virtual representation of information is blended together. The project was closed after the delivery of the first working prototype, which was accepted by the Municipality of Amsterdam. It sees good promise in the solution and is exploring future possibilities. For more information on the project (and a movie of the prototype) visit the website of the MediaLAB of the HvA Amsterdam University of Applied Sciences (medialab.hva.nl).

Future Work

There is of course still much to do. We delivered a working prototype, but it could be perfected. The blending of the physical landmark and the mobile platform, while realized, could be better designed, possibly with new technology that is better suited to connect mobile platforms with physical objects. There are many questions about the user interface used, for the physical representation as well as for the mobile platform. A very essential challenge is structuring and management of the databases with archival (historical) information from different stakeholders. This became a bottle neck in the case study. Manovich's (2001) cultural algorithm was very valuable, but we could have implemented it better, especially concerning the structuring of databases. Using archival descriptive traditions may be a possible solution. A very important thing to do is to study the possibility to communicate not only a message, but also a message with a specific meaning, which can be comprehended by

the receiver of the message. To find an appropriate solution, we do not think we can only use mathematical communication theory as used by McLuhan (1964) and Manovich (2001). We think, archival science will be extremely important in finding a solution for that problem, especially the research that has been done on the contextuality of information (Van Bussel & Ector, 2009, pp. 215-260).

Acknowledgements
We would like to thank Gijs Gootjes, Marco van Hout and Gideon Bazen (MediaLAB, HvA Amsterdam University of Applied Sciences), and Marco Cops (Wiseguys) and Hans Ter Burg for their ideas and their input on a previous draft of this paper.

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