LOCATIVE NARRATIVES WITH DIGITAL MEDIA

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Abstract

The technologies used to guide along and inform about historic places and buildings have proliferated quickly, but it seems the application of these technologies in order to facilitate a powerful experience falls behind. With this thesis, the aim was to gain insights into how digital media can be utilized to create a media-conscious locative narrative and an engaging experience for cultural heritage. In this thesis examples of locative narratives with digital media for cultural heritage and the testing of two applications with a qualitative approach are discussed. The gained insights could help sophisticate and strategize thinking about storytelling with mobile digital technologies in order to find medium specific ways of guiding an audience and facilitate meaningful visitor experiences for cultural heritage.

Keywords: locative narrative, mobile storytelling, digital media, multimodal, cultural heritage
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1 Introduction

The technologies used to guide along and inform about historic places and buildings have gone through a rapid development. It started out with an at that time incredibly innovative analog radio tour in the 1950s, but currently visitors can use their own smartphone to download a multimedia tour (Tallon 2008, pp. xiii-xiv; Dickinson 2012). The current technologies offer endless possibilities, but it seems the application of these technologies in order to facilitate a powerful experience falls behind. As is discussed in chapter 2, several scholars and professionals from both literary, media, education, tourism and cultural heritage fields of study have expressed a need to develop innovative, medium specific ways of telling stories about cultural heritage with the new technologies at hand.

This thesis explores how the intrinsic properties of multimodal digital media and the way it involves the senses can shape the experience of a locative narrative for cultural heritage. In order to do so examples of digital locative narratives are discussed in chapter 4. These case studies mainly discuss how the medium’s possibilities are utilized, the narrative and how these connect to the cultural heritage sites. How are these digital guides different than non-digital guides? What tendencies can be found in these examples?

After the case studies of examples of digital tour guides two Skövde based digital tour guides, Elin’s Mysterium and Skövde Streetmuseum, were analysed (chapter 5) and tested (chapter 6). Chapter 4 points out some tendencies in the development of digital locative narratives, but it does not conclude whether these tendencies actually result in a more powerful experience of cultural heritage. The aim of the testing was to test to what extent a so called media-conscious digital tour guide effectuates a different experience than a text based tour guide.

The aim of this thesis was to gain insights into how digital media can be utilized to create an engaging locative narrative for cultural heritage. These insights could help sophisticate and strategize thinking about locative storytelling with digital technologies in order to find medium specific ways of guiding an audience and facilitate meaningful visitor experiences for cultural heritage.
2 Background

2.1 Tour Guides after the Digital Revolution

For a long time visitors of a museum or cultural heritage site relied on actual or written tour guides for information about what they are looking at and the places they are visiting. These sources of information are still relevant; at almost any museum or tourist destination are groups of people that follow a tour guide telling them stories, or there are tourists with guidebooks in their hands and often written walking tours, printed folders or descriptive signs are available. Though with technical advancements the possibilities of how information on site can be received has changed radically. In the 1950s the first handheld device, offering an analog radio tour, was introduced in a museum, and has since developed through a Walkman cassette tour and digital audio tours into the location aware, internet connected, digital multimedia tours that exist nowadays (Tallon 2008, pp. xiii-xiv; Dickinson 2012).

These technological advancements might be obvious, but how do mobile digital guides change the way stories could be told and experienced opposed to storytelling through speech or text? How can the ways the digital app is different from non-digital guides be exploited? This appears to be harder than it might seem. About digital technologies in general, media scholars Jay David Bolter and Richard Grusin (2000, pp. 4-5) write that our cultural, legal and educational institutions cannot keep up with the rapid development. Many tour guide applications simulate an older media form by for example digitizing text or audio. Several researchers agree that there is a need to find innovative, media specific ways of telling stories and facilitating visitor experiences with the newly available technologies for tangible cultural heritage. Loic Tallon (2008, p. xix), art historian and developer of digital strategies and methodologies for museums, writes that museums and third party hardware suppliers instigated research into cost efficient handheld audio devices for museums in the early mobile digital media years. Besides this early hardware oriented research, as Tallon writes, there is a lack of research into mobile digital guides for museums. Let alone an adequate review of mobile digital tour guides outside the museum walls since the smartphone and mobile internet became accessible to a general crowd in Western society from the 2010s (Dickinson 2014).

Lindsey Green, Alyson Webb and Martha Henson (2013), British specialists in digital tools for learning, interpretation and engagement with cultural heritage, encourage museums to focus on innovating the audience experience instead of the mobile technologies. They found that most museums already embraced mobile technologies, but they see a need to further sophisticate and strategize their thinking about it. “We can't just blindly copy from one museum to another or replicate old formats on the new devices. Creating a mobile experience is a design activity and must take the context and audience needs into consideration.”, as Green et al. (2013) write. According to them the possibilities of “mobile” as a powerful tool are acknowledged, yet to be mastered. Museum specialist James Bradburne (2008 p. xii) discusses that it is useful to consider which “user language”, the set of constraints that helps structure the visitors meaning making process, fits which medium best. He suggests we should think of medium specific ways of guiding the audience. Jeffrey Ritchie (2014, p. 53), professor Design, Media and Technology at Lebanon Valley College (PA, USA), argues that to create a successful mobile locative narrative, it is necessary to consider and take advantage of the medium’s affordances and constraints in the design choices. Or as Marie-Laure Ryan (2004, p. 1), an independent scholar with publications on
narratology, wonders about narratives across media: “[...] how [do] the intrinsic properties of the medium shape the form of narrative and affect the narrative experience [...]”?

2.2 Mobile Digital Storytelling for Cultural Heritage

Mobile digital storytelling, or digital locative narratives, or any combination of digital with either mobile or locative and either storytelling or narrative, refers to the telling of stories of physical environments through computerized, location independent technologies (Farman 2014, p. 8; Oppegaard & Grigar 2014, p. 18; Tallon 2008 p. xviii). This could refer to an overarching story that connects different places, or the stories of different places bundled together (Farman 2014, pp. 3; Oppegaard & Grigar 2014, p. 18). Locative usually refers to specific locations, and is in some cases interpreted as location dependent storytelling, in which case the information is only available when physically being present at a specific location.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) cultural heritage is defined as “the legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations” (20-02-2018). In the context of this thesis there is a focus on tangible cultural heritage which: “includes buildings and historic places, monuments, artifacts, etc., which are considered worthy of preservation for the future. These include objects significant to the archaeology, architecture, science or technology of a specific culture” (20-02-2018).

2.3 Multimodal Media

What type of media does the discussion about mobile digital guides for cultural heritage sites concern? This immediately leads to a complex discussion about the arbitrary use of the term medium or media. Ryan lists the main phenomena that have been labeled media:

(a) channels of mass communication, such as newspapers, television (tv), radio, and the Internet; (b) technologies of communication, such as printing, the computer, film, tv, photography, and the telephone; (c) specific applications of digital technology, such as computer games, hypertext, blogs, e-mail, Twitter, and Facebook; (d) ways of encoding signs to make them durable and ways of preserving life data, such as writing, books, sound recording, film, and photography; (e) semiotic forms of expression, such as language, image, sound, and movement; (f) forms of art, such as literature, music, painting, dance, sculpture, installations, architecture, drama, the opera, and comics; and (g) the material substance out of which messages are made or in which signs are presented, such as clay, stone, oil, paper, silicon, scrolls, codex books, and the human body.


This thesis discusses tour guides as mobile digital devices that have internet access and combine several media forms, such as text, image, audio and video. So in itself the mobile device is a medium as a system of communication, information and entertainment (Webster 12-02-18), which not exclusively combines different media forms in the sense of media as
semiotic forms of expression, but also remediates precursory technologies of communication and applications of digital technology. For example a smartphone, which combines mobile telephony with internet access and built-in applications (text messaging, audio/video players, camera, etc.) that afford text, image, audio and video (Dickinson 2012, p. 84).

In some way all media repurposes, or remediates, previous media forms. According to key media theorist Marshall McLuhan every media form can be traced back to a predecessor: “[...] the "content" of any medium is always another medium. The content of writing is speech, just as the written word is the content of print, and print is the content of the telegraph.” (1964, p. 8). He even goes as far as saying that the content of speech is thought. Bolter and Grusin (2000, pp. 14-15) argue that every medium is a remediation of another medium, as it presents itself as a refashioned and improved version of other media. According to them remediation did not start with the introduction of digital media (Bolter & Grusin 2000, p. 11), but they do oppose new and old media as digital versus traditional, as post- versus pre-digital. Both McLuhan and Bolter and Grusin seem to refer to technical means of expression when they mention “media”. To exemplify, McLuhan mentions: writing, speech, print, and telegraph as media; Bolter and Grusin mention: television, cellular phones, painting, websites, and photographs. McLuhan (1964) ascribes the meaning of a medium to its function as the extension of the self, to the way it shapes and reshapes our perceptions. Also, Bolter and Grusin (2000, p. 17) do not see media defined purely by their technology, but just as much by its uses as they emerge from within their cultural context and as a reflection on other media.

Publications about media after the digital revolution, about convergence culture, “where old and new media collide” (Jenkins 2006), often discuss transmedia storytelling. Transmedia storytelling is the telling of a story or the creation of a storyworld, across a number of different media (Jenkins 2006; Ritchie 2014, p. 53; Ryan 2004). As Henry Jenkins formulates:

A transmedia story unfolds across multiple media platforms, with each new text making a distinctive and valuable contribution to the whole. In the ideal form of transmedia storytelling, each medium does what it does best—so that a story might be introduced in a film, expanded through television, novels, and comics; its world might be explored through game play or experienced as an amusement park attraction.

Jenkins (2006, pp. 95-96)

A transmedia narrative is told over separate media, which all give a complementary glimpse into a storyworld (Jenkins 2006; Ritchie 2014). What term can be used to indicate that these different media come together in one device? Is this still defined as transmedia storytelling? Ritchie (2014, p. 54) does consider a mobile narrative as a transmedia narrative form. He argues the story is told across different media channels, in the physical and digital space, that come together in one device.

Ryan (2014, pp. 9-10) instead uses the term multimedial media, or multimodality, to refer to a medium that contains different types of signs. She sees this term as a way to avoid the ambiguity of the concept of media, as used in “multimedia media” or “mixed media media”.
In these terms the word media occurs twice, yet with different meanings: “the first (in multimedia) in a semiotic sense and the second (in media) in a technological or cultural sense” (Ryan 2014, p. 26). However Ryan also adds that people have no trouble understanding this term, as they automatically interpret the consecutive uses of media differently. Nonetheless, she does refer to Gunther Kress and Theo van Leeuwen’s idea of multimodality as a way to avoid the ambiguity of the concept of media. With the term multimodal media, as used by Kress and Van Leeuwen, the first use of media is replaced by “modes”, and even though they try to avoid the ambiguity of “medium”, trying to define “modes” has the same complications (Ryan 2014, p. 26). Literary scholar Lars Elleström (2010, p. 14) critiques Kress and Van Leeuwen for explaining mode “[...] as any semiotic resource, in a very broad sense, that produces meaning in any social context; the verbal, the visual language, image, music, sound, gesture, narrative, colour, taste, speech, touch, plastic and so on”. Ryan (2014, p. 27) justly wonders how we can study the modes of multimodal narrative if narrative itself is a mode. Meanwhile Elleström (2010, p. 24) claims that many, if not all media, are multimodal. Opposed to Kress and Van Leeuwen he clearly states: “Entities such as ‘text’, ‘music’, ‘gesture’ or ‘image’ are not seen as modalities or modes.” (Elleström 2010, p. 16). He attempted to build a theoretical model to understand how different media are related to each other. In doing so he distinguishes four types of modalities and three aspects of the notion of medium, because without a precise understanding of what a medium is, it is impossible to compare media (Elleström 2010, pp. 5, 11). Without going into Elleström’s model into detail, each modality has different modes, and every medium fulfills one of the modes for most, if not all modalities (Elleström 2010, p. 24). Elleström’s model is useful for analyzing what media have in common and how they differ, but in his line of thought multimodality cannot be used to categorize and subsequently explore a medium as a medium containing different “older” media.

Looking into several publications by different authors, a discontinuity in the use of the term media is noticeable. The definition of the concept of medium is a very complex and unresolved discussion. Consequently it is impossible to formulate one true definition of medium or media. Nevertheless a definition that works for this thesis project should be construed. Ryan (2014, pp. 29-30) proposes, in relation to media-conscious narratology, a three-dimensional classification of media, instead of giving a clear cut definition. The three dimensions are: semiotic substance, technical dimension, and cultural dimension, and depending on which approach to media-conscious narratology is taken, one employs the corresponding dimension. Semiotically based categories include basic types of signs such as image, sound and movement and their spatiotemporal extensions, therefore including categories such as “[...] music (sound), painting (two-dimensional image), sculpture (three-dimensional image), and oral verbal art (language)” (Ryan 2014, p. 29). The technical dimension includes media-defining technologies (e.g. film, tv, photography) and any mode of production and materiality. The cultural dimension regards media that has cultural significance as a form or institution of communication. Quoting Ryan: “I regard as culturally based media those means of communication such as press, the theater, or comics, that are widely recognized as playing a significant role but that cannot be distinguished on purely semiotic or technical grounds” (2014, p. 30).

At another point Ryan (2014, pp. 10-11) writes that multimodality exists on two levels, at the level of medium and at the level of genre. Fundamentally this means that on the one hand there are media that inherently offer different types of signs, on the other hand there are monomedia where other types of signs have been added to. As an example of inherently
multimodal media. Ryan mentions film, which inherently includes images, language, and music. An example of the monomodal medium with added multimodality is a traditionally text-only novel turned into an illustrated novel. Connecting both these arguments, about the classification of media categories and multimodality, it could be argued that a multimodal medium is a medium within the semiotic, technological, or cultural dimension, and contains either semiotically, technologically or culturally based media categories, or maybe even a combination of them. Based on Ryan, in this thesis the mobile digital tourist guide will be regarded as a medium within the technologically based media category, containing both semiotically, and technologically based modes.

2.4 The Power of Narrative - Narrative Power

In this chapter the term narrative is recurring, but what is a narrative and why is it relevant for mobile digital tour guides? According to Ryan (2004, p. 3) narrative is fundamental to our cognition, and helps us structure our thoughts. She claims that in order to notice the objects or events in the world around us we need to make stories about them. Ryan’s three criteria for a text to qualify as a narrative are: (1) it must create and populate a world; (2) the created world must undergo changes following events; (3) “it must allow the reconstruction of an interpretive network of goals, plans, causal relations, and psychological motivations around the narrative events” (Ryan 2004, p. 9), connecting the events into a story. Ryan (2014, p. 9) makes a distinction between “narrative” and “narrativity”. A narrative can be seen as offering a narrative script, while narrativity is the indirect evoking of a narrative meaning. This does not mean that a narrative has a fixed interpretation or narrative meaning for every reader, but the narrative script is pointed out. Whereas narrativity might evoke the imagination of a narrative meaning, there is no script. In relation to the study of narrative across media, Ryan proposes the following interpretation of narrative:

Narrative is a medium-independent phenomenon, and, though no medium is better suited than language to make explicit the logical structure of narrative, it is possible to study narrative in its nonverbal manifestations without applying the communicative model of verbal narration.

Ryan (2004, p. 15)

English literature scholar Wolfgang Hallet (2014) writes that in traditional literary narratives fictional worlds are based on words, definite descriptions, in a specific order. But in multimodal narratives, the reader’s perceptions, experiences, and meaning making are not exclusively linguistically shaped. Instead, like in everyday life, the narrative meaning is a result of a dynamic interplay of different semiotic resources such as sight, sound and movement. This type of world making relies on the reader to interrelate the different types of symbolic representations, which makes it, according to Hallet, more suitable “to express and communicate different “world versions” or ways of experiencing and looking at the world, including very individual versus very intersubjective and scientific ones” (2014, p. 167). Hallet (2014, p. 169) does point out that so far there is no methodology that is able to analyse and theorize multimodal narratology. In a later publication Ryan (2014, pp. 1-2) prefers to use “storyworld” instead of “narrative” because the latter is traditionally concerned with language, whereas the first transcends media. She also thinks it is more suitable for emerging multimodal representations. This is something Jenkins (2006) also already
argued. He observed that modern storytelling was not so much about a linear narrative in a single medium, but more about world building across media (Jenkins 2006, p. 114). In transmedia or multimodal storyworlds a specific story can be told, in which case the different media all show a different aspect of this world. Or, a particular narrative is lacking, but the content establishes narrativity. In the context of their research in storytelling on mobile devices for cultural heritage, Vincenzo Lombardo and Rossana Damiano (2012, p. 14) observe something similar. They write that opposed to linear narratives, where the author creates a well thought-out balance between characters and plot, in interactive storytelling with mobile devices, there exists less authorial control. In interactive storytelling basic elements of the story, such as characters and events, are provided, but the sequencing of events, and therefore the generation of the story, relies on the user input. Lombardo and Damiano do not use the term “storyworld”, but their description of interactive storytelling resembles Ryan’s and Jenkins’s concept of “storyworld”. Ryan (2014, pp. 1-2) believes that using the term storyworld instead of narrative allows media to break free from the boundaries of literary narratology.

About descriptive texts such as guidebooks Ryan writes that they merely represent “world”, whereas texts that undergo a spatiotemporal change represent a “storyworld”. The difference is a static text world opposed to a dynamic model of evolving situations (Ryan, 2014, pp. 32-33). According to Ryan (2014, p. 33) a storyworld is not a fictional, purely imaginary world as such, because it also covers narrated facts, stories told as true of the real world. Like for narrative, Ryan (2014, 34) also proposes criteria that constitute a storyworld: (1) existents, that are characters and objects; (2) setting; (3) physical laws, as to say what kind of natural/supernatural events are possible; (4) social rules and values; (5) events; (6) mental events, a reaction to the events by the character. In the context of this thesis a narrative will be conceived as

In the previous paragraphs Ryan’s understanding of narrative, narrativity and storyworld are explained, but how, or even if, the intrinsic properties of the medium shape the form of narrative and affect the narrative experience has not yet been addressed. The technology of a mobile digital multimodal medium is obviously different than a person giving a real life tour or a printed guide book, but is there a difference in narrative power? Is the form of the narrative and the narrative experience different? Farman (2014, p. 8) argues that a medium’s unique capabilities and constraints have a major impact on how a story is told, distributed, and experienced. According to Ryan (2014, pp.1-2) the expressive power of media in establishing a narrative, are determined by its affordances and limitations. As a certain choice of medium determines the narrative possibilities, it is all decisive for shaping the reader’s experience (Ryan 2014, p. 25). Ritchie (2014, p. 53) writes that in order for a mobile locative narrative to be successful, the medium’s affordances and constraints, with regards to design choices, should be considered and exploited. Therefore there could be argued that the narrative power of a medium is not within its technology, but within its possibilities of shaping a narrative experience. Even though by some theorists media are seen as a remediation of precursors, it seems like others argue that there is a need to rediscover how new media are different from their precursors. Or as Ryan (2014, p. 3) writes: “what can medium x do in terms of storyworld creation (or representation) that medium y cannot?”

In case of multimodal media it is interesting to wonder how the combination of different types of signs (modes) influence the narrative experience. Ryan (2014, p.42) writes that
language-based media opposed to visual media speak to the mind, and not in an immediate way to the senses. This is something McLuhan (1967) also addressed early on when he observed society was transitioning from a visual to an electric age. McLuhan writes that media shape and reshape our perceptions, and condition our brain. In times of technological and cultural transitions, there exists a discrepancy between how our brain is conditioned and how the new technologies speak to our senses, which may result in confusion and despair. As McLuhan formulates humorously:

Our “Age of Anxiety” is, in great part, the result of trying to do today’s job with yesterday’s tools – with yesterday’s concepts.

McLuhan (1967, p. 8)

He critiques that official culture tries to fit new media into the formats of the old. According to McLuhan, as society transitioned from visual and mechanical into an electrical age, we move from the factual to ever-changing information, from passive to immediate reactions, from instruction to exploration, from private and individual to communal. McLuhan wrote this in the sixties, but his observations seem even more applicable for the transition into a digital age. Even though McLuhan explains the workings of media in order to understand social and cultural changes and the accompanying problems, his ideas are helpful in understanding how different media involve different senses, and how this can influence the shaping of a narrative or storyworld.
3 Problem

3.1 Problem Description

Putting all the pieces together, the topic of this thesis is: locative narratives with multimodal digital media for tangible cultural heritage. As presented in the previous chapter, the technologies used to inform an audience about, or guide along cultural heritage have proliferated quickly, but several scholars and professionals from both literary, media, education, tourism and cultural heritage fields of study observe that the application of these technologies in order to facilitate a powerful experience falls behind. There seems to be a need to find innovative, medium specific ways of telling stories about cultural heritage with the new technologies at hand. In line of Ryan’s (2014) writing this thesis explores how the intrinsic properties of multimodal digital media and the way it involves the senses can shape the experience of a locative narrative for cultural heritage. This led to the following research question:

How can digital media be utilized to create an engaging experience of cultural heritage with locative narratives?

To research this question, several sub questions were formulated:

- Which tendencies can be found in digital locative narratives for cultural heritage?
- To what extent does a multimodal locative narrative with digital media effectuate a different experience than a text based tour guide?

3.2 Method

To explore the research question the research was divided into two parts. In the first part, chapter 4, case studies of examples of digital locative narratives are discussed. The second part, chapters 5 and 6, concerns the analysis of test applications and the testing of the narrative experience with these applications.

3.2.1 Examples of Digital Locative Narratives

To explore examples of multimodal locative narratives with digital media five case studies have been selected. The main question was how the medium, concerning its mobile, multimodal, and digital qualities, shapes the experience of the narrative and the cultural heritage. Also, what is the significance of medium, narrative and site in these cases? For selecting the case studies publications about mobile storytelling and digital technology for cultural heritage or museums have been a guide. After checking the applications that were mentioned in those publications, looking for articles about individual applications in databases, considering applications that won a Media & Technology MUSE award (MUSE, 2018) and looking for digital guide tours for some bigger cities, five case studies have been selected. The selection of the cases was based on a few criteria: they are mobile, digital and multimodal; they have been developed within the past five years; they either are discussed in academic publications or they have been used actively. The selection is supposed to be a reflection of different tendencies within mobile digital storytelling.
The selected cases have been analysed on how they are different from text based tour guides, how their narration is media conscious, and how this affects the overall experience. But how can the narrative power of media specific narratives be assessed? In the previous chapter Ryan’s (2014) three dimensions of media have been discussed: semiotic substance, technical dimension, and cultural dimension. In the continuation of these dimensions, Ryan (2014, p. 30) describes three approaches to media-conscious narratology: a semiotic approach, a technical approach, and a cultural approach. In the context of this thesis the semiotic approach is especially interesting. She describes this approach as follows:

A semiotic approach, which investigates the narrative power of language, image, sound, movement, face- to- face interaction, and the various combinations of these features.

Ryan (2014, p. 30)

But for the research question it is lacking the technical dimension, as it does not involve how these features come forth from the concerning medium, or how the medium shapes the narration. Ryan’s technical approach explores how the technology sets up the communication between sender and receiver. This is not the key issue for this thesis, but it complements the semiotic approach. Ryan’s semiotic approach provides guide in analysing narrative experience.

The analysis of the case studies is mostly based on descriptions by the developers, evaluation reports, in some cases academic publications that include testing, and user reviews. Not every application is described as thoroughly or has been tested as much as another. Concerning the narrative experience, all data is based on descriptions by others. This is not thought to be problematic, since this chapter functions as a frame of reference for the comparative analysis and testing in the next chapter.

### 3.2.2 Test Applications and Testing

The second phase, chapter 5 and 6, not only explores the question how the narrative utilizes the multimodal possibilities, but centralizes how this affects the experience of cultural heritage. In connection to the problem identification, the goal was to test whether a media conscious, multimodal narrative creates a different experience than a text based guide. To gather data on this a comparative test situation between a text-based mobile digital narrative and a multimodal mobile digital narrative has been created. First the different applications were analysed and compared, then a qualitative approach was taken to gather data on the experience of these apps. The qualitative approach concerns the observation of test participants using the apps, followed by semi-structured interviews.

The test involved two existing local applications: **Skövde Streetmuseum** and **Elin’s Mysterium**. Both applications are mobile, digital narratives, but **Skövde Streetmuseum** is mostly text-based, and **Elin’s Mysterium** has a multimodal character. These applications are suited for comparative testing since they both cover the city centre of Skövde, they can both be considered as mobile digital guides to explore the cultural heritage of a city, but are completely different implementations. A more extensive description and analysis of these applications are presented in chapter 5. Similar to the case studies it was asked what the significance of medium, narrative and site in these cases is. To measure and compare the
experience a qualitative test was performed. For the analysis of Skövde Streetmuseum and Elin’s Mysterium Ryan’s semiotic approach, but also the observed qualities and tendencies in the case studies, served as a frame of reference.

The design of the test and interviews is based on Juliet Corbin and Anselm Strauss’ (2015) Basics of Qualitative Research, Steinar Kvale and Svend Brinkmann’s (2009) Interviews and past qualitative research that has been done for Elin’s Mysterium (Alvarez Díaz, Toftedahl & Svensson 2013) and Walk1916 (Cushing & Cowan 2017). After the analysis of the test applications two test groups were set up. Three individuals and three pairs tested Elin’s Mysterium and six individuals and one pair tested Skövde Streetmuseum. It was the intention to test and equal amount of individuals and pairs for each app, but due to logistical problems within the time frame the composition of the test groups differs. All the participants are adults (over 18 y/o), either Swedish or English speaking, either citizen or visitor of Skövde. The motivation to test on adults stems from the problem identification for this thesis: the issues with updating the traditional tour guides for adults to a digital implementation. It was interesting to explore what kind of experience a multisensory, fictional first person narrative, presented as a game, would evoke in adults instead of children. Since Skövde Streetmuseum is available in both Swedish and English, but Elin’s Mysterium only in Swedish, the non-Swedish speaking participants have always tested Skövde Streetmuseum. The other participants have been randomly divided among both apps. The participants have tested the app either individually or as a pair. For practical reasons most tests happened individually, but because the apps are expected or intended to be used in pairs or groups (Alvarez Díaz, Toftedahl & Svensson 2013; P. Fredén, NEXT Skövde, personal interview, November 13, 2017) it seemed appropriate to test as much in pairs as possible.

The participants were met near or at the location where the app’s tour starts. After a short introduction, without information that would bias the participants, the participants were asked to use one of the applications while being observed. Afterwards semi-structured interviews were conducted. The observer will avoid influencing the test subject, but if necessary will help in case of technical or wayfinding problems. Three pilot tests with two individual test subject (male, 25 y/o; Elin’s Mysterium; male, 31 y/o, Skövde Streetmuseum) and a pair (male, 30 y/o; female 31 y/o; Elin’s Mysterium) have shown that during the observation the participants’ spontaneous reactions gives a lot of data. For the interviews the aim was to let the test subjects speak freely and then structure the information by asking questions. In the pilot test the participants themselves made relevant remarks and went into the topics of this thesis on their own initiative. The questions asked were about their familiarity with tour guides, what this guide was about, if they learned anything new, if they had a different connection to the site, what they thought of the story and in case of Elin’s Mysterium what they thought of the game elements. During the interview notes were taken and directly after the interview it was summarized. After all participants were observed and interviewed the data was analysed and the results reported, as presented in chapter 6.
4 Examples of Digital Locative Narratives

To have a frame of reference for the comparative test, this chapter presents five case studies of mobile digital guides that display certain tendencies in this area. The analysis of these applications was focused on their multimodality, their narrative, the connection to the sites and the interrelation between these aspects.

4.1 Walk1916

Narrative: 1916 Easter Rising in Dublin
Modes: text, images, audio, AR

Walk1916 is a Dublin based tour guide application for Android and Apple mobile devices, that uses augmented reality (AR) and geolocation technologies. By creating a narrative layer over physical locations the application lets the user virtually relive some of the events of the 1916 Easter Rising in Dublin. The 1916 Easter Rising was a rebellion by the Irish Rebel Forces against the British government, starting with the Proclamation of the Irish Republic. The Irish rebellion occupied several prominent buildings. The British Army responded with armed forces and executed most of the rebellion leaders. During this week-long conflict over 400 people died, many more were injured and several buildings were destroyed (26-03-2018). The application’s narrative or storyworld revolves around the 1916 Easter Rising, and unfolds itself through physical locations (mostly buildings), AR, audio narrations and text. There is no fixed route, the user can choose how many and in which order the locations on the map are visited (Fig. 1) While moving through the landscape, visiting the specific locations the narrative layer becomes available (Fig. 2). With AR the application uses photographs taken during the Rising and layers them over reality (Fig. 3).

![Figure 1](image.png)  
*Figure 1  Screenshot of map and viewfinder of Walk1916 (Cushing & Cowan 2017, p. 923)*
Amber Cushing and Benjamin Cowan (2017, pp. 924, 931), researchers from University College Dublin that performed a study on *Walk1916*, found that the contextualising of archival material with the application *Walk1916* resulted in a by the test participants perceived enhanced understanding of the Easter Rising. Via semi-structured interviews after trying the app, some of the participants commented that by using the app the sense of historic distance was diminished. The participants perceived a greater sense of location and distance between the locations, and they could better visualize the historic events in their daily surroundings and how they are interconnected. Moving through and being in the places the historical events actually happened were seen as valuable. Cushing and Cowan also found that the participants appreciated that they could control if and when they would visit the locations. Not only could they adapt the route to how much time they want to spend on the walk and how far they want to, or are physically able to go, some also perceived it as a freedom of interpretation and signification of the content. Even though it was not an objective of the study by Cushing and Cowan, and it is not explicitly stated, it does seems that the multimodality of this application aids to a more immersive experience of historic events and cultural heritage. Opposed to monomodal material, such as photographs or text, the moving through the landscape, the comparing of the present and the past, seeing and
hearing, the non-linear sequencing of events, all of it influenced the participants understanding of the Easter Rising (Cushing & Cowan 2017).

4.2 *I amsterdam Maps & Routes*

Narrative: neighbourhood profiling through challenges and stories of locations
Modes: text, images, audio and video

The developers present *I Amsterdam Maps & Routes* as a “discovery challenge” application for Android and iOS (DTT 2018) (Fig. 4). It is an example of an informational walking tour with multimodal content and game elements. It offers several routes with challenges for different neighbourhoods in Amsterdam. The application is not exclusively focused on cultural heritage, but on top tourist attractions of any kind. With the application users follow a digital map, they receive historical and cultural information about the neighbourhood in general and about specific places or objects, but the user can also play challenges with questions about the surroundings and discover local bars and restaurants. Throughout the app a playful tone of voice is used to create the sense of a quest with incentives. The incentives are both exclusive information as well as actual prizes provided by the city’s tourist office.

![Figure 4](image-url)

**Figure 4** Several screenshots of *I amsterdam Maps & Routes* (DTT 2018)

The user can choose which neighbourhood will be explored and then follows a round-trip walking tour, connecting several tourist attractions in that neighbourhood. At the different locations the user receives information, can earn points and unlock additional information by checking in or doing quizzes. The information can be offered as text, but also as a video or
audio clip. It is possible to use the app offline, but then the user cannot receive a score. A GPS signal is always required, since the information is location dependent.

According to an evaluation by the client and the developer the application is received positively ("Factsheet Experimenten" n.d.). There is no extensive information on how the app is experienced by its users, the evaluation is mostly based on quantitative data. Also the testing has a different objective, corresponding to the purpose of the app, which is to lure tourists out of the overcrowded city centre and attract them to the surrounding neighbourhoods (DTT 2018; "Factsheet Experimenten" n.d.). In a questionnaire among tourists and professionals in the tourist industry the respondents are asked to compare the app to a paper tourist map. The respondents seem to prefer this digital map, and see the information and the game elements as being of added value ("Factsheet Experimenten" n.d.).

4.3 Trade and Merchants’ Life in Ribe

Narrative: 16th century trade and merchants’ life in Ribe, narrated by non-fictional curator

Modes: text, images, audio, video, AR and interactive 3D animations

The application Trade and Merchants’ Life in Ribe by Sydvestjyske Museer (Ribe, Denmark) offers a walking route that covers both the museum ground and the historic city centre of Ribe. The narrative revolves around the trade and life of merchants’ in 16th century Ribe, connecting an exhibition room that recreates a 1583 merchants’ house with cultural heritage in the old town (The Best in Heritage 2016). It seems like there is no fixed route, a map indicates the different locations and the user can choose in which order they will be visited (Fig. 5). The content is location dependent; the user is alerted when close to a specific location and then instantly the associated content is triggered (Intertisement 2016). Some functionalities are not directly activated by location, but by scanning a marker or resolving a game element (Kirkedahl Nielsen 2017). Throughout the application a virtual version of the actual curator is the narrator. This informative, but playful application reveals the narrative through different modes: text, images, audio, video, AR (Fig. 6) and interactive 3D animations. For example, with AR technology a virtual re-enactment and narration by the curator is layered over reality. For some buildings the floorplan is displayed on the device, again with a virtual version of the curator giving an explanation (Fig. 7). The different audio-visual modes are not an addition to a text based narrative, but are an integral and complementary parts of the narrative.

This application is part of a PhD research project, “Towards an authentic experience - Integrating historical environments and exhibitions using audio-visual and digital media” by museum curator Mikkel Kirkedahl Nielsen from Sydvestjyske Museer, at Aalborg University Esbjerg in Denmark. So far the application has been offered readily installed on loan devices. The app is not yet publicly available to download, but the intention is that in the future visitors of the museum can download the app on their own devices (Intertisement 2016). The app has been tested on front of how audio-visual media helps to create an authentic experience, to understand the past, and how such media can be used to link the indoor museum space with cultural heritage outdoors. According to Kyrkedahl Nielsen the app was received positively. Users indicated they felt immersed in the historic narrative and surroundings, could better imagine historic events, and had a better understanding of the history (Kirkedahl Nielsen 2017).
**Figure 5** Image of map of *Trade and merchants’ life in Ribe* showing the available content of each location (Kirkedahl Nielsen 2017)

**Figure 6** AR feature of *Trade and merchants’ life in Ribe* (Intertisement 2016)

**Figure 7** Virtual version of the curator giving an explanation (Kirkedahl Nielsen 2017)
4.4 The Betrothed 3.0 (I Promessi Sposi 3.0)

Narrative: The evolution of the city of Milan, revisited through a time machine
Modes: text, images, audio, video, AR, 3D animations, cartography

The application The Betrothed 3.0, presented as a time machine, explores three key periods through contemporary cartography and their representation in the current city of Milan, Italy. The story is inspired by the novel The Betrothed (I Promessi Sposi) by 19th century writer Alessandro Manzoni. In The Betrothed, the main character Renzo Tramaglino experiences some important events of 17th century Milan. The applications revisits the places visited in the novel and explores how these places changed over time. Some of the historic places are still visible, some of them are lost. The three periods the time machine revisits are current day Milan, Manzoni’s 19th century Milan, and Renzo Tramaglino’s 17th century Milan. For each time period the app displays a contemporary map of Milan: respectively Google Maps, Artaria’s map from 1820, and Cartaro’s map from 1581 (Bollini & Begotti 2017). The story is told through cartography, text, images (of engravings, drawings, illustrations, paintings, sketches and photographs), audio, video, AR, 3D representations. The user follows a route on a map to visit points of interest. At this point it is also possible to compare the maps from the different periods of time (Fig. 8). When the user arrives at a point of interest, looking around with AR makes the multimodal content about the surroundings available (Fig. 9).

Figure 8 Screenshots of route displayed on different maps from different times (Bollini 2017)

Figure 9 Interface to choose content becomes available with AR (Bollini 2017)
The app is developed as part of a research at the University of Milano-Bicocca to explore the potentials of the Web 3.0 applied to the context of cultural heritage (Bollini, De Palma & Nota 2013, p. 481). The application exists as a pilot, but is not publicly available. According to Bollini and Begotti (2017, p. 250) the multi-layered storytelling could improve the experience and informal learning of historical knowledge. From testing a pilot version they learned that the test subjects were surprised by the discoveries they made and the interaction with information on location provoked a sense of treasure hunting for historical clues.

4.5  A Hollow Body

Modes: text, images, audio, physical textures
Narrative: the self and the City of London, narrated by a male voice

The developers of A Hollow Body clearly state this is not a typical informational tourist guide, but is instead described as a cinematic experience, a soundtrack for the city of London (UK) (WEARECIRCUMSTANCE 2018). Opposed to the other examples this application does not intend to give factual information, but follows a fictional story. The application invites the user to follow and observe the public space of London. It is meant to be used in pairs, but with each user on their own phone. A very simplistic interface, images of handwritten text on ripped paper, and a soundtrack directs the user through the physical space and steers the user's sight, thoughts and touch (Fig. 10). The app uses GPS, but in case it does not work the user can access the content by confirming to be at the location. The narrator, a male voice, is introduced as the self: the user becomes the main character of the script and performance. The soundtrack is a fictional, poetic narration of the visible environment, in an ominous tone, hinting at possible background stories, with the music building tension. The application itself is mostly audio centred, but the story transcends the virtual and involves the physical space and sensations. The user cannot only partially use the application, it becomes an extension of the user, and it demands total immersion.

Figure 10 Screenshots of A Hollow Body (Circumstance 2016)
The application is commissioned by the Museum of London on the occasion of their Sherlock Holmes exhibition in 2014, but has been extended ever since (WEARECIRCUMSTANCE 2018). There is no official evaluation report publicly available, but according to the download pages the application is reviewed very positive. It seems the users enjoyed sharing this experience with a partner and they felt immersed in the story (Apple Inc. 2018; Google 2018). One user indicated he wished all city tour guides would be like this (Apple Inc. 2018).

4.6 Summary

Looking into examples of digital locative narratives for cultural heritage several directions on front of interactivity, multimodality and narrative are noticeable. It is remarkable that in all tests and reviews of these application the users indicate to feel more stimulated and more immersed in the stories and landscape.

Considering interactivity on the one hand there are applications that focus on the location-information interaction (Walk1916, The Betrothed 3.0), on the other hand applications that take a more playful approach and incorporate game elements (I amsterdam Maps & Routes, Trade and Merchant’s Life in Ribe). A Hollow Body falls into a completely different category than the other apps as it has a minimal interface and the interaction takes place as a performance of the user in the physical world.

Walk1916, I amsterdam Maps & Routes and The Betrothed 3.0 primarily unravel their narratives through text and images. The latter two also offer different modes such as audio and video, but text seems to be dominant. Trade and Merchant’s Life in Ribe does use text, but mostly relies on videos, audio, animations an AR to tell its story. A Hollow Body primarily uses audio. It only occasionally displays non-interactive images of a map or a single word.

The narratives in general stay very close to historical or factual information. Most of the apps tell the story from a third person, only A Hollow Body uses a second person character and also does not use historic facts as the basis of the narrative. The Betrothed 3.0 establishes a fictional narrative and character based on a novel. This fictional story only seems to play a part in the backstory, not so much as a narrative the user will consciously follow. Trade and Merchant’s Life in Ribe’s narrative is based on historical facts, but the app uses elements of re-enactment. It also lets the user follow a first person character, the actual curator in a virtual form.
5 Analysis of the Test Applications

In this chapter an analysis of the applications that are used for the testing is presented. It discusses the background of the development of the apps, the app content and the interaction with the app.

5.1 Elin’s Mysterium

5.1.1 Background

Skövde Municipality and Skövde Citymuseum wanted to explore a new way of spreading knowledge about the history and development of Skövde, as described in the Skövde Kulturmiljöprogram (Cultural Environment Program for the Municipality of Skövde). They asked the University of Skövde to develop a game for 8-12 year olds to learn about some of the places and buildings mentioned in the Kulturmiljöprogram. In 2013 a research group from the University of Skövde, led by Torbjörn Svensson, in collaboration with Mobile Storytelling AB developed the pervasive game *Elin’s Mysterium* as a solution (Alvarez Díaz, Toftedahl & Svensson, 2013). The app is to be used on an iPad, as requested by the municipality. According to the research group the app connects to municipal goals in different areas: education, politics, economics, cultural heritage and tourism (Alvarez Díaz, Toftedahl & Svensson, 2013). With the experience of the game the objective was that the users would identify themselves more with the historic city centre. The goal was to increase the cultural activity, to stimulate the economy and to improve Skövde’s image and identity by attracting more people to the city in their leisure time to play *Elin’s Mysterium*. According to the project group all this was supposed to accumulate a more exciting tourist experience of the city centre (Alvarez Díaz, Toftedahl & Svensson, 2013).

5.1.2 App Content

*Elin’s Mysterium* tells a fictional story about 14-year-old girl Elin who is in need of the user’s help (Appendix A). After finding a remarkable book in the library some scary guys are following her and try to take the book. In order to understand what the book is about Elin tries to decipher the coded and cryptic messages in the book. The user is led to different locations with riddles and clues, and is asked to solve puzzles to help resolve the mystery. This fictional narrative is based on historical figures, buildings, events and stories, but meant to make them more understandable and relatable for the target audience. Elin for example represents the patron saint of the city Saint Helen (skyddshelgonet St Elin). Svensson (T. Svensson, personal interview, April 11, 2018) explained they were particularly interested in telling the story of how a city evolves over time and how buildings are marks of time and change. According to the developers of the app the combination of fiction and reality within the game world “heritage elements […] acquire significance through the intrinsic values projected by fictional elements” (Alvarez Díaz et.al. 2013). They present the physical environment as a game board, to explore cultural heritage through fiction (Alvarez Díaz et.al. 2013).

5.1.3 App Interaction

The app starts with Elin calling for help: her call is heard through her voice, but also in text in a chat interface (Appendix A). After the user confirms having heard Elin by clicking the screen, a comic strip accompanied by Elin’s voice explains the situation and why she needs
help. In the next screen every member of the group can pick their age category and a symbol. Since this application does not include a map, the navigation tools to find the locations are explained: clues, a compass and a proximity meter. Then there are six different locations and puzzles before the user can solve the final puzzle and receive a reward. The puzzles involve deciphering roman numerals, interpret and count symbols and patterns, use a camera to find and scan different locations and sorting photographs by building date of the depicted architecture. The narrative reveals itself through Elin’s voice, but her voice is accompanied by text or images. Following interaction the user receives feedback through sound. The fictional narrative has a strong connection to the physical environment, since the player needs to explore the physical world to solve the puzzles to proceed in the narrative.

5.2 Skövde Streetmuseum

5.2.1 Background
NEXT Skövde and Skövde Citymuseum took the initiative to create Skövde Streetmuseum (Mobile Storytelling AB 2018), a digital guide through Skövde in order to preserve and pass on stories about Skövde, to offer a tool to experience the history and culture of the city and to promote Skövde as a travel destination (P. Fredén, personal interview, November 13, 2017). It is meant as a contemporary tool for citizens as well as tourists, for both a Swedish and an international audience. The app allows anyone with a smartphone to explore the city centre at any time, by downloading the smartphone application, free of charge. The application is based on a framework developed by the company Mobile Storytelling AB. NEXT Skövde, Skaraborg Läns Allehanda and Skövde Citymuseum delivered the content, text and imagery (P. Fredén, personal interview, November 13, 2017; Warner, 2014).

5.2.2 App Content
The app offers three walking routes, 1.5 kilometres each, in the city centre of Skövde: one about art (Konstvägar), one about historical buildings (Kulturhistoriska byggnader), and one about the past and the present (Skövde förr och nu). For this thesis there is a focus on the walk Kulturhistoriska byggnader, which guides the user along historical buildings, because Elin’s Mysterium’s route also follows historical buildings. Like Elin’s Mysterium, with this app the makers want to show that a city is under constant development, and that each period is reflected in architecture (Mobile Storytelling AB, 2018). This app offers a walking tour along a selection of buildings in the city centre of Skövde. The overarching story is the development of Skövde seen through buildings, and is made up by individual fact based stories about different buildings.

5.2.3 App Interaction
After having chosen the walk Kulturhistoriska byggnader, there appears a welcome screen with two pictures of buildings and text explaining the subject of the walking tour. The user has the possibility to set the language to either English or Swedish, to download the content and to start the tour. When the tour is started a map that indicates the walking route, its locations and the user’s location appears (Fig. 11). Also a row with pictures of all the selected buildings is shown. When the user is at a location of interest the corresponding content will appear automatically (Fig. 11). The user also has the option to open the content from another location by pressing the location’s pin on the map or its picture. In the English version the content only consists of an image and text, in the Swedish version the text is also available as an audio recording. To continue the user can press the button “continue”, and the screen will
return to the map. After visiting the last location the app will return to the first location, there is no conclusive screen.

5.3 Comparison and Test Design

5.3.1 Elin’s Mysterium vs. Skövde Streetmuseum

In Table 1 illustrates a comparison of Elin’s Mysterium and Skövde Streetmuseum. Under the category ‘objective’ the goals and target audience are mentioned. The category ‘narrative’ goes into the storytelling and presentation of information. ‘Modes’ refers to the medium and the different modes that are used to reveal the narrative. Under ‘location’ the wayfinding features are listed. It appears that Elin’s Mysterium and Skövde Streetmuseum have common objectives (Tab. 1). They both aim to preserve and spread knowledge about the history and evolution of Skövde. Skövde Streetmuseum is made for a general audience, while Elin’s Mysterium is specifically targeted at children between the ages of 8-12. Skövde Streetmuseum presents itself as a digital tour guide, Elin’s Mysterium as a pervasive game. This shows in the application, respectively a description of factual information versus a fictional story with explorative assignments and games. Like many other mobile digital guides, this also appeared from the case studies, Skövde Streetmuseum uses a map with marked location’s and offers information on those locations. The information is textual and is accompanied by a picture and in the Swedish version an audio recording of the text.

5.3.2 Comparison to Examples of Digital Locative Narratives

Looking into examples of digital locative narratives for cultural heritage in the previous chapter several directions on front of interactivity, multimodality and narrative were discussed. Regarding interactivity two directions were mentioned; a focus on the location-information interaction and a playful approach with game elements. Skövde Streetmuseum fits the first, Elin’s Mysterium the latter. With Elin’s Mysterium the user is taken on a quest. We have seen the quest idea in the I Amsterdam Maps and Routes, but that seemed more
fragmented since it did not have an overarching story. Also the game elements are within the app, such as the occasional trivia question, but not so much an interaction with the environment like in case of \textit{Elin’s Mysterium}. Different than any of the case studies \textit{Elin’s Mysterium} has a fictional narrative with a first person character. \textit{Skövde Streetmuseum} uses geolocalization technologies to make a connection between the location and the information, but the information itself consists of factual text and is not interactive. We also saw this with \textit{Walk1916} and \textit{The Betrothed 3.0}, but these apps also offered other modes than text and the users had more influence on the route.

Having compared \textit{Skövde Streetmuseum} and \textit{Elin’s Mysterium} to the case studies of examples of digital locative narratives, the apps respectively represent a text based tour guide and a media-conscious tour guide. \textit{Skövde Streetmuseum} is digital and strictly speaking multimodal, but it is still very similar to printed tour guides in way it tells the story of a location. \textit{Elin’s Mysterium} on the other hand utilizes the different modes the digital medium has to offer to tell the story, but also immerse the user in the story and interact with the locations.

\textbf{Table 1} Comparison \textit{Elin’s Mysterium} (green, left) and \textit{Skövde Streetmuseum} (red, right). Categories and common characteristics are marked blue.
5.3.3 Test Design

For this research *Elin's Mysterium* was not tested by its target audience, but by adults. The participants were provided with an iPad with *Elin's Mysterium* preinstalled and were asked to use the app as they wished. They were invited to experience the entire tour. *Skövde Streetmuseum* is also tested by adults, with a provided Android smartphone with the app preinstalled and set to the walk *Kulturhistoriska byggnader*. This walk covers largely the same buildings as Elin’s Mysterium: Hotell Billingen, Sankta Helena kyrka, Helensgården, Hertig Johans torget, and Kulturhuset, but also some other buildings. At first the plan was to let the participants only test the part of the walk *Kulturhistoriska byggnader* that covers the same grounds and buildings as *Elin's Mysterium*, but eventually the participants were asked to follow the entire route to avoid confusion.
6 Test Results and Analysis

6.1 Observations

6.1.1 Elin’s Mysterium
In general the nine participants (Appendix B) expressed themselves positively while using Elin’s Mysterium. All of the participants smiled and even chuckled at some point. Most of them (A3, A4, A5, A7, A8, A9) verbally confirmed the experience was positive by exclaiming expressions such as: “Cool.”; “This is cool!”; “Wow!”; “This is fun!” Two of the participants (A3, A6) seemed to feel embarrassed or uncomfortable when they did not understand the puzzles. For others (A7, A8, A9) the same situation challenged them, it strongly motivated them to solve the puzzle anyway and curiosity was aroused even more.

6.1.2 Skövde Streetmuseum
While using Skövde Streetmuseum, the eight participants (Appendix C) showed different responses. The responses varied between surprise and excitement, “Wow!”, affirmation and literally stating “I don’t care”. One participant expressed herself overall positively (B4), others had mixed responses (B1, B3, B7, B8) and some seemed to have a neutral or indifferent reaction (B2, B5, B6). It seemed like half of the participants (B2, B5, B6, B7) were more focussed on getting to the next location than spending time at the location and look around. Even more participants (B2, B3, B5, B6, B7, B8) seemed to have a hard time reading the text and taking the step to connecting it to the visible surroundings.

6.2 Semi-structured Interviews

6.2.1 Elin’s Mysterium
Both on their own initiative and after asking what they thought of the app as a tour guide, all the participants liked the interactive elements and the actions they had to perform with the device in order to solve the puzzles. The majority (A2, A3, A6, A7, A8, A9) said the assignments that had to be done with the device made it more fun to look at the buildings.

Most of the participants (A2, A3, A6, A7, A8, A9) were positive about the story and said it gave them a sense of mission, a reason to continue exploring the city. One of them (A7) did see the app as something to do with children or as a family. Two of them (A8, A9) would also like it better if it was more challenging. The others (A1, A4, A5) did not say they disliked the story, but explicitly said it was for children. They could only see themselves follow a story like this if it would be adapted to an adult version. Three participants (A6, A7, A9) specifically mentioned they liked following a first person character. On the contrary three other participants (A4, A5, A8) said they would have liked it better if they could be the main character instead of following a fictional character.

The majority of the participants (A1, A2, A3, A7, A8, A9) indicated they wished more factual or background information was integrated in the story. The game made them curious, but then they did not receive enough information, or the option to learn more, to satisfy their curiosity. Three participants (A1, A7, A4) commented that they thought as a tourist it is too demanding to stick to a narrative. They would want to have the option to pause (A7), skip (A1, A4) or decide the order of the locations they have to go to (A1, A4).
In different ways all the participants expressed the app changed their relation to the site. They said they felt like they were part of the story because they had to walk around to proceed in the story (A2, A3, A4, A8, A9) and they had to physically perform actions and look around to solve puzzles (all participants). The feeling that the location and the story relates to them helped them learn more (A1, A3, A6, A7, A8) and made it more fun (A2, A3, A6, A7, A8, A9).

6.2.2 Skövde Streetmuseum

As a tour guide all the participants thought the app was easy to use and convenient. They liked that it could be downloaded and used at any time. Some participants said they missed some extra options such as audio (B3, B5), links to extra information (B2, B3, B5) and ratings of places (B2, B3, B6).

None of the participants thought the app had a narrative that connected the stories of the different places. Most participants (B1, B2, B3, B5, B6, B8) thought the stories and information seemed random. One participant (B2) said it was not clear to him what message should be conveyed with this app. Another (B5) said the city fire was mentioned several times, but there was no connection made between the stories or facts. Several participants (B1, B2, B3, B5, B6) indicated it could be more interesting if there was a connection between the different stories. One participant (B3) thought the app is too “Wikipedia-like”, summing up facts in a non-compelling way. On the contrary three others (B2, B6, B7) wanted more quick facts instead of a story.

All of the participants said the app changed their relation to the sites. They suddenly noticed buildings and details of buildings they did not see before. Without exception they liked that the information is connected to the location they are at. Some of them (B3, B4, B5) wished there was a deeper connection between the location and the information in the app. One participant (B3) wished the app stimulated the user to go in buildings, or give tips about activities on the locations. Others (B1, B3, B4, B5, B7, B8) wished the text would help you look at the buildings by giving clues instead of summing up background information.

6.3 Analysis

In the following discussion is an analysis of the test results compared to the analysis of Elin’s Mysterium and Skövde Streetmuseum in the previous chapter (Tab. 1).

6.3.1 Medium

Both apps are locative narratives on digital multimodal devices. In the case of Skövde Streetmuseum the choice of medium was found convenient and accessible. Its appreciation is linked to practical benefits. With Elin’s Mysterium the medium was praised for its interactivity and the different modes that are used to unravel the story. The audio and games that require bodily actions seem to draw the users into the story and the experience, whereas Skövde Streetmuseum’s use of the medium is more passive.

6.3.2 Narrative

The participants did not consider Skövde Streetmuseum as a narrative, but as separate chunks of information about buildings. Elin’s Mysterium’s narrative seemed to provide the participants a sense of purpose and made them curious to explore and learn. The information in Skövde Streetmuseum was sometimes experienced as random or irrelevant,
whereas with *Elin’s Mysterium* the participants wanted more background information. In general *Elin’s Mysterium* was associated with children and some thought it would be too restrictive considering the route is fixed and it requires the user to complete the narrative without pausing. The lack of narrative in *Skövde Streetmuseum* was appreciated by some because it allows them to skip certain parts and take detours. It does seem a narrative helps users relate to the content and immerse in the experience.

6.3.3 Site

Both apps influence the users’ relation to the sites they visit. The apps help them notice and relate to cultural heritage. The participants appreciate *Skövde Streetmuseum* for guiding them to a location and then receive information about it on the spot. However, the connection to the site was not as strong as with *Elin’s Mysterium*. *Elin’s Mysterium* lets the users interact with the sites by requiring them to perform actions to solve puzzles. This clearly made the participants experience a deeper connection to the site.

6.3.4 Summary

*Skövde Streetmuseum* is appreciated for its practical features, while *Elin’s Mysterium* is valued for creating an immersive experience. An analysis of the test results learns that a digital tour app can result in a more engaging experience by using a narrative and incorporating different modes to unravel the story. Though it seems that not necessarily the amount of modes matters, it matters how these modes are employed. If the multimodality of the medium is utilized in a way that provokes interaction with the device and the story as well as the environment it definitely could lead to a more powerful experience of cultural heritage.
7 Conclusions

7.1 Summary

The technology used to inform an audience about, or guide along cultural heritage has proliferated quickly, but several scholars and professionals from both literary, media, education, tourism and cultural heritage fields of study observe that the application of these technologies in order to facilitate a powerful experience falls behind. There seems to be a need to find innovative, medium specific ways of telling stories about cultural heritage with the new technologies at hand. This thesis is an effort to explore how digital media can be utilized to create an engaging locative narrative for cultural heritage.

To explore what different possibilities digital tour guides have opposed to non-digital tour guides, and to get an idea of the tendencies within the development of digital tour guides, five examples of digital locative narratives have served as case studies. These case studies pointed out that digital tour guides have possibilities in establishing a connection between location and information, in effectuating active interaction with the content and the environment, and in offering multimodal content that speaks to different senses.

Even though the case studies pointed out the tendencies and possibilities of digital locative narratives, does the utilization of these possibilities actually result in a more powerful experience of cultural heritage? To test this a comparative test situation has been created. Two test groups consisting of several participants have tested two different apps: Elin’s Mysterium and Skövde Streetmuseum. The first as an example of a media-conscious, multimodal, interactive digital locative narrative. The second as an example of a text based, non-interactive digital locative narrative. An analysis of the test results learns that a digital tour app can result in a more engaging experience by using a narrative and incorporating different modes to unravel the story. Though it seems that not necessarily the amount of modes matters, it matters how these modes are employed. If the multimodality of the medium is utilized in a way that provokes interaction with the device as well as the environment it definitely could lead to a more powerful experience of cultural heritage.

7.2 Discussion & Future Work

In line of Ryan’s (2014) the plan was to explore how the intrinsic properties of multimodal digital media can shape a narrative. This assumes that the medium shapes the narrative, but ignores how a narrative can exploit a medium. In the course of this thesis project it seemed that not how a medium shapes a narrative or how a narrative exploits a medium determines a powerful experience of cultural heritage, but the interplay of medium, narrative and site. The background literature study showed a need to find innovative, medium specific ways of telling stories about cultural heritage, but it might be more interesting and beneficial to find innovative ways of creating digital locative narratives that not just utilize the medium, but that exploit the interplay of medium, narrative and site. In future work I would set up a hypothesis around optimizing the interplay of medium, narrative and site to effectuate a more engaging experience of cultural heritage locations. This is something Green et.al (2013) already wrote: “We can’t just blindly copy from one museum to another or replicate old formats on the new devices. Creating a mobile experience is a design activity and must take the context and audience needs into consideration.” The possibilities of a medium are not universal, they are unique for every case and appear to depend on the joint effort of medium,
narrative and environment to shape an engaging experience. The narrative power of a medium is not within its technology, but within its possibilities of shaping a narrative experience.

In the analysis of the test results it appeared to be hard to distinguish the effects of either the medium or the narrative on the experience. It was the intention to test the effects of a text-based narrative compared to a multimodal narrative, but the difference in type and quality of the narratives have blurred the results. In Ryan’s (2014) terms *Skövde Streetmuseum* referred to world, whereas *Elin’s Mysterium* referred to a storyworld. The first concerns descriptions of historical facts, whereas the second is a fictional adventure story with historical references. Also the participants’ backgrounds with regards to their familiarity with tour guides and their interest in cultural heritage seemed to play a significant role in how they experienced the apps. In future research it should be considered whether it is better to let the participants test both apps. It might be better to let the participants first test *Skövde Streetmuseum* to establish a baseline and frame of reference for the participants. On another date the participants would also test *Elin’s Mysterium*. Another suggestion is to create two test prototypes with a narrative created for adults, one in a textual form, and one in a multimodal interactive form. This would rule out interference of factors like quality of text and difference in narrative.

During the testing the participants made many interesting comments on how a digital tourguide could suit their needs better. The majority of the participants valued a narrated tour as a way to connect places and allow a deeper understanding of the context of these places. The narrative could stimulate a more powerful experience and more engagement to the sites, however some participants expressed they did not want to be stuck in a narrative. In general there seemed to be a desire for a flexible, non-linear narrative. It would be interesting to explore how these different needs could be combined in one tourguide. Could a tourguide be non-linear, have the possibilities to pause or skip, but still have a narrative? Researching this question could continue in the line of Ryan’s (2014, pp. 1-2) use of storyworld. As explained in chapter 2.4 (p. 6) Ryan started using “storyworld” instead of “narrative” because the latter is traditionally concerned with language, whereas the first transcends media. In addition Jenkins’ (2006, p. 114) observation that modern storytelling is not so much about a linear narrative in a single medium, but about world building across media could add to the discussion. Jenkins writes that the different media (or in the context of this thesis modes) each show a different aspect of the storyworld in a non-set order. He does also write that in this case a particular narrative is lacking, instead the content establishes narrativity. Lombardo and Damiano (2012, p. 14) suggest that with interactive storytelling the basic elements of a narrative can be provided, but that the sequencing of the events and therefore the generation of the story relies on the user input. Even though the sequencing of the events is flexible, they do not comment on making elements optional. Continuing this theoretical discussion could open up new insights into non-linear narratives, narrativity or world building. On the side of implementation of non-linear narratives it could be interesting to connect the theoretical discussion to an analysis of games. There are examples of games that offer a flexible narrative with a high level of choice and interactivity with the content. For example an open-world roleplaying game like *The Elder Scrolls V: Skyrim* (Bethesda 2018) offers differs quests, connected to a main story line. The main storyline is always a red thread connecting the quests, but how this storyline is unravelled and through which quests depends on the player. The player even has the choice to play the game from a first person or third person perspective – one of the participants that tested
Elin’s Mysterium expressed a wish to be able to choose to be the main character instead of only being able to follow Elin. An analysis of games like *Skyrim* could be very helpful in finding more innovative and interactive ways of telling stories with digital media. Exploring whether it is possible to connect the same type of interactive narrative or world building to physical cultural heritage sites could generate very exiting ideas for creating non-linear locative narratives.
References


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Images


Figure 5: [Image of map of Trade and merchants’ life in Ribe showing the available content of each location]. Kirkedahl Nielsen, M. (2017) Augmenting the Historic City: Trade and Merchants’ Life in Ribe. The Best in Heritage. Retrieved from: https://www.youtube.com/watch?v=yW70m-vrNyk&t=1s [Accessed 04-04-2018].


Appendix A - Poster *Elin’s Mysterium*

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**Elins Mysterium**  
- a location based iPad game

Unlock secrets about the city of Skövde by following Elin on a journey through its history. The game is based on the story of a young girl, Elin, who discovers a mysterious book. The story unfolds as Elin explores different locations in Skövde, each with a unique puzzle to solve.

**Second puzzle**  
The second puzzle is situated at the church, Skövde’s oldest building. If we consider the foundation from the 12th century, the animal on the portal should be identified and decorations counted.

**Fourth puzzle**  
In the fourth puzzle, the group is to identify the pattern formed by the cobblestones on Skövde main square. There is a risk for a reality bug, as the square is going to be refurbished during 2018.

**First puzzle**  
The first puzzle that Elin asks us to solve is to decode the Roman numerals on the hotel at the Kulturhus square. It is the year 1888. When solved we get a puzzle piece and information about the hotel.

**Third puzzle**  
The third puzzle is located in Helensparken, where the only building that survived the 1759 city fire is situated. Here the iPad’s camera is used to find five locations. The letters form the word Fenix, suitable for a city that has risen from the ashes.

**Fifth puzzle**  
Kulturhuset (the culture centre building) is the target for the fifth puzzle where the group are to identify the symbols present on the building.

**Start of the game**  
The game starts at the Kulturhus square. iPads can be borrowed at the library in the Kulturhus. Elin calls for us to help her and we form a group by entering group members age and choosing a symbol for each player. The first puzzle is close by the square and the players are lead there by both riddle-clues and the proximity meter.

**Last puzzle**  
When all puzzles are solved the group is asked to place the different buildings in chronological order. From the oldest to the newest. One of the aims of the game is to highlight the understanding that a city is not static, that it grows and develops over time.

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General information about the game. Elin, a 14-year-old girl, needs our help. She has by chance got hold of a strange book at the library, and some shady characters are trying to get the book back from her. It is full of codes and cryptic messages that are connected to several places in Skövde. Puzzles are to be solved at each location, and riddles form clues to next location. All text can be read aloud by Elin to give the whole group a better chance to take part in the experience.
## Appendix B - Notes on testing *Elin’s Mysterium*

<table>
<thead>
<tr>
<th>Participant (age, gender)</th>
<th>Background</th>
<th>Observations</th>
<th>Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 (26, male)</td>
<td>Pharmacist - Visitor - Moderately interested - Sometimes uses web based tour guides</td>
<td>Seemed amused and curious. Expressed himself positively when he had to do the assignments.</td>
<td>General: Fun experience, didn’t do anything like this before. Site: Took a closer look at the locations/buildings because the app asked him to do things. Narrative: liked the idea, but a little foolish. Good for children. Medium: Liked the assignments, but as a tourist he does not want to be stuck in a tour for an hour. Rather choose order and amount of locations.</td>
</tr>
<tr>
<td>A2 (30, male) &amp; A3 (31, female)</td>
<td>Traffic and System developers, -citizen + visitor -Both fairly interested -Take walks with a human tour guide + use paper based or audio guide + look for information online</td>
<td>The male was very quiet and took the role of helper. The female held the device. She was very positive about the app, explicitly expressed she was having fun and that she thought it was cool.</td>
<td>General: Very cool, so much fun. Site: Walking around in a story, Me and the buildings are in story. Learned more than if it would just be text. Narrative: Not boring, triggered fantasy. Closes gap between historic events and present. Medium: Very cool. Sometimes difficult, but so fun to try new things like with the camera.</td>
</tr>
<tr>
<td>A4 (30, male) &amp; A5 (26, male)</td>
<td>Plumber and butcher -Citizens -The first is moderately + no particular interest -Familiar with different types of tour guides, but are not frequent users.</td>
<td>Worked together really well, both seemed to be excited about the quest they had taken on. Immediately accepted the fictional story world. Told each other stories about city they heard before.</td>
<td>General: fun to learn about Skövde an Roman numbers, but too many instructions and childish story. Would only do it with friends. Site: Assignments made them feel more connected to sites Narrative: Fun, more engaging, like a quest, but too childish. More interesting if they could be main character instead of to follow her. Wished more clues and riddles. Should explain more if they mention it (referring to the history of Elin the patron saint). Medium: Liked they had to perform actions with device (scanning signs with camera), that it was interactive.</td>
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</table>
| A6 (22, female) | Firefighter -Citizen -No particular interest -Not very familiar -Does not usually | Had a positive expression on her face during the walk. Was a little embarrassed when she couldn’t solve | General: Enjoyable, a fun way to learn. Site: Felt more connected to the place by being there and doing the assignments. Narrative: She liked the story, made her concentrate better and have a
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<tr>
<th>Name</th>
<th>Description</th>
<th>Experience</th>
<th>Suggestion</th>
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<tbody>
<tr>
<td>A7 (54, female)</td>
<td>Teacher - Citizen - No particular interest - General familiarity with traditional tour guides, has used an app with information about buildings in France.</td>
<td>Responded positively while using the app, was making verbally clear she had fun. Surprised about functionalities, especially the camera exercise.</td>
<td>General: Fun way to explore. Good tool to do with children, as a family, or maybe with friends. Site: helped look differently at places, understand the history of the buildings Narrative: makes you curious to go on, did not like the ending, wanted to learn more. For children the story is enough, but she wanted bigger story, more information and explanations. Would want to be able to take a break, more flexible. Medium: could be very good on the phone. Fun to have different puzzles and having to do different things.</td>
</tr>
<tr>
<td>A8 (29, male) &amp; A9 (23, female)</td>
<td>Mechanic and student - Citizens - Both fairly interested - Familiar with paper guides + she sometimes takes hop-on-hop-off bus tours with audio guide.</td>
<td>Both seemed to immerse in the story. They smiled and chuckled in response to it. They connected the game to things they already know. Worked together well. Sometimes he seemed to be hurried or impatient.</td>
<td>General: “This is fun. Come on.. it’s a game!” Entertaining, challenging and active. Site: Because of the interactive elements they felt more connected to the places. The physical culture is integrated in the game and you have to walk around and perform actions to do it. Good way to explore city. Narrative: Makes more curious to continue and see more. Would like bigger story and more places. For some places they wished more elaborate and non-fictional info, could be more educational. Medium: Like that you have to take pictures and that it is interactive. Missed option to click on extra info. Would like more of these games, but more difficult.</td>
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# Appendix C - Notes on testing Skövde Streetmuseum

<table>
<thead>
<tr>
<th>Participant (age, gender)</th>
<th>Background</th>
<th>Observations</th>
<th>Interview</th>
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| B1 (21, female) | -Student Bioscience -citizen  
- No particular interest  
- not a user of any type of tour guide. | Use of app without problems. The information popped up as soon as she reached the location. She expressed pleasant surprise about the app as well as the places she visited and the information. | General: positive, wanted to explore more.  
Site: app made her notice new things about familiar places.  
Narrative: she missed a real connection between sites, a storyline. Did not think the information was as relevant + missed some info.  
Medium: Automatic location-information connection valuable. |
| B2 (20, male) | -Student Bioscience -Citizen  
- Moderate interest  
- on some occasions uses online information. | Some problems with navigation + no natural flow location-information. Positive response to visiting new places + learning new things. Problems with concentrating on reading all the text. | General: mixed feelings. Interesting, but required to much effort to use and absorb content.  
Site: app made him reflect on sites, just by marking them.  
Narrative: missed general message, thought it required to much effort on his side to decipher message/story.  
Too much info, but also missing some relevant info.  
Medium: Thought it could be convenient, but since he thought it did not offer anything extra than online info he indicated he would not be willing to download such an app and use storage. |
| B3 (26, male) | -Student Biotechnology -citizen  
- Fairly interested  
- Frequents walks with a human tour guide + sometimes a paper based or audio guide. | Some problems with navigation + information did not pop up automatically. Mixed responses to information, as well positive as negative. | General: Easy guide, but wished it would offer something more.  
Site: The app took him to new places and rested his attention on these sites. He did sense the information and site were disconnected, he skimmed through the text before or after being at the site. He wished he would be encouraged to go in the buildings, some other interaction with the site, or suggestions what to do.  
Narrative: he learned something new about the buildings and the city, but is not sure if it will stick. He describes it as “Wikipedia-like” facts, lacking a story. He also missed some key |
B4 (58 female)
- Nurse
- Visitor
- Fairly interested
- Uses paper based tour guides.

<table>
<thead>
<tr>
<th>Medium: easy on the phone, definitely accessible. Wished it had some extra elements that would make it more useful.</th>
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<tr>
<td>General: very positive about route, app and information. Site: The information and map connected her to the location, and vice versa. Wished there would be some extra visual clues to recognize the elements described in the text in the buildings. Narrative: does not regard it as one story, but several stories of locations, but does not regard this as negative. Medium: Surprised about app, digital map is found easier than paper map.</td>
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<tr>
<td>No problems with using the app, even though the information did not automatically appear. Took the time to read everything and look around. Expressed interest in information.</td>
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B5 (23, male)
- Student Biotechnology - citizen
- Fairly interested
- Sometimes goes on walks with a human tour guide + uses paper based or audio guide + looks for information online.

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<tr>
<th>Use of app without problems. The information popped up as soon as he reached the location. He had a neutral expression when using the app.</th>
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<tbody>
<tr>
<td>General: easy and interesting, but missed the possibility to ask questions. Site: with app he suddenly noticed different buildings and learned some new things about familiar places. Narrative: Missing a storyline. The fire was randomly mentioned several times, but he missed the connecting info. Liked it when there was a connection to his daily life, would have been interesting if that was used more. Medium: very convenient that app can be downloaded at any time and opposed to a human tour guide you can just reschedule if the weather isn’t nice. Missed interactive possibilities; to get more background info, to ask questions.</td>
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B6 (23, male) & B7 (23, male)
- Student Biotechnology + student Serious Games - citizens
- Moderately interested
- Neither of them very familiar with any type of tour guide. For information about sites they use GoogleMaps and

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<tr>
<th>Problems with understanding how the app worked. Struggled with navigation, reading the information and working together. Did not seem interested in reading text at all, just went to all the locations.</th>
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<tbody>
<tr>
<td>General: Cool, good for tourists. Site: Liked being guided to different sites they would normally pass by and rest their eyes where they didn’t before. The app gave meaning to the places. Narrative: No story, just a bunch of things to learn. They liked the information, but maybe a storyline connecting the common points could be more interesting and relatable. They said they missed an overview of quick facts instead of full and boring sentences.</td>
</tr>
</tbody>
</table>

| B8 (32, male) | Google Search. <br>- Teacher <br>- Citizen <br>- Moderately interested <br>- Not frequent user of any type of tour guide, might look up information on the internet. | Medium: app is good, better than just buildings. Convenient compared to paper. <br>General: it was ok, quite interesting. <br>Site: liked to learn about the places he passes regularly. App made him look at the building instead of rushing past it. <br>Narrative: could be less boring. Maybe chronological story would be better. <br>Medium: app is ok, just does not have that much to offer. | No problems with app. Read all the information, neutral response. |