"This Might Be Stupid, But…": Participatory Design with Community Displays and Postcards

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ABSTRACT

We describe our experiences of designing a digital community display with members of a rural community. These experiences are highlighted by the development of printed and digital postcard features for the Wray Photo Display, a public photo-sharing display designed with the community, which was trialled during a popular village fair where both local residents and visitors interacted with the system. This trial allowed us to examine the relative popularity and differences in usage between printed and digital postcard, and offer insights into the uses of these features with community-generated content and potential problems encountered.

Categories and Subject Descriptors

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design, Human Factors.

Keywords

Situated displays, community, rural computing, photo sharing, technology probe, participatory design, user-generated content, awareness, field trial.

1. INTRODUCTION

As large, public digital displays become increasingly common and methods for interacting with them increasingly sophisticated, new potential uses for situated displays continue to emerge. Amongst these, applications for supporting communities through awareness and messaging are perhaps some of the most promising.

Technology has always played a vital, enabling role in communities, from cars to telephones to the Internet, and we believe that public, situated displays have the potential to become one of these technologies, as demonstrated by existing deployments [7,13,19]. However, as each community is unique and presents complex socio-technical challenges and issues

Figure 1. Wray Fair.

based on local factors, the success or failure of such displays can depend heavily on local knowledge and the involvement of the community. For this reason, we see participatory and user-centric design as vital techniques to ensure the success of deployments.

Our work focuses on using these techniques to develop prototype displays we can use in evaluating both the ability of public displays to support communities, and the techniques themselves. Over the last two years, we have designed, deployed, evaluated and further developed the Wray Photo Display [19], a situated display application for displaying a community-generated collection of images. This has been deployed in Wray, a small village in the north-west of England with a population under 500, designed to operate as a technology probe [12]—a functional prototype to inspire ideas from participants. With this we aim to explore the community, inspire design ideas from residents and researchers alike, and determine the appropriateness of technologies and techniques through field tests and observation, with the ultimate goal of exploring the ways public situated displays can support small communities.

At the time of writing, this probe has been collecting data for 20 months, including usage data, a record of village life through the content and categories generated, and suggestions and feedback from residents. This feedback has frequently included feature requests, some of which fall within the scope of the photo display and have been implemented where possible, such as posting comments to photos, and others which suggest the desire for a more complex display with a wider range of content.

One suggestion made, which has been frequently repeated by other residents, was the possibility of creating postcards from

the community's images. A resident complained that "the [postcards] for sale in the post office aren't very inspiring, and I'm sure the locals could do better", and suggested that either printed or digital postcards would be a useful addition. We saw this as an easily implemented feature which could potentially offer high value to community members and visitors alike.

In this paper, we describe our experiences in collecting feedback data from residents in the community using the Photo Display, and using this feedback to design a new feature allowing both printed and digital postcard approaches. This feature was trialled at Wray's village fair during its annual scarecrow festival (Figure 1), a popular event during the May Day public holiday which attracts several thousand attendees from around the region. We document the usage and relative popularity of both features, the problems we encountered, and discuss the implications of this technology in terms of messaging and awareness, and our experiences when designing these features.

2. BACKGROUND

2.1 User-Centred and Participatory Design
Our work in Wray has taken a user-centred approach, in which the needs and working practices of the end user are given priority when designing technology. Specifically, we have used a participatory design approach [2], a user-centred design methodology with a rich background in Scandinavian workplace democracy and British labour unions, which aims not just to prioritise the user, but to fully involve them in the design process to the extent of co-realising technologies together to meet their needs.

This approach has been taken throughout our work with Wray when developing the display, to gather feedback from residents directly and ensure that the systems we develop are of use to the community. This has often taken the form of action research [1], which involves a community in a series of iterative improvements. The specific methods we have used in pursuing the participatory co-realisation of the display are detailed in section 3.1.

2.2 Postcard Technologies
In this paper we describe two technologies added to our system as a result of participatory design: digital postcards and photo printing. These features in themselves are by no means new ideas and have both been commercially available for many years.

Digital postcards, or 'e-cards', are normally sent from a website where the sender enters a message and a recipient's email address, who is emailed a web link to the card. This service is available on many websites, including those run by well-known greetings card companies. They are typically available either free or at minimal cost and often take advantage of their medium by employing rich media content such as Flash animation, or personalising elements of the card's design. Many online information sources, such as news sites and various forms of online communities, also include a feature to email the content, or more often a link, to a friend.

Systems for generating and emailing photo or video messages *in situ* through the use of public displays can be found in many public attractions, such as the Tate Modern in London and Van Gogh Museum in Amsterdam [3]. Existing academic research

Figure 2. The Wray Photo Display and postcard printer.

into the subject has explored forwarding community-generated content, effectively as postcards, from public displays [5] and creating digital and printed postcards to bridge global divides [17]. In addition to situated displays, the use of camera phones and multimedia messaging has provided an alternative medium for this kind of activity [15].

Public photo kiosks in shops which print from memory cards or CDs have also been available commercially for many years. Again, museums and other tourist destinations have taken advantage of this in creating prints and postcards; the obvious advantages of this approach are the reduced physical storage space and potential for a much larger selection of images. However, our deployment differs from many of these systems by allowing prints and digital postcards from a community-generated collection of locally relevant images, much like on a community-driven website, rather than from the user's private collection or a fixed collection of professionally produced images provided by the system's owners.

The messaging and awareness aspects of these technologies bear some similarity to previous work conducted under the CASIDE project on Hermes [5] and Hermes@Home [18] systems for messaging through situated displays, which will be discussed later.

3. DESIGNING WITH WRAY

3.1 Methods Employed
Throughout the project, we have employed a variety of methods to investigate the community, co-realise prototypes with residents and evaluate our deployments. This began in April 2006, when researchers began visiting the village to discuss ideas with residents and distribute cultural probe packs [9] consisting of notebooks and cameras to gather their thoughts on the community and the current non-digital public displays in the village.

Using these thoughts as a starting point, we adopted a technology probe approach [12], in which a simple 'seed' technology is deployed into an environment, acting both as a functional prototype and a tool to inspire discussion and ideas from residents and researchers. Detailed analyses of technology probes can be found in Boehner *et al.* [4] and Graham *et al.* [10].

Our 'seed', the Wray Photo Display (Figure 2), consists of a touch screen display connected to a small, concealed computer

running the Photo Display application. The application displays screens of image thumbnails from a collection of photos created by the community, which can be viewed full-size by touching a thumbnail. An associated website allows community members to upload their images to the display, manage categories and moderation, as well as browsing and commenting in a similar fashion as with the display. The Photo Display has been installed inside the village post office for the past two years—this is the only shop in the village, so the display has been very noticeable and generated a significant amount of usage. Over 900 images in thirteen categories have been uploaded to the display since it was first deployed, most from a small number of residents who upload images from major events, and one user who uploaded a large number of local historical images from her personal collection.

Following the deployment of the display, we have gathered large amounts of data and feedback from various sources. Some of these sources have been remote and indirect methods—the display itself logs all interaction, so far collecting records of some 50,000 interaction events with the display, while a paper comments book has been left by the display at all times, allowing residents to leave their thoughts and suggestion by a familiar and non-technical method, So far around 60 individual comments have been received via the comments book and additional comments have often been submitted to us by email, normally via our contact in the village.

Other sources have involved a large amount of direct contact with members of the community. Firstly, we organised a number of workshops and focus groups, to which residents were invited to discuss the display and potential changes. Secondly, we have deployed duplicate displays on numerous occasions at the village's annual fair and produce show, both popular events which attract a large number of villagers and visitors. These deployments have allowed us to directly observe users as they interact with the display, as well as gaining a better understanding of the community and meeting residents to discuss their ideas and opinions in a relaxed atmosphere, without the formality that may be implied by an organised focus group or meeting.

A more general discussion of the design process as a whole can be found in Taylor *et al*. [19], however, in this paper we will concentrate on functionality suggestions which we have received from residents and the observation of one of these features during field trials.

3.2 Design Ideas Gathered

To date, we have gathered large amounts of potential design ideas through these various channels, some of which related to the Photo Display system, and others which seemed to indicate a desire for a system with broader noticeboard-style functionality. Many of the ideas for the Photo Display have been implemented during the system's deployment—numerous small updates were made in the month following deployment based on immediate feedback, with a large update occurring one year later based on long-term feedback and requirements which had only become apparent over time.

For example, the original system was very simplistic, just showing a selection of thumbnail images on the screen, but was quickly extended to allow users to touch a thumbnail and view it at a larger size, in response to an elderly resident who struggled to see the images. Categorisation of images was

introduced to allow a larger number of photos to be added and browsed easily—in particular, residents wanted a separate category to group historical images together. The system's website has also undergone several major revisions in response to user feedback, growing from a very simple administrative tool into a public system for viewing, uploading and managing content.

Other feature requests that have not yet been implemented include audio content for playing back stories about village life, advertisements for local businesses and an online version of the local newsletter. While these ideas clearly fall outside the scope of the current system, they have been repeated by several residents and may form the basis for future deployments.

In this study, we concentrate on one suggestion received by email in May 2007, via our contact in the community, from a resident who was unable to attend a scheduled meeting about the display but had an idea to share:

> "I'm sorry, but I won't be around on Thursday to go to that meeting in the Institute... but I DO have an idea - maybe you could pass it on for me.

> "I was wondering if we couldn't make photographs of Wray and surroundings available as postcards for visitors to send. The ones for sale in the post office aren't very inspiring, and I'm sure the locals could do better! I know WE have lots of nice pictures of the village - and I'm always looking for cards myself to send to my family in the States.

> "It seems to me they would have gone like hotcakes during Scarecrow Week, for example. Maybe they could even be free. I don't know anything about HOW to do it, but it would be nice, either as e-cards or as real, printable paper cards.

> "Anyway, if it's impossible, at least I won't have to be there to hear the hoots of laughter!"

Despite the residents' own doubts, we felt that this was a very promising idea: a simple feature, potentially offering high value at a relatively low implementation cost, while adding a new dimension to the display by allowing situated users to send community material rather than just consume it. Although time constraints prevented it from being included in the display's first major revision, it was selected as an excellent feature to trial at 2008's village fair.

4. POSTCARD TRIAL

Wray Fair is the climax of a week-long scarecrow festival, during which most households in the village build and display a scarecrow outside their home based on a common theme. At the previous year's fair, we had been able to observe the original display in use during a similar temporary deployment and gathered useful feedback about the design, so we were keen to repeat this experience. In this section, we will describe the trial system and our observations from the day and highlight the particular issues we encountered.

4.1 Field Trial Method

For the trial, a duplicate display was modified with an additional option to 'Make a Postcard' when viewing an image, which gave the user a choice of sending a digital postcard or printing a postcard. The first option prompts for an email

Figure 3. A Wray Fair E-card.

address and message using an onscreen keyboard, then invokes a web application on our server to create the card and send an email message to the recipient. The card can then be viewed on the web (Figure 3). The second option would send the image directly to a photo printer. We selected a Canon SELPHY CP-740 photo printer for use during the trial. This is a very compact device (approx 18x13x6cm) which uses dye-sublimation technology to produce high quality prints onto postcard-sized photo paper. Paper for the device is ready-printed with an address space and stamp box for use as a postcard, although the thickness of the paper is comparable to normal photo prints rather than postcards.

The modified display was debuted temporarily at Wray's annual village fair on May 5th 2008. The system was housed inside the fair's craft tent (Figure 4), alongside small, local and regional businesses selling a variety of goods, often skilfully homemade. The duplicate display contained the entire collection of images from the post office display, which included 190 recently uploaded images of the current festival's scarecrows. We also added a selection of images taken during the day, including photos from inside the craft tent showing other stalls.

The display was in operation for six hours, during which time local residents and day visitors of all ages were invited to email or print a postcard. A researcher manned the stall throughout the day, discussing the system with participants and noting basic details such as gender, approximate age and their hometown, and offered assistance where needed. This approach
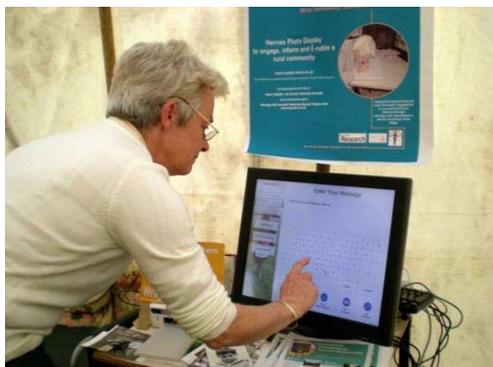
Figure 4. A resident sends a digital postcard.

Figure 5. Popular topical images.

was taken rather than requiring participants to have their details recorded formally to lower barriers to participation and encourage casual use.

4.2 Observations

The new features were well-received by residents with existing knowledge of the system and generated significant interest from visitors. Digital postcards proved the more popular of the two options, with 26 sent on the day, compared to 19 printed postcards. The uptake of printed postcards was hampered by their perceived cost; our signage didn't indicate that these were free, and most users who did print a card did so only after asking how much it would cost. Furthermore, our local contact was particularly enthused about digital postcards and mostly encouraged participants to use that feature.

A slight majority of users on the day were local residents (57%), despite visitors to the fair far outweighing local attendees, although many claimed not to have seen the post office display before, meaning most users were effectively new to the system. Contrary to our expectations, over half of all postcards created (56%) were intended for personal use rather than to send to someone else. In both cases, most images selected were of the current year's scarecrows; images of topical scarecrows proved to be especially popular, particularly a diorama depicting baggage problems at Heathrow Airport and several scarecrows of singer Amy Winehouse (Figure 5).

4.2.1 Digital Postcards

In general, users seemed to see digital postcards as a way of 'taking away' images from the display, often selecting images which they would like a copy of for themselves. Around half (54%) were sent to the user's own email address, while the rest were sent to friends and family. Many users simply greeted the recipient (in many cases themselves) when adding a message, occasionally stating the message was sent from Wray Fair, although several chose not to add any message. A sample of other messages includes:

"hello from wray fair from Liz"

"Hi Pauline and Peter Greetings from Wray Fair Lve Eunice and Colin"

"this is my school's scarecrow how are you doing? love from kathryn and william."

"this is from john and phylis in the craft tent"

"me today. done nowt!"

"come to wray fair!"

"kumusta ka mahal ko"

The reasons for sending the image fell into three broad categories: the photo showed their own scarecrow (19%), the photo showed a scarecrow they liked (46%), or the photo was in some other way personally relevant to the sender or recipient (35%). Examples of this last category included a picture featuring the sender or something representing a personal joke. There was no apparent correlation between the types of image sent and the intended recipient.

Of those cards sent to others, most were to nearby friends and family who weren't attending the fair themselves. However one was sent to a friend living in the Philippines, and two to a single local resident who was on holiday abroad, including the popular Heathrow image with the caption "hope u dont lose your luggage".

Six weeks after the study, seventeen of the digital postcards (65%) had been viewed online, each an average of 1.6 times; this suggests only limited repeat viewing or forwarding. Unfortunately, we have no way of measuring exactly how many forwards occurred. Most views occurred within several days of the fair, with the exception being the two postcards sent to a resident on holiday, which were not opened for several weeks. The remaining nine have not been viewed at all, and although four of these can be attributed to failed emails (see section 4.3.2), the fate of the remaining five is unknown.

4.2.2 Printed Postcards
A significant majority of printed postcards (75%) were intended as souvenirs for the user themselves rather than for posting to others. Six were visitors to the village printing pictures of scarecrows they liked, four were local residents printing pictures of their own scarecrows, and two stallholders from the craft tent printed photos of their stalls. Only one user intended to actually mail the printed postcards; this participant was on holiday in the region and printed four postcards to send to friends at home.

Printed postcards could be grouped into the same categories as digital postcards, with not substantially different proportions: the user's own scarecrow (21%), a scarecrow they liked, printed as a souvenir (58%), or a personally relevant image (21%).

4.3 Issues

4.3.1 Keyboard Usability
Many users initially despaired when presented with the onscreen keyboard (Figure 6); several users simply gasped "oh god!" However, despite these reactions, very few users had major difficulty using the keyboard, and several users actually seemed to enjoy the novelty of typing on the screen, much to their own surprise.

Due to space restrictions on the screen, the keyboard was not laid out exactly like a typical keyboard. Unnecessary buttons had been removed, while buttons like backspace and shift were moved onto the fifth row. This did tend to confuse adult users initially, though we noticed young children seemed to seamlessly detect these changes. One child noticed the conventional keyboard kept out of sight and attempted to use it instead, although this didn't work with the display's implementation.

Interestingly, although the space bar was placed as normal, several users had to ask where it was or confirm it was the
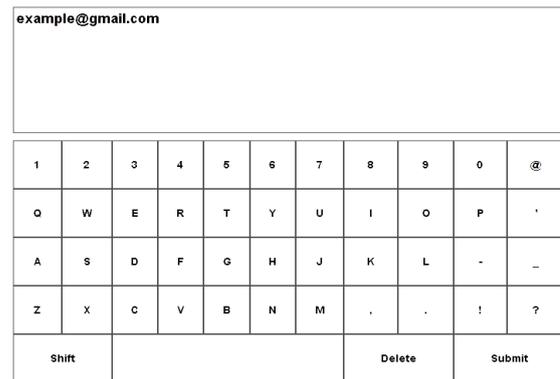

Figure 6. The on-screen keyboard layout.

correct button, perhaps because it is less clear in two dimensions that it is indeed a button and not just a gap. Placing the submission button on the keyboard, again due to space constraints, also proved confusing, and several users suggested it should be placed separately. This keyboard implementation had previously been used for adding comments to photos, where similar feedback was received.

4.3.2 Email Problems
The main issues surrounding digital postcards, which greatly influenced its usage, was remembering email addresses. Few users were able to remember addresses for friends and family, meaning the choice of recipient was dictated by which addresses they could remember. Many residents overcame this limitation by sending the card to themselves to be forwarded onwards. The use of a directory of local email addresses was suggested several times, although each proposer quickly realised the privacy implications. Most agreed that sending cards from the display's website would make this much easier, as addresses could be found from private address books.

Five of the cards returned delivery failures which were not received until after the end of the fair. Of these, two appeared to be caused by a '0' being typed instead of an 'o', yet still failed when the characters were changed. One email was from a user who had needed to guess a domain suffix, and was altered and resent successfully. A fourth email was returned with a 'user unknown' error, while the fifth's mail server could not be reached. In our prototype setup there was no way to inform senders of these errors—a possible solution would be to have the user supply a return address, although this would incur additional complexity.

4.3.3 Printing Cost and Maintenance
While regular users of the main post office display were keen to see digital postcards added in the post office, the photo printer was not seen as a viable addition to the display. Our printer requires new paper every 18 prints and new ink every 36 at a cost of around 25p per print. Residents saw this as a high cost and an unacceptable burden on the post office staff. Of course, the printer used for the trial is designed for home use and was never intended for public deployment—more robust printing solutions, of the kind found in self-print kiosks, might be more acceptable.

Some residents also complained about the way photos were resized to fit on the postcard paper, leaving gaps on either side

of narrower images. This was a familiar problem which we had encountered before when generating thumbnails: images which do not fit the area exactly needed to be distorted, cropped or resized with space on either side. The latter approach was preferable on-screen, but not when printed. Residents suggested the display might allow users to preview and adjust cropped images onscreen before printing—this is a common feature in photo applications, but again, would add considerable complexity to the interface.

4.4 Follow-Up Questions
The email address to which each digital postcard was sent during the event were logged, allowing us to contact recipients (many of whom were also senders), to gather their opinions on the system and their experiences as a 'remote' user rather than a 'local' situated display user. Six participants responded to an email message asking for their opinions, which asked whether the postcard worked, why they picked the image (for senders) or whether they enjoyed it (for recipients), if they would like to see such a system in their community and any other comments or suggestions they might have.

Three local residents and one visitor responded positively, stating that the feature was a beneficial addition to the display and the community, which added a personal touch to digital postcards. Two of the responders mentioned that they had forwarded their card on to friends and family, and actually saw this as a good way of distributing the image.

However, one local resident, who had sent a postcard which was not received, felt the feature was "a nice gimmick to publicise [the project's] activities but not a great asset in itself". We received another email from outside the community, also from a recipient who had not received his digital postcard and saw this as a reliability problem of the system. However, his address was not one of those which returned a failure message. This would appear to highlight the risk of 'silent' failures and the damage to trust which these can cause, even when the failure may potentially have been in a remote mail server or overzealous spam filter.

5. DISCUSSION
This study has been particularly useful in assessing the development of new display features from ideas generated by the community through our participatory design techniques, and the use of our display in a messaging and awareness context—a purpose for which it has not previously been used. In this section we will discuss both of these findings, as well as other considerations which have arisen.

5.1 Designing with Rural Communities
Participatory design has proved to be an excellent methodology for working and designing with communities. However, there are certain practical problems which must be overcome. In our experience, one of the greatest amongst these is the community members' own perceptions of their ideas and of researchers. For example, in the email that first suggested digital postcards, the resident worries, half-jokingly, about the "hoots of laughter" that might greet her idea. This seems to be a common sentiment amongst interested residents; that their ideas may be laughed at or considered 'stupid', either by fellow community members or by the 'clever' researchers. A continuing challenge in our work is encouraging residents to come forward with their ideas,

which are, as was demonstrated by our postcard study, far from 'stupid'.

This was further highlighted by an instant messenger conversation between our contact in the community (C) and a researcher (R):

> **C:** keep thinking about that email [...] and how she thought you would laugh at her [...] and how brilliant an idea it is [...] seems to me like most of the villagers feel the same [...] the hardest bit is getting them to open their mouths at the right time and share their thoughts [...] they always think that nobody cares or is interested in them
>
> **R:** yes
>
> **C:** as they are not clever or so they think [...] but they are wrong
>
> **R:** we should be able to do that photo thing quite easy too
>
> **C:** villagers are well smart people
>
> **R:** Its a big prob for sure, but I suppose asking people for their ideas is the first step to improving things
>
> **C:** yep
>
> **R:** I think there is certainly rural discrimination - I often feel a bit that way because I have a [northern] accent!
>
> **C:** the project will build cohesion.

Although we had encountered similar attitudes from non-rural participants when designing the SPAM system [5], our studies have not covered a suitably expansive range of communities to indicate whether this is indeed a rural attitude, an issue of class, or a more general issue affecting the relationship between academics and non-technical, non-academic participants.

Another potential problem we have encountered is eliciting negative feedback. Negative feedback is, of course, just as welcome as positive feedback, but very little has been received. This should perhaps have been expected; participants in the workshops are self-selecting, and naturally tend to be those with most interest and enthusiasm for the project. However, during this study, we found that participants may be more willing to express negative opinions remotely. Although the number of responses received is clearly not enough to draw any definite conclusions, the proportion of negative comments is in stark contrast to our face-to-face encounters, where feedback has been largely positive. Still, feedback received through other remote methods, such as the comments book, has also been strongly positive. It may be the privacy of email which encouraged negative comments, whereas the comments book could be seen by the entire community, or it may be the case that those with negative views need more encouragement to come forward with comments—which was achieved in this case by emailing them directly.

Finally, we have often found that the use of a prototype display as a technology probe provides a concrete example for residents to relate to when discussing issues surrounding the display. For example, remembering email addresses was not an issue that residents considered while the feature was being discussed, but using a prototype of the feature brought this weakness to their

attention and led to discussions of possible solutions. In the past, discussions of privacy have also been greatly aided by the use of concrete examples, such as images of children that had been uploaded to the display.

5.2 Awareness and Messaging

Situated displays have often proved themselves to be a capable medium for awareness systems [5,11,16], and we feel that these new features strengthen the display's existing ability to support awareness within a community. In the past, the display allowed co-located users to be made aware of events which were either happening outside the village (e.g. holiday photos uploaded remotely) or in the past (both historical images and more recent events), but this ability was uni-directional. Postcard functionality extends this into both directions by allowing co-located users to send images from the event as it is happening, creating awareness of local events (e.g. "look at this" messages) for those who are not present. This awareness could effectively be in real-time: a digital postcard could potentially be read almost immediately after being sent.

This also allows for a form of remote presence [20], where those who are not present at the event itself can still feel as if they have 'participated' by being in communication with those who were. In the past, residents have commented that they liked being able to see events they'd missed, and these features further extend this ability. Additionally, the combination of a textual message and an image adds meaning and context to the card: for example, the Terminal 5 photo is made meaningful to a particular person on holiday by the addition of the light-hearted message, while other messages are given context by the photos, showing where the user is—and in the case of photos taken on the day of the fair, even *when* the user sent the message, situating the message temporally as well as by location.

We did see some usage of the features in this way; for example, one stallholder in the craft tent sent a photo of her stall to a friend with the message "me today. done [nothing]". This is similar to the brief, playful messages found during trials of the Hermes@Home system [18], which was likewise used for messaging between family members. However, the most likely candidates for community awareness and remote presence were not used for this purpose—both images sent to a resident on holiday were used as light-hearted communication and did not relate to the day's events.

Most of the messages sent seem to fit into two of the three types of awareness described by Dix [8]: 1) who is there and 2) what has happened and what has been changed in the shared environment. Although this framework was designed to model the relationship between individuals and work, it seems to apply equally well to the relationship between individuals and the larger community—both non-present community members and outsiders are able to see *who* is at the community event, but also *what* is happening in the community. These forms of awareness could be considered as *outeractions* [14], the various informal interaction which occur to facilitate 'work'. In this case, the messages may not exactly form a community interaction, but they facilitate knowledge of the community and the people within it.

5.3 Other Considerations

The unexpected proportion of users creating postcards for their own use or sending digital postcards to their own email addresses, although partially attributed to those intending to forward on the email, also suggests that the postcards may be seen not only as a communication tool, but as a way of taking images from the display. Previous attempts at 'taking away' images using Bluetooth were unpopular due to the technology used, while website access cannot be used at the display itself. Email seems to satisfy requirements for both familiarity and *in situ* use. This is reminiscent of the "importance of fitting in with existing routines" [5] discovered during the Hermes project, in which participants requested interaction by email and MSN Messenger to fit in with their existing way of working. However, email is by no means a perfect system, and responses to our email survey suggest 'silent' failures, due perhaps to spam filtering, may pose a problem.

There was no discussion of privacy, copyright and other legal issues surrounding the deployment. From previous experiences in the village, we had expected this to be a concern. Some residents did feel that using their 'own' system to send digital postcards was inherently safer than alternatives, expressing concerns that some e-card sites might be 'harvesting' email addresses or otherwise behaving in a malicious way.

The community-generated aspect of the system may also have implications for tourism. Many tourists might like to see the 'real' place rather than the representation shown to tourists (e.g. photos taken by professional photographers), and this system allows access to representations of the village generated by the community, which can be taken away as a souvenir or sent as a postcard.

6. SUMMARY AND FUTURE WORK

Following a one-day field study we have observed that support for situated digital and printed postcards can add value to a public community photo display, enhancing the display's capabilities as a tool for awareness and remote presence, while also serving as a convenient way of obtaining copies of photos from the system. In the process of designing this feature, we have also gained valuable insights into the strengths and weaknesses of our participatory approach in this environment.

With the success of the digital postcard feature, we are currently in the process of implementing this permanently on the post office display and adding a similar feature to the website. This has been coupled with a slight redesign of the keyboard to add clearly visible 'submit' and 'cancel' buttons, showing instructions in the text entry field before the user begins to type, moving keys to more familiar positions and labelling the space bar. Although photo printing was also popular to a certain extent, residents generally appeared less enthused and we believe that maintaining the printer in a public location permanently will be extremely problematic due to maintenance requirements. A more suitable hardware solution may be available, but the cost is likely to be prohibitive and no plans are currently in place to investigate this.

We intend to continue developing community display designs with Wray, potentially working towards displays offering a much broader range of community-relevant content beyond photos. Certainly, this study has made clear to us that the display has a clear potential for awareness-related messaging, and that email may be a comfortable medium for

communicating between the situated display and remote users, and even for display users to send content to themselves, but that careful thought needs to be given to make this process as simple and familiar as possible.

Finally, we hope that the success of this feature may demonstrate to residents that their ideas are just as valuable, indeed *more* valuable, than those of researchers, and help encourage them to be more forthcoming with their contributions.

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