Int. J. Human-Computer Studies 85 (2016) 27–39

Contents lists available at ScienceDirect

Int. J. Human-Computer Studies

journal homepage: www.elsevier.com/locate/ijhcs

Audio-based narratives for the trenches of World War I: Intertwining stories, places and interaction for an evocative experience ☆

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ARTICLE INFO

Article history:
Received 23 January 2015
Received in revised form
3 July 2015
Accepted 13 August 2015
Available online 24 August 2015

Keywords:
Cultural heritage
Archaeological site
Embodied and tangible interaction
Sound and narrative design
Co-design
Experience-centre design
Evocative experience

ABSTRACT

We report in detail the co-design, setup and evaluation of a technological intervention for a complex outdoor heritage site: a World War I fortified camp and trenches located in the natural setting of the Italian Alps. Sound was used as the only means of content delivery as it was considered particularly effective in engaging visitors at an emotional level and had the potential to enhance the physical experience of being at an historical place. The implemented prototype is visitor-aware personalised multi-point auditory narrative system that automatically plays sounds and stories depending on a combination of features such as physical location, visitor proximity and visitor preferences. The curators created for the trail multiple narratives to capture the different voices of the War. The stories are all personal accounts (as opposed to objective and detached reporting of the facts); they were designed to trigger empathy and understanding while leaving the visitors free to interpret the content and the place on the bases of their own understanding and sensitivity. The result is an evocative embodied experience that does not describe the place in a traditional sense, but leaves its interpretation open. It takes visitors beyond the traditional view of heritage as a source of information toward a sensorial experience of feeling the past. A prototype was set up and tested with a group of volunteers showing that a design that carefully combines content design, sound design, tangible and embodied interaction can bring archaeological remains, with very little to see, back to life.

1. Introduction

"The museum's preoccupation with the information and the way it is juxtaposed to objects [...] immediately takes the museum visitor one step beyond the material, physical thing they see displayed before them, away from the emotional and other possibilities that may lie in their sensory interaction with it. […] Yet museums' preference for the information over the material, and for learning over personal experience more broadly and fundamentally conceived, may risk the production of displays which inhibit and even preclude such affective responses." (Dudley, 2010)

This quote captures the view of a number of scholars in museum studies (e.g. Davidson et al. (1991), Packer and Bond (2010), Taylor (2010), Wehner and Sear (2010), vom Lehn et al. (2007)) that see value in revisiting the information-centric approach of cultural heritage in favour of one that enables visitors to be in direct contact with objects and places. Instead of offering to visitors a definitive pre-packed curator-led interpretation, this new approach fosters the offering of multiple, possibly conflicting, voices and leaves the act of interpretation to the visitors acknowledging that their different personal background, expectations and needs change the way they engage with heritage holdings (Falk, 2009). Indeed the museums studies literature points out the *restorative value* of an aesthetic experience that is clear of any information acquisition or learning objective and is centred instead on the sensorial experience of being there (Kaplan et al., 1993; Packer and Bond, 2010). The premise that information is not the only or most important factor impacts on the way in which designers should think about digital interaction with heritage.

In close collaboration with the Museo Storico Italiano della Guerra (Historical National Museum of War in Italy), we co-designed an evocative visitor experience, as opposed to providing technology simply delivering information in situ. We designed a bespoke system to deliver narratives within the remains of a World War I camp dug in the Alps in what today is Italy and in 1914 was part of the Austro-Hungarian Empire. The striking contrast between the natural beauty of today and the difficult life in the First World War was the setting for the challenge we faced: to bring stone paths, caverns and pits (Fig. 1) alive with the stories of the people who lived there, and to provoke

☆This paper has been recommended for acceptance by Henrik Christensen.
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http://dx.doi.org/10.1016/j.ijhcs.2015.08.001
1071-5819/

Fig. 1. The narrative points and the site map. Photographs taken during the trial (images of participants used with permission).

empathy and understanding in visitors. By providing multiple and contrasting voices curators enable visitors to elaborate their own interpretation of war. This is the role the Museo della Guerra see for themselves today: while it was founded in the 20s to celebrate Italy's role in World War I and was later reshaped to recount the history of events, now the museum's collection offers visitors multiple points of view and different topics that convey the sense of what war meant for the whole of society. By telling the story of the prisoner camps, showing the trophies of aviators or propaganda posters, discussing how the production of armies and uniforms changed industry, or displaying the devastating effect of war on people through drawings and poems of artists, the museum enables visitors to understand and feel for themselves what war was. It drives visitors to engage with the topic at a deeper, personal level. This same approach, used to display the permanent collection within the museum walls, was adopted in designing for the outdoor setting of the trenches. We wanted to make visitors walking in the camp and trenches *feel the past* and aimed at an evocative experience that fuses the physical, sensorial and social dimensions of being there with the history of the place itself. For its evocative power we chose sound as medium of delivery.

The ability to convey and evoke emotion is a fundamental aspect of sound. This aspect is regularly used in the domains of film (whether using sound effects or music) (Fahlenbrach, 2008), video games (Grimshaw et al., 2008) and musical performance (Juslin, 2001). Within interaction design there has also been some research into the communication of emotion using sound, for example using auditory icons to communicate emotional aspects of weather (Hermann et al., 2003) and the expression of emotion by robots (Jee et al., 2009). Researchers in the area of affective computing have also examined the use of embodied sound, such as conversational agents and emotional speech to communicate affect (Hyniewska et al., 2010). What many of these works have in common is the aim to communicate emotion, often from a source where emotion is not obviously present: from data, robots, video games, and software agents. Our aim here is to communicate emotion and create an emotional experience from a similarly unemotional entity, the remains of an archaeological site.

The auditory communicative channel offers a powerful means of both telling a story and creating a suggestive experience. As noted by Sonnenschein, “Storytelling has used sound to invoke myth, suspend reality, and create emotion since the times of fire circles in protective caves” (Sonnenschein, 2001). The affective power of voice and audio storytelling has been recognised as creating a connection to the listener and is even amplified when spoken words are not coupled with the visual capture of the storyteller, creating a sense of intimacy and affective engagement (McHugh, 2015). Combining sound with location-based technologies allows us to further enhance this storytelling experience by presenting the narratives in place, creating a powerful connection between the visitor, the narrative and the place itself. This also allows us to more tangibly connect the narrative to the place, by directly referencing aspects of the environment that are only perceptible when physically there.

To do this we look at the possibility of using un-embodied sound (Winters and Wanderley, 2013). Such sounds, which include music, speech and non-speech sounds, have the power to augment the space. In our design we are concentrating on the use of sound to create a rich, evocative experience that happens in place and we make an extended use of human voices as a means to convey content (i.e. information), trigger empathy and stimulate interpretation. In combination with the act of listening in place, this has the potential to provoke an emotional response: “the affective power of sound and voice, combined with the intimacy of the listening process, means we can be moved by listening to oral history; this in turn affects how we absorb and retain its content,