

# Supporting Shared Sense of History within a Rural Village Community

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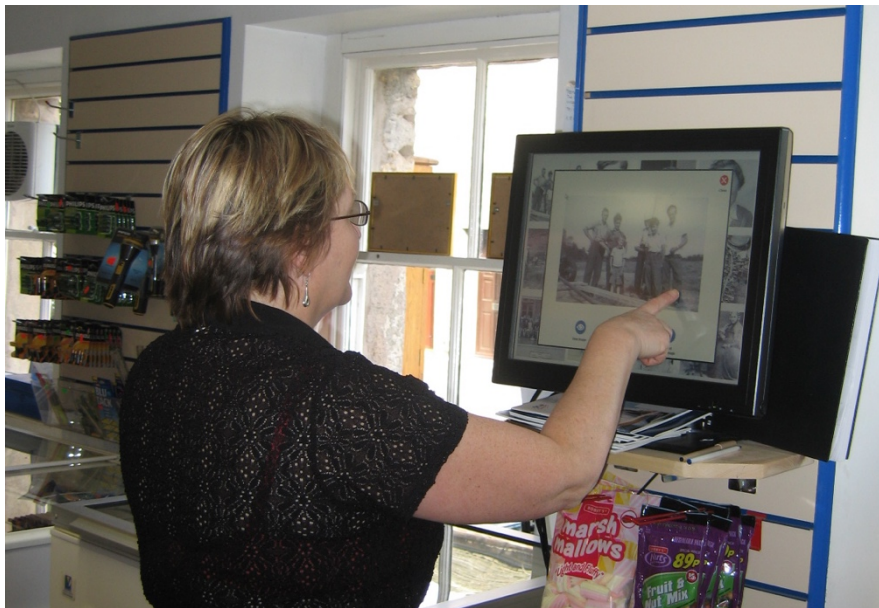
**Abstract** In this chapter we present our longitudinal study of a community photo display system known as the Wray Photo Display (Taylor and Cheverst, 2009, 2012) and how members of the community used this display to interact with their past (and each other). Our development of the Wray Photo Display commenced in 2006 as part of a research project which set out to investigate how situated displays could support rural communities, and in particular how such displays could support notions of community. Our analysis of the user generated content (in the form of images and associated comments) submitted to the system reveals a significant proportion related to cultural heritage. The current focus of our work with the Wray community is to provide residents with more sophisticated tools (including mobile tools) to support the shared collection and curation of narratives relating to local history.

## 1 Introduction

In this chapter we present our longitudinal study of a community photo display system known as the Wray Photo Display (Taylor and Cheverst, 2009, 2012) and how members of the community used this display to interact with their past (and each other). Our development of the Wray Photo Display commenced in 2006 as part of a research project which set out to investigate how situated displays could support rural communities, and in particular how such displays could support coordination and notions of community.

The Wray display (see Fig. 1 below) was co-designed with the residents of the village of Wray. Wray is a rural village in the north of England with a population of approximately 500 people. In carrying out our research, we have made significant use of technology probes (Hutchinson et al., 2003) and the use of longitudinal studies ‘in the wild’ (Rogers, 2011). Indeed, our situated display-based application was designed as a technology probe and has undergone a number of revisions since its

initial deployment in 2006. These revisions were made in order to satisfy requests for additional functionality received from the village community as part of a participatory development cycle inspired by action research (Hayes, 2011). In particular, in 2010, a significant design modification saw the Photo display functionality supplemented with additional functionality to allow residents to post advertisements and event listings and from this point the display system was renamed WrayDisplay (Taylor and Cheverst, 2012).



**Fig. 1.** The original Wray Photo Display. This display was deployed in the post-office and the figure shows one of Wray's residents interacting with one of the uploaded Historic photos.

A local technology enthusiast agreed to act as a 'champion' in the community and work with us to deploy technologies and organise meetings with other residents. The significance of having such a person available to help the research team and support the success and sustainability of the project over a longitudinal period cannot be overstated.

Beyond an early collection of seeded photos, the content of the display was entirely determined by the residents of the village. One early and key design decision was to enable village residents to create and take ownership of their own content categories, including delegated moderation. Two of the first categories to be created and moderated by residents of the village were: 'Old Photos' and 'Wray Flood'.

WrayDisplay is, of course, not the first example of a technology focused community system supporting cultural heritage. Much of the earliest work investigating local intranets or "community networks" found that such tools supported the recording of history in a community. To take a well-known example, studies of the

Blacksburg Electronic Village (Carroll and Rosson, 1996, 2013) saw various groups within the community maintaining pages which celebrated the town's history, including input from local schoolchildren. However, community-centric situated display deployments have typically concentrated on awareness of current events and individuals in the community rather than the past. One important property of a situated display-based system is that the display(s) can be placed at key locations in the community (and by the community) and these placements will typically have certain expected audiences. For example, a WrayDisplay is currently (October 2017) deployed at the village pub (previously displays have been deployed in the village post office, community hall, garden centre and the village café) and these are all places in the village that are frequented by both residents of the village and visitors to the village, e.g. families on holiday. Since the first deployment of a display in the village in 2006, in excess of 3000 photos have been submitted to the system. A content analysis carried out in 2015 showed that a significant portion of content submitted to the system related to Wray's local history and cultural heritage (Do et al., 2015).

We have recently updated the system to support Locative Media Experiences (subsequently abbreviated to LMEs) that can be consumed using an Android based mobile app and authored using both Web-based and mobile authoring tool. The LMEs available for Wray can be viewed and downloaded via WrayDisplay.

The remainder of this chapter is structured as follows. In the next section (section 2) we present Background to the research and related work around the areas of 'sense of community' (and how this relates to a community's shared sense of history) and situated displays/locative media applications that have been built to support exploration of cultural heritage materials. In section 3 we present an overview of the design, deployment and use of the Wray Photo Display with particular emphasis on those issues relating to Wray's cultural heritage and associated user interaction. In section 4 we describe recent updates that support the authoring and consumption of LMEs within Wray. Finally, section 5, presents our concluding remarks.

## **2 Background and Related Work**

Two areas of related work are applicable to the research presented in this article. These are 'sense of community' (and its relationship to shared cultural heritage) and technology-based solutions (and in particular situated display and mobile technologies) that support the capture and sharing of cultural heritage materials.

## ***2.1 Sense of Community and Cultural Heritage***

McMillan and Chavis (1986) define sense of community as “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together”. Further to this they highlight four key elements, namely: ‘membership’, ‘influence’, ‘integration and fulfilment of needs’ and ‘shared emotional connection’. It is this last element that is of particular relevance to this proposal and which McMillan and Chavis describe as:

“the commitment and belief that members have shared and will share history, common places, time together and similar experiences. This is the feeling one sees in farmers’ faces as they talk about their home place, their land, and their families...”

As discussed later in this article, it is content relating to this shared history that appears to have had such a strong connection with members of the Wray community.

## ***2.2 Situated Displays, Locative Media and Community***

Research into ‘situated displays’ belongs in CSCW, Ubiquitous Computing and HCI fields and has received considerable interest in recent years due, in part, to the widespread availability of cheap display devices and wireless communications. An excellent foundational text for the topic area is: ‘Public and Situated Displays: Social and Interactional Aspects of Shared Display Technologies’ (O’Hara, et al. 2003).

Fundamental to this notion of ‘situated’ is the notion of ‘place’ which Harrison and Dourish (1996) define as “a space which is invested with understandings of behavioural appropriateness, cultural expectations, and so forth”. Within the village of Wray, the situated nature of our display deployments was crucial with all deployments being places in so-called community hubs, e.g. the village shop, the village hall, the local pub, etc.

In terms of previous research in this particular area one early example is that of the Campiello system (Agostini and Valpiani, 1999), which was designed to support the place-based community in a neighbourhood in Venice. More specifically the research aim was:

“...supporting the dynamical exchange of information and experiences between the Community of People living in Historical Cities of Arts and Culture, their local cultural resources, and foreign visitors”.

In addition to supporting web-based access, members of the community could also interact with the system through a large screen display, referred to as the CommunityWall.

Other relevant work in this area includes the Byker Lives Table (Taylor, 2014). Like the Wray Photo Display, this display collected photographs and other media contributed by the community in Byker, an area of Newcastle, UK. However, the emphasis of this work was on divisions within the community, particularly over how a significant redevelopment of the community in the 1960s was interpreted as either a positive or negative event. The deployment explored how these photos could be curated as part of an exhibition while remaining inclusive and highlighting a variety of contrasting views.

Locative Media (Galloway and Ward, 2006; Hight, 2008) and how it relates to this article can be considered as follows:

“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” (Willis and Cheverst, 2011).

Although predating the term, the research that took place in the late nineties on mobile context-aware city guides provided early examples of locative media systems. For example, the GUIDE system (Cheverst et al., 2000) was designed to provide visitors to the city of Lancaster and local residents with context-aware access to services and digital (hypermedia) content. The content was ostensibly related to the cultural heritage of Lancaster and included historical information relating to attractions within the city, e.g. the City Castle and Maritime History Museum.

Another early example of Locative Media (again one that existed before the term had actually been coined) was the project ‘34 North 118 West’ (<http://34n118w.net/>). This project from 2002 again coupled location sensing (GPS in this case) with mobile computing devices in order to support a ‘locative narrative’ in which users would be pushed audio narratives relating to places (and their associated history) they passed by in Los Angeles. At a similar time, the ‘Urban Tapestries’ project ([urbantapestries.net](http://urbantapestries.net)) set out to explore how “...by combining mobile and internet technologies with geographic information systems, people could 'author' the environment around them”. The project ended in 2004 and was then followed by the ‘social tapestries’ project ([socialtapestries.net](http://socialtapestries.net)) which focussed on “exploring the potential benefits and costs of local knowledge mapping and sharing, what we have termed the *public authoring of social knowledge* “. While few research publications relating to the project exist, a comprehensive report is available from the project web-site.

More recently, a myriad of context-aware/locative media mobile applications have arisen from both the research and commercial domains – the latter being to cater for the burgeoning smart-phone market. One important feature of these smart-phone applications is their ability to support the automatic tagging of photos with their location before being uploaded to social media sites such as flickr. There is then the potential to use the tagged content as feed for community displays, an approach adopted by the Citywall project (Peltonen et al. 2008) in Helsinki.

Supporting personalised access to Cultural Heritage is one growing area of research that focuses on personalisation aspects and appears to show significant future potential for benefiting the user experience. Two recent projects that represent

current state of the art in this area are ‘Locast Tourism’ and ‘Memory Traces’ (Boghani and Casalegno, 2012) which the authors describe as following “a systematised approach for designing online locative platforms in support of unique user experiences with situated sociocultural topics.” A comprehensive overview of research concerned with ICT support for content organization and dissemination in cultural environments is presented in (Styliaras et al, 2010).

### **3 Development of the Wray Photo Display**

In this section we describe the on-going development of the Wray Photo Display and describe our approach that features participatory design and longitudinal evaluation as critical components.

#### ***3.1 Early Design Workshops***

The adopted participatory design approach with the Wray community has involved extensive use of design workshops and the provision of appropriate feedback channels such as the comments book placed next to the Wray Photo display.



**Fig. 2.** Wray Village Hall, the site of the first display deployment.

During the first design workshops (which took place in May 2006) it was necessary for the researchers present to convey to the residents the role that photos could have in supporting sense of community. In the pub where the design workshop was held there were a number of framed photos on the wall showing Wray from the past and the researchers highlighted these pictures to the residents in order to illustrate how photos (in this case historic and clearly related to the cultural heritage of Wray) related to the 'Wray community'.

A decision was then made for the researchers to go ahead with the development of a simple system that would be placed inside the village hall (see Fig. 2) and would display photos from the forthcoming scarecrow festival (an annual community event in which residents would build ornate scarecrows which would be placed in their gardens for public viewing during the so-called scarecrow festival week).

### ***3.2 The First Deployment of the Wray Photo Display***

The first display (see Fig. 3) was an extremely simple but reliable prototype: a touchscreen display connected to a concealed computer which showed pages of ten thumbnail photos and users could move back and forward through the photo collection using on-screen controls. Photos could be transferred to and from the display using Bluetooth file transfers from mobile phones. In terms of hardware, the first display application was driven by a 2006 Mac Mini that was selected due to its near-silent operation and small form factor (that allowed it to be placed out of view) and the display itself is a resistive touch screen monitor.



**Fig. 3.** Deployment of the first display.

The first version of the Photo Display was deployed during an annual event known as the produce fair (which takes place a few weeks after the scarecrow festival) and this took place in the village hall (Fig. 2). A comments book was placed next to the display and early hand-written comments left by residents and visitors to the village pointed to the desire for old photos to be included as future content. For example, the first comment left in the comments book (August 2006) was:

“This is a very good idea. Very interesting for the village people. It would also be good to see some of the old photos of days gone by”.

And other similar early comments included:

“Photo Album – wonderful idea. Would be great to see some of the historical pictures of the village...”

However, despite obvious enthusiasm for growing the collection, the Bluetooth-based system for uploading content was not popular or convenient. In response, we developed a web-based application for uploading photos to the display, which also allowed us to add a more robust system for categorising photos. In discussion with members of the community, it was agreed that in order to foster a sense of ownership by the community for the system and its content, any member of the village would be able to add a category but that person would then have to pre-moderate any content before it would appear on the display.

### ***3.3 Photo Categories***

One of the first new content categories to be added was that of “old photos” (examples shown in Fig. 4).

Comments received in the comments book shortly after the introduction of the new category were positive:

“a great way of recording a living history of Wray”

“Love the different Categories. The old photos are fascinating”

“and a delight for those who were born here and to go down memory lane”

“I particularly like the old Photos of Wray – very interesting”

These early comments signified at an early stage the importance that cultural heritage was going to play in the project.

Shortly after the addition of the “Old Photos” category (which typically contained photos of Wray from 20<sup>th</sup> Century) a new category was added called “Wray Flood”. The Wray flood occurred in 1967 and the first images to be uploaded to this category were clearly scans of newspaper pictures (see Fig. 5).

At around this time (October 2006) the display was moved from the village hall to the village Post office. Fig. 6 shows the display placed in the Post Office with one of the younger village residents making use of the system’s commenting feature. The new Post Office location also allowed the research team to receive feedback of use from the shop owner who could observe users of the display. The shop



owner informed us that some visitors would spend 20 minutes or longer interacting with the display.



**Fig. 4.** Two sample images included in the “Old Photos” category.



**Fig. 5.** Two sample images included in the “Wray Flood” category.

### ***3.4 Support for User Commenting and Captions***

When uploading a photo the user has a choice of whether or not to include a caption. Typically, a caption was not included but where a caption was included this would often provide interesting context. Often, this was simply a list of who appeared in the photo or where it was taken. However, in Fig. 6 below there is a photo relating to contemporary cultural heritage that shows one of the town’s scarecrows from the year 2000 and the user who submitted this photo included the caption:

“2000 - no scarecrows 2001 due to foot & mouth outbreak”

This caption refers to the fact that in 2001 there was no scarecrow festival in the following year because of enforced restrictions during the outbreak of the highly

infectious ‘foot and mouth’ disease (*Apthae epizooticae*) which had a devastating effect on rural farming communities (such as Wray) during the turn of the millennium.

However, the majority of photos were not provided with captions. For historical photos in particular, this often led to requests for information from the community. For example, one early hand-written comment left in the comments book read:

“We have some names and descriptions of the photos (old ones) of wray and dates – How and When ??? could we put them on?”



**Fig. 6.** Using the WrayDisplay’s commenting feature in the village Post Office.

In response to frequent requests, we implemented a commenting feature using a reasonably straightforward on-screen keyboard (Fig. 6). Many of the comments subsequently posted were used to express positive opinions about the photos, but many also provided additional context that had been missing. One example of an early photo submitted to the “Wray Flood” category which has no caption but two associated user comments is shown in Fig. 7. The two comments are:

“8th May 2008 at 10:32pm Gill Meadowcroft wrote:  
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. The house next door this way was a garage with my bedroom above and Betty & Cyril Rhodes lived in the house nearest the edge of the picture. Gill Lane (Meadowcroft)”  
“28th December 2007 at 4:02pm  
Someone using the Post Office display wrote:  
the one at the end of the street was our grandparents house!”

In another example, on the photo that made mention of foot and mouth disease, one user responded with a poignant comment simply saying: “*Sad*”.

It is interesting to note how the content of these comments is both informative, providing detailed information relating to occupancy of the buildings shown, but also very personal to particular individuals in the community, celebrating their emotional or familial connection to the heritage that is on display.

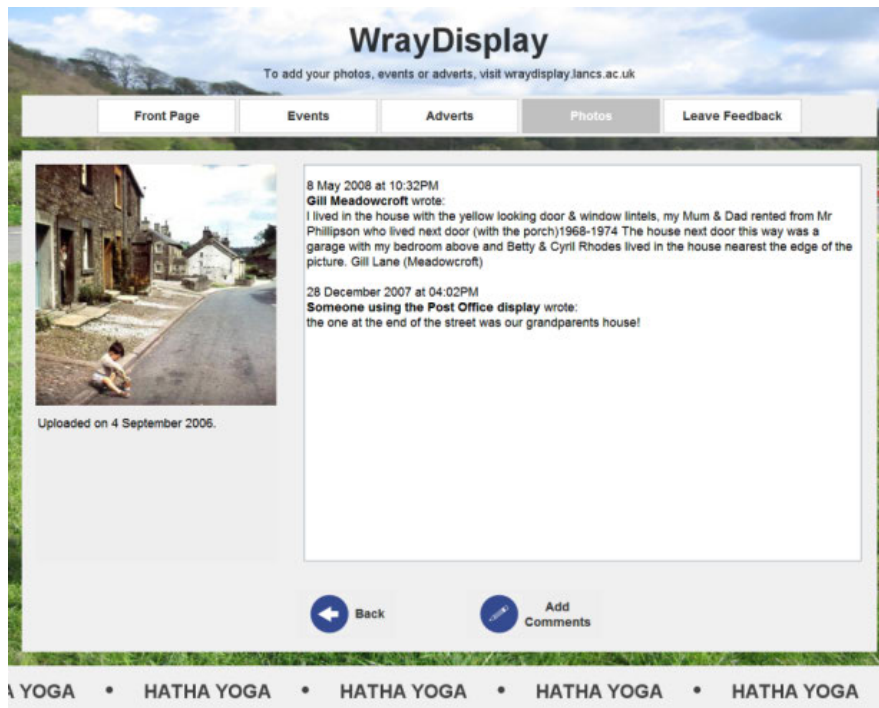


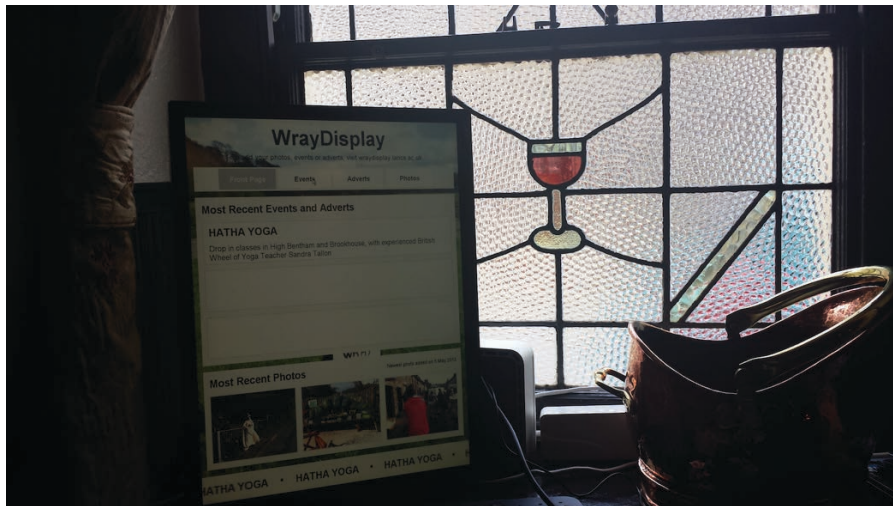
Fig. 7. An uploaded historic image with two associated comments.

### 3.5 Further Deployments

A second display was deployed in the village cafe (following a request made in the comments book) and later functionality included news and events features. More recently the Wray display was moved from the village cafe to the pub (see Fig. 8). While the cafe was mostly frequented by visitors to the village, the pub is a social hub for residents of the village: it is notable that the walls were already decorated with historical photos of the village.

With the display in place, it has continued to act as a probe to learn about the community and villagers' use of the display, collecting community-generated content and logging all interaction. This allowed us to identify types of content that were popular in the village and approximate patterns of usage. To gain a deeper

understanding beyond this data, we continued to meet with residents at regular intervals to discuss their thoughts about the display, how the community was using it and how they would like to see it improved. We also regularly attended community events, such as the annual village fair.



**Fig. 8.** The Wray Display currently deployed in the Village 'George and Dragon' Pub.

### ***3.6 Issues of Sustainability***

The collection of cultural heritage on the displays has led them to be highly valued by the community, who wished to maintain the display after the conclusion of the original project. Although we had always indicated that the community could retain the displays, the realities of handing over a research prototype to everyday users are fraught with difficulties (Taylor et al, 2013), not least maintaining the technology itself. In recent years, there has been considerable interest in how projects carried out with close cooperation of communities can have a sustainable benefit for participants. This has been highlighted as a difficulty in the use of action research in HCI (Hayes, 2011), given that HCI research often relies on prototypes that communities may be ill prepared to support once researchers are unavailable. For our project, we saw an ethical obligation not to simply abandon the long-term deployment, as well as to maintain the village as a valuable research environment for others.

Although there are technical challenges, the social challenges of maintaining engagement with the system are perhaps more challenging. Balestrini et al. (2014) developed a series of guidelines for supporting sustained engagement, including fostering a sense of ownership, utilizing off-the-shelf technology and facilitating

face-to-face discussion. Referring specifically to public displays, Hosio et al. (2014) discuss the need for displays to have value for the venues that host them, while some of the most recent thinking on civic technologies has promoted common ownership by stakeholders, including the created content (Balestrini et al. 2017). In the case of WrayDisplay, many of these guidelines were met, which has helped to support sustained engagement thus far. As we have described, creating a sense of ownership of both the display itself and its content was particularly important.

Finally, as the end of the original project approached, it became clear that community members were most concerned about access to the valuable content on the display more than the technology itself. For this reason, we had previously provided a back-up tool that allowed our champion to download an archive of content. The current project plans to involve the community in the development of an agreed exit strategy at an early stage of the project that will then be finalised and implemented towards the end of the project in order to complete the handover process.

## **4 Support for Locative Media Experiences**

In this section we describe our recent developments to support the authoring and consumption of Locative Media Experiences (LMEs) in order to enable both residents and visitors to share in Wray's local history cultural heritage while walking through the village. In order to support this, we have developed the SHARC Locative media framework (Cheverst et al., 2016). This software framework includes both web-based and mobile tools to support the mobile authoring of LMEs (Cheverst et al., 2015) and an Android 'Player' app that employs a push-based approach for presenting multimedia content as a given Point of Interest (PoI) is approached (sensed using the phone's GPS).

In the following sub-section we describe our approach for producing an initial locative media experience with the help of a local historian. Next, we describe the way in which 'published' locative media experiences can be browsed through an updated version of WrayDisplay and then downloaded for consumption via an Android 'Player' app. This is followed by a summary of a design workshop (in which residents contributed their own media) and the deployment of an updated WrayDisplay at Wray's Garden centre.

### ***4.1 Interview with Local Historian***

In order to gain a greater understanding for the breadth of cultural heritage related to Wray we met with an amateur local historian, called Sarah. She was a recently retired university academic with particular interest in 19<sup>th</sup> and 20<sup>th</sup> century, who lived in a neighbouring village. The contact was made through our village champion via e-mail and the interview took place on 19<sup>th</sup> July 2013.

The interview was semi-structured and lasted approximately 70 minutes and was basically split into two parts. The first 50 minutes took place in the village café (a former deployment site for one of the Wray displays) while the final 20 minutes involved the historian taking walking us on tour through the village. We had not asked (nor expected) the historian to take us on this tour but (as described below) it proved very fruitful. Two of this chapter's authors acted as interviewers (but with one taking the lead in the discussion while the other raised points for clarification and operated the dictaphone).

During the café part of the interview the historian provided some useful information regarding the provenance of some of the historic photos that had been submitted to the system and the details of other historians local to village and the texts that they had produced. He also helped clarify the (somewhat complicated) parish boundaries delineating Wray from its neighbouring villages with ran into some interesting discussion regarding notions of identity within the community and the association with geographic features in the surrounding area, e.g. those living in a certain valley, those living north of the river, etc.

In the tour part of the interview, the historian took past various significant places in the village some of which we were aware of from our past work and some not. On several occasions we were aware of the significance of a place but has not been aware of its name, one example being 'Kitten bridge' which was destroyed in the flood of 1967 (a key event in Wray's local history and one referred to on several occasions by Sarah). During the tour, as a significant place was approached or came into view, Sarah would describe the significance of the place, e.g. "Over there the Wray flood, the Wray bridge was swept away", and on numerous occasions this would involve referring to what used to be located there, e.g. "This was a wood yard...", "That was the blacksmiths", etc. Occasionally she would point or gesture to make a location clear, e.g. "that was the village shop before they moved there" [points to new location].

On two occasions the historian volunteered her ideas regarding the possible forms that the technology/tools could take. For example, in the excerpt below he refers to the potential of a mobile tool supplementing existing signage.

Historian: "Yeah, have you seen the bus shelter with the flood sign on it?"

Interviewer: "No"

Historian: "Cause I thought in a place like this, if you have a series of points where you have a little bit of text and a photo and it says underneath and you've got a mobile - if you want to see more photographs of what this was like here, click on this - then people can stand on the street and look at them while they are there... people could have a look at more pictures... be like having a guided walk but instead of having posters all around the village with pictures and some text you just have a little bit and if you want more then go on-line and interact with it."

The other example occurred when we approached a signage situated outside the village hall that showed a selection of photos relating to Wray's cultural heritage (see Fig. 9).

Historian: “These look like they have been replaced quite recently because they do fade here .... by the looks of it you are converting something like this into an interactive digital mobile experience.”



Fig. 9. Signage outside the village hall showing photos of Wray’s cultural heritage.

#### ***4.2 Development of Sarah’s Walk LME***

Prior to the interview the authors had already considered the potential of having walks and tours as effectively another type of user-generated-content that could be supported by the Wray displays and mobile tools and that such content could be of value to both residents and visitors to the village. Our reflection on the highly engaging nature of the historian’s tour further strengthened our opinion that the tour coupled with associated media would provide a compelling LME. Consequently, we used the web-based authoring tool to create an initial LME for Wray called *Sarah’s walk*. This experience consisted of 9 Points of Interest and focuses on a single Event of Interest (the Wray flood of 1967). Where appropriate, we used actual audio snippets from Sarah’s commentary. The image files used were selected from images submitted to the digital noticeboard system.

The WrayDisplay has been updated to allow users (residents or visitors) to browse LME uploaded to the system. The authoring of these experiences is supported via the Web-based or Mobile authoring tools available through the SHARC framework (Cheverst et al., 2016). The updated user interface is shown in Fig. 10. The screenshot illustrates what is presented when a user has selected *Sarah's walk* as the LME.



Fig. 10. Interface design for presenting LMEs, in this case showing the *Sarah's walk* LME.

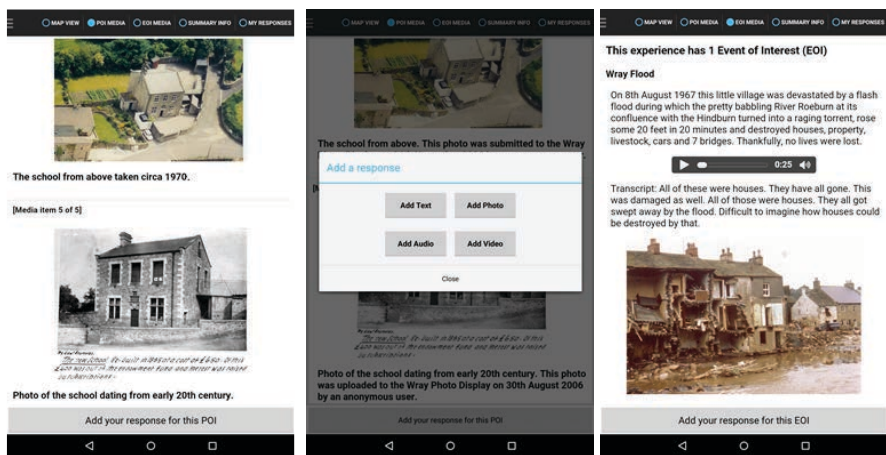


Fig. 11. Interface screenshots of the mobile player app showing the *Sarah's walk* LME.



The main point to note is the addition of a new tab 'Experiences/PoIs' (contrast this to the user interface screen shot shown in Fig. 7). If the experience appeals to the user, then they can press the 'Download to my Android device' button in order to instigate the downloading of a file package containing the mobile player app and all associated media files over a Wi-Fi hot-spot. The decision to package the media files with the player app was taken to remove the need for data connectivity while consuming the experience because of the poor mobile data connectivity throughout Wray village.

A selection of illustrative screenshots of the mobile player app is shown in Fig. 11.

### ***4.3 Design Workshop***

A design workshop with village residents took place on 30<sup>th</sup> April 2015 (see Fig. 12) and provided a good opportunity for feedback on the LME and for the contribution of additional content. A week before the workshop our champion posted an invitation on the Wray Facebook page for residents to attend the workshop and spoke, personally, to individuals whom she thought might have an interest. On the morning of the workshop the authors set up a laptop running the web-based authoring tool (with internet connectivity via the Wi-Fi available in the village hall) together with the WrayDisplay displaying *Sarah's walk* LME.



**Fig. 12.** Discussing accessibility issues with village resident during a Design Workshop.

In the afternoon, five residents attended the workshop (no reward for attending was offered) with some attending just briefly to see what the project was about while others remained for the duration of the workshop (nearly three hours) and had significant involvement and input.

One significant theme that arose from the workshop related to the issue of accessibility. This issue first came up in discussion with a long-time resident of Wray called Anne (not her real name). Anne was a keen walker but was currently waiting for a knee replacement operation and required the use of a crutch for walking. She was keen to use the mobile player app and we decided to walk a shortened version of *Sarah's walk*.

Before leaving the village hall Anne read the description of the walk on the digital noticeboard. The description (wrongly) stated "No accessibility issues". Anne described the frightening experience she had suffered when pushing her mother-in-law's wheelchair on the tarmacked downhill path between Wray School and Kitten Bridge:

"I did it once and I shouldn't have done because I went the route where I would take a pram and I very foolishly started going down the hill and scared myself because I just hadn't realised what the weight in the chair might mean and I was crossing my fingers and bracing myself..."

Later, while Anne used the mobile player app we returned to the issue of accessibility with Anne commenting:

"you've got things like disabilities organisations, they are seeking specialist information which is of particular interest to wheelchair users about the quality of the loos, the access, the entrances, all that sorts. If you got people like that really interested in the community and sharing the resource then I can see that working ..."

So Anne had clearly identified a community around accessibility that could benefit from capturing and sharing locative media related to accessibility. We then went on to discuss notions of crowdsourcing and how images could include "*drop curbs here...*". It was agreed that authors of a locative media experience should have the facility to specifically highlight potential accessibility issues.

Anne also suggested new content to be included as part of 'Sarah's walk' locative media experience. This new content took the form of some archive video footage showing the rebuilding efforts undertaken immediately following the Wray flood of 1967. This video content was added to the *Sarah's walk* LME which was field test during Wray's annual vintage car rally which took place as part of the village's May Day celebrations. Full details of this field trial are presented in (Cheverst et al. 2016).

As Anne walked through the village with the authors, consuming the Sarah's walk LME via the mobile player app, it was clear that she had a strong knowledge of Wray's local history and could speak about this eloquently. For example, as we approached Wray school (and the locative media was triggered) she described her understanding of the school's history, providing a slightly different perspective

from that which we had heard/read previously. It would have made an excellent audio clip to associate with the school POI but on finishing her piece she said:

“I don’t want you to use that but you are just doing it for the purpose of... [this trial]”.

Anne had earlier said that she:

“was not a social networking person” and “I don’t like how much information some people make available – I mean it’s just scary”.

However, a little later in the walk Anne expressed the following (that perhaps suggests a different reason, more associated with self-confidence, for not wanting to share her response):

“In a way I am used to using the old ways, if they work, but ... I’ve not got used to putting my own two penny worth in... but I have got a two penny worth or so in terms of knowledge, but its just that I don’t always think it is interesting to anybody else”.

#### ***4.4 Deployment at Wray’s Garden Centre***

In September 2015 the updated version of WrayDisplay was deployed at the village’s Garden centre, known as the Garden Rooms (see Fig. 13).



**Fig. 13.** Deployment at Wray’s Garden Rooms.

The Garden Rooms shares a large parking area with the village Tearooms and is consequently a good location for visitors. During the day of deployment the authors were able to discuss with villagers the new digital noticeboard and its support for locative media experiences. There was also opportunity for one of the residents, to create his own ‘Labyrinth’ experience using SHARC’s mobile authoring tool (see Fig. 14, left) and publish this for display on WrayDisplay (see Fig. 14, right).



**Fig. 14.** Resident using the mobile authoring tool to create his own ‘Labyrinth’ LME (left) and the published LME appearing on WrayDisplay (right).

## 5 Concluding Remarks

In this chapter we have presented our ‘in the wild’ research exploring the long-term real-world deployment of a situated display-based system in the rural village of Wray. In particular, we have focused on the community’s use of the Wray Photo Display for interacting with and communicating through user generated photo content and associated comments. A significant proportion of the images uploaded to the system relate to the village’s cultural heritage (both past and contemporary). Furthermore, many of the comments added by residents were to add additional context and insight to an image and this is the kind of engagement that we hope to see again when adding the tour/walk category.

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 on behalf of the community.

Furthermore, a ‘one-size-fits-all’ tool is unlikely to be appropriate given the range of contexts of use, e.g. curating Locative Media Experiences for consumption by established members of the village community vs. curating for consumption by residents new to the village vs. curating for consumption by visitors. Some tools may be mobile applications that support the capture of content in-situ, whilst others may involve the tailoring of existing technologies within the village, for example modifying the colour photocopier in the village post office in order to support the simple scanning of historic village newspaper articles.

In terms of technologies to support the consumption of these narratives we envisage that both mobile technologies and situated displays provide suitable properties and affordances. In particular, our experiences with situated displays have taught us that their placement is crucial (e.g. siting the display where the audience has due time to interact) and again consultation with the community is vital in order to promote sense of ownership and avoid inappropriate placements.

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