Supporting the design and consumption of Locative Media Experiences related to the Cultural Heritage of a Rural Village Community

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ABSTRACT
In this paper, we provide an overview of the SHARC research project. Our approach, based on technology probes, is to design, develop and evaluate (over a longitudinal period) a system that supports the design and consumption of locative media experiences that relate to the cultural heritage of a rural village community named Wray. Our design needs to cater for the different backgrounds and cultural diversity reflected in the range of envisioned users of the system which includes both residents and visitors to the village.

Author Keywords
Locative media; cultural heritage; technology probe, research in the wild.

ACM Classification Keywords
H.5.2 [Information Interfaces & Presentations]: User centered design

1. INTRODUCTION

In this paper we present an overview of the SHARC (Investigating Technology Support for the Shared Curation of Local History in a Rural Community) project. The aim of the project is to design and develop a set of tools to support the sharing and curation of cultural heritage materials and narratives for residents of (and visitors to) a rural village community named Wray. The design needs to cater for both the different backgrounds (e.g. educational) and the potential cultural diversity, reflected in the range of envisioned users of the tools.

To illustrate the different backgrounds being designed for, one type of user to be catered for is the professional local historian with a strong academic/publishing background and a significant archive of digital and non-digital materials relating to the local history of Wray. Another type of user is the one with less of an academic interest, such as the resident who has a personal story to tell and a relevant photo to go with it.

Furthermore, a range of different contexts of use also needs to be designed for, e.g. curating content for consumption by established members of the village community vs. curating content for consumption by residents new to the village vs. curating content for consumption by visitors.

Certainly, visitors to the village may have different cultural backgrounds to established members of the village and we are running field trials of the SHARC tools at community events in order to gain insights into the design implications of this.

2. PROJECT BACKGROUND AND CONTEXT

The SHARC project builds upon our past work involving the design, deployment and evaluation of a community photo display system called the Wray PhotoDisplay [17,18,19]. The PhotoDisplay was co-designed with the residents of the rural village of Wray (see figure 1a).

Wray is a small village 15 miles east of Lancaster, with a population of around 500 residents. Many of its stone built buildings date from the 17th century. A key event in the history of the village was a flash flood that took place in 1967. The flood caused extensive damage to the village (see figure 1b).

Figure 1. Photos of Wray Village. 1a. Main street (left), 1b. High quality photo image submitted by resident (right).

2.1 Research in-the-wild and Technology Probes

Our research efforts within Wray are an example of so-called 'in-the-wild' approaches to HCI research [3] and community-based deployments in the wild bring a wide range of challenges (as discussed in [10]).

One key aspect of our long-term collaboration with the Wray community has been the need to maintain human relationships (and, in particular, with our key contact/champion within the village) and we acknowledge the comments of Carroll and Rosson [2]:

> "In brief participatory relationships, establishing and maintaining trust, and setting expectations are in the social foreground because the relationship is provisional. In long-term participatory design, trust becomes a resource, not an objective, expectations become mutual concerns".

Our general approach is strongly based on the use of technology probes [4] that are:

> "a particular type of probe that combine the social science goal of collecting information about the use and the users of the technology in a real-world setting, the engineering goal of field-testing the technology, and the design goal of inspiring users and designers to think of new kinds of technology to support their needs" .

Technology probes need to be: i) reliable/robust, ii) tailorable/configurable such that feedback on the design and requests for new features, etc. can be responded to in a timely manner, iii) provide suitable interaction logging, and iv) utilise appropriate seeding content.

As a technology probe the Wray PhotoDisplay system has undergone several revisions (following user feedback) since its initial deployment in 2006 and provided useful insight into both the Wray community and the value of this kind of technology.

2.2 The Co-Design and Deployment of the Technology Probe and it's Observed/Logged Use

A number of co-design workshops have been held in Wray with various members of the community, including the Woman's Institute (WI) and the Computing Club. One key co-design decision that arose from an early workshop was to enable village residents to take ownership of their own content categories, e.g. the 'Wray Flood' category (an example image from this category is shown in Figure 1b) or the 'Old Photos' category (this being the first category created following the initial seeding content provided). The person that created a given content category would then be responsible for moderating (e.g. approving) images submitted to that category. On the theme of local ownership, we have made (and continue to make) efforts to reduce the levels of dependency that typically result with external technology interventions and promote use that is sustainable by the community (as discussed in [15]). We have had mixed success in this regard and as noted in [19]:

> "the displays still relied on a university web server to host the display's content and website. This was a trade-off to provide services that are very easy for the university to provide, but which would potentially be expensive and difficult to manage for the community. "

Positively, on three occasions residents of Wray have moved the PhotoDisplay without feeling the need to contact the research team before hand. For example, during the early months of deployment the Village Hall (the first deployment site) was undergoing renovation and the community 'champion' moved the display to the village Post Office.

Obtaining feedback from the community was achieved through a variety of channels but one surprisingly effective method was the use of a comments book placed beside the PhotoDisplay. One of the earliest comments left by a member of the Wray historical trust read:

> "We have some names and descriptions of the photos (old ones) of Wray and dates – How and When ??? could we put them on ?"

This led to positive discussions in one of the co-design workshops, where a commenting feature was suggested. This was consequently implemented.

Since 2006, in excess of 2700 photos and 450 comments have been submitted to the system and an analysis of this content in terms of its relationship to Wray's Cultural Heritage is presented in [6]. It is noteworthy that the content submitted to the Wray Photo Display, relating to its local history, has been a mix of professional quality materials (see figure 1b) as well as photocopies of slightly perished newspaper pictures.

Displays have been deployed in various community settings within the village, including the Village Hall (known as the Wray Institute), the Post Office and the village tea rooms. One finding that has arisen from the PhotoDisplay deployments has been the interest in content relating to the local history of Wray and its cultural heritage. For example, several of the comments left in the comments books refer positively to this aspect of the content, e.g.

> "… and a delight for those who were born here and to go down memory lane".

Furthermore, a significant portion of the uploaded images concern local history and members of the village have also submitted related comments, e,g.

> "I lived in the house with the yellow looking door & window lintels, my Mum & Dad rented from Mr Phillipson who lived next door (with the porch) 1968-1974."

3. THE SHARC PROJECT

3.1 Motivation and General Approach

Shared sense of history is one of the keystones of sense of community [11] and both our past and current work in Wray village has sought to facilitate the sharing of Wray's local history through digital technologies. Indeed, it was such use of the PhotoDisplay system in supporting sharing of local history materials and narratives around this that led directly to the key aim of the SHARC project; namely, to support the sharing and co-curation of cultural heritage materials and narratives in an inclusive manner and from a range of sources and perspectives. Consequently, any developed tools should support not only the keen local historian but also the resident who has their own account of an event in the

village's history (one elderly resident has, for example, a delightful tale recounting "The first chips in Wray").

Our central approach is to co-design these tools with the community and, through longitudinal study, to explore their adoption and appropriation by the community.

It is important that the design of these tools is done in a participatory fashion to help ensure both their appropriateness to the requirements posed by the broad community (given the range of technical abilities for example) and also to foster a greater sense of ownership by the community.

3.2 Locative Media

While the PhotoDisplay system would enable users to view content related to Wray from the place where the display was situated, our design focus within SHARC is to support the consumption of Locative media [7,8] based experiences in-situ. While no short/simple definition of locative media appears yet published, our approach to Locative media is strongly informed by the following statement from [21]:

> "The development of locative media applications is not simply about the physical location or social setting in which the interaction occurs, but rather about situating the media within the social setting of a community".

Furthermore, the locative media (be this audio/video clips, textual comments/stories or simply geo-referenced images) being supported can be co-authored by residents and visitors alike and such authoring may take place in-situ or in the home.

Relevant research in the area of locative media includes 'Riot! 1831' [14] in which a locative media experience was designed for a public square in the city of Bristol. The experience related to the Bristol riots and involved the use of pushed audio which would be triggered by changes in the user's location (sensed using GPS) The experience was authored using the mediascape framework presented in [9]. Other notable work in the area of Locative media includes the work on interactive narratives utilising locative media developed by Nisi et al [12].

3.3 Technology Probe: A Mobile App for consuming locative media experiences.

One of the technology probes being developed is a mobile app (running on Android) that enables the consumption of locative media experiences. In more detail, the current design being explored involves pushing content to the user as he or she approaches Points of Interest within the village, e.g. Wray Bridge. One key challenge of this, however, is to provide a design that enables users to focus on their surroundings rather than their mobile device [20]. For this reason, we have avoided the use of 'turn-by-turn' navigation instructions that encourage 'eyes-down' behavior [16] and utilised a visual metaphor in the form of visible trigger zones that allows users to see when a push event is likely to occur.

Enabling users to respond to pushed locative media

We are currently exploring various designs that enable users to respond to locative media experiences by contributing their own content, whether this be their own story or simply a photo that they think is relevant to the experience being presented. For example, when a user approaches Wray Bridge and notices its different texture layers (reflecting the different dates of reconstruction following flood damage) then they can submit a response with a new photo and an associated comment.

3.4 Current State

In order to support the requirements for robustness and configurability we have recently developed a software framework (called the SHARC framework [5]) that includes a web-based authoring tool that supports the design of locative media experiences, e.g. the creation of Points of Interest and the association of locative media content with specific Points of Interest. The web-based authoring tool also handles the moderation of responses that have been submitted by other users when consuming the designed experience using the mobile app. Also included in the framework is a web app for browsing locative media experiences that have been created and this app has been integrated into the existing PhotoDisplay application and the mobile app.

The framework has been designed in such a way that it is highly configurable and, consequently, can be tailored to meet required changes to functionality (following community feedback) in a timely fashion. Returning to the issue of facilitating 'local ownership', one feature of the SHARC framework is it utilisation of personal Dropbox accounts in order to help remove reliance on university storage.

We have recently completed a series of expert evaluations on the mobile app based tool and also conducted a user-trial evaluation involving both residents and visitors at one of Wray's annual events: Wray's May Day festival. The seeding content used for the expert evaluations and user-trial was ostensibly created based on an interview and guided walk through Wray with a local historian, and the use of Locative media content previously submitted to the PhotoDisplay system, that related to the key Points of Interest included in the walk (e.g. Wray Bridge).

Shortly before the event we were given a day to set up the system (e.g. posters advertising the project and a touchscreen/mac-mini set-up running modified version of the PhotoDisplay application) in the village hall. On this day, several residents were 'on-hand' in the hall and we were able to conduct a design workshop which yielded both useful feedback on our current designs and also valuable ideas for future directions with the work and new functionality. We were also able to obtain additional locative media content from residents. This content was incorporated into the experiences used in user-trial held during the May Day festival event.

On both the set-up day and May Day festival event itself, we also gathered some initial usability feedback regarding the web-based tool for authoring locative media experiences, which revealed that reducing the tool's

complexity will be necessary in order to reach a sufficient level of usability for the intended user groups.

4. CONCLUDING REMARKS

In this paper we have presented an overview of the SHARC project which builds on our past PhotoDisplay technology probe based deployments and longitudinal evaluation in the rural village of Wray by seeking to support the sharing and curation of cultural heritage materials and narratives in an inclusive manner. One of the technology probes being developed under the SHARC project is a mobile application that allows users (either residents of Wray or visitors) to consume locative media experiences set within the village and designed using a web-based authoring tool.

It is important that the developed tools support not only the keen local historian but also, for example, the elderly resident who has an interesting story to tell and an interesting photo to go with it. Furthermore, we also need to ensure that the mobile app based tool that has been designed and developed for consuming experiences supports both the established resident of Wray as well as the culturally diverse range of visitors that come to Wray.

The mobile app based tool has undergone a number of expert evaluation cycles and is now at a sufficiently robust and usable state to be suitable for field-trial based evaluation with residents and visitors to the village. Indeed, we have recently carried out such an evaluation during Wray's May Day festival that provided valuable feedback (and new content) from both residents and visitors. In future field trials of the mobile app we hope to recruit, and obtain valuable feedback from, a range of visitors from different cultures.

Looking further ahead we would like to investigate how appropriate the current set of tools developed for Wray are for use by other place-based communities with a strongly contrasting culture to that of Wray. For example, gaining insights into the suitability/usefulness of the currently adopted approach to 'open-up' the authoring of locative media content and its implications for moderation and even whether or not the map based visualization is universally appropriate. In this regard we are inspired by the research efforts of Bidwell's work with communities in rural Africa involving the design of appropriate tools/technologies (including a portable communally owned display) for supporting social media [1].

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