

Encouraging Community Spirit with Situated Displays

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Abstract. There is a widespread belief that ‘community’ has been greatly diminished in many areas, partly attributed to the isolation and weak social ties encouraged by modern technology such as television, computer games and the Internet. We explore a photo display application which may help to reinforcing the community’s values, support community ties and integrate individuals into the community.

1 INTRODUCTION

Communities, small-scale social groupings of various kinds, appear crucial to social life. Consequently, arguments about the impact of social, economic and technological change on the nature, importance and influence of these close-knit communities—the ‘decline’ of community—have engaged commentators for some time [15, 18]. Often, modern technology is seen as being at least partly to blame; widespread car ownership has broken down the geographical boundaries around communities and the reliance on nearby resources, while telecommunications enable relationships to be formed regardless of physical location.

Although the broadening of social life could easily be seen as a positive change, it has been argued that the long distance, anonymous relationships—or ‘weak’ ties—afforded by the Internet are superficial and a poor substitute for the ‘strong’ ties provided by local communities and social networks [4]. These close relationships are believed to be an important part of our lives; social disengagement has been associated with crime, inefficient government and poor physical and mental health [12]. This does not mean that weak ties are inherently flawed or without merit. Studies have shown that they may be equally important in communities, allowing cross-communication and information sharing between tight-knit groups [11], strengthening the community as a whole. For example, it has been argued that these links may play a key part in enabling grass-roots action for common causes [6].

The ties afforded by networked technologies have also proved to be particularly adept at maintaining strong ties where they already exist [19]. Previous work in this direction has already demonstrated the potential for technology in supporting community, particularly through ‘community networks’—electronic social networks which have grown from an existing geographic community [16]. One of the better known examples of this kind of system, the Blacksburg Electronic Village [2], led to reports from community members of increased levels of communication and greater participation in and access to community activities. Likewise, studies of the networked community in Netville showed an increase in recognition of neighbours by those connected to the network after the same length of

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residence [8].

By allowing public access to electronic resources in-situ, situated digital displays also show promise in promoting community. For example, the Community Wall system [7] aimed to improve workplace communities by displaying content of common interest to stimulate conversation between employees who might not normally speak to each other. The eyeCanvas system [3] has also proved to be a popular installation within an art community’s social space, allowing playful notes and in-situ access to artists’ work.

‘Community’ is, of course, a complex social construct, but without over-hyping the technology, we believe that public digital displays, designed with the community in mind and deployed in key social spaces, may well be able to help support communities by fostering notions of community identity and shared history. To investigate this, we have developed the Wray Photo Display [17], a public photo gallery application deployed in a small rural village.

With this system, we hope to demonstrate how a digital display of photographs may be able to support communities through reinforcement of community values and by demonstrating the activities, history and other parts of the community’s tapestry which are most important to its members. The user-generated nature of this content could further allow individuals to impart their own views on exactly what those community values are. This might serve not just to strengthen the commitment of existing members, but also to advertise the benefits of community to those who currently fall outside its boundaries, including visitors and perhaps most importantly, to new residents.



Figure 1. The Wray Photo Display.

This paper explores the Photo Display as a potential application for persuasive systems and presents our initial findings on its use and effects. In this we are attempting to move away from crude characterisations of community or even cruder understandings of the impact of technology—instead we are trying to point to and develop

more subtle understandings both of what a ‘community’ might be and what a ‘persuasive’ technology might achieve in this context. Thus we attempt to engage with some of the subtleties required for understanding ‘persuasion’ as a process designed to involve the user, to inveigle, to entrance, to charm, and what part technology might reasonably play in this process.

2 THE WRAY PHOTO DISPLAY

Our studies into community have concentrated on the village of Wray (Figure 2), a rural community 15km north-east of Lancaster with a population under 500. The village has comfortably integrated technology into everyday life; since 2004, it has been home to a wireless mesh network installed as part of another university project. Both the goodwill generated by this project and the high connectivity available in the village have made Wray an ideal test site for community systems.

After a period of observation to determine potential uses for displays in the village, we opted to use a technology probe approach [10], developing a simple prototype application to explore the deployment environment, field test the technology and elicit ideas and requirements from residents. During the development of the system, we have employed an agile, iterative design model in which new features are developed rapidly as they are requested and deployed into the wild for evaluation.



Figure 2. Wray, Lancashire.

The Wray Photo Display was deployed in August 2006, consisting of a touch screen display (Figure 1) which scrolls through pages of photograph thumbnails uploaded to an associated website by residents. Touching a thumbnail opens a full-screen image and users can browse through individual photos or between photo categories, which residents can create and opt to moderate. Recent developments have added the ability to upload short video clips, browse through images using the website and add comments using an on-screen keyboard.

Initially, this was deployed in the village hall, which was suggested during the earliest design sessions and seen as a central social space in the village community. This building provided a variety of functions, including a visiting doctor’s surgery (including a waiting room area) and a local cinema, although the hall was only open to the public while in use. Due to electrical work in the hall, the display was later moved to the village post office, as seen in Figure 1, where it gained considerably more exposure.

Throughout the deployment, we have attempted to be as inclusive as possible—in particular, it remains important to avoid a ‘rich get

richer’ effect, where those most involved with the community benefit most. The public placement of the display (as opposed to an entirely web-based system) ensures that it will be seen by a greater number of residents, including those without access to a PC or Internet connection and we are currently considering solutions for those without computers who wish to post photos.

3 OBSERVATIONS

Our data from the deployment has been received through several channels. Firstly, the display’s contents and usage have been monitored remotely, offering a revealing insight into the community and an indicator of its uptake. We have also gathered feedback throughout the deployment from a paper comments book left with the display, as well as design workshops and discussion with members of the community. Finally, we have been able to directly observe users interacting with a duplicate display at popular village events, such as the annual Wray Fair.

3.1 Display Usage

The Photo Display has been well accepted into the community and has seen widespread use, particularly following its move to the post office. To date, just over 800 images have been uploaded, covering village history, scarecrow festivals, day trips, children’s artwork and a charity maggot race, and logs show around 300–500 image views a month through the situated display (Figure 3). Usage was particularly high in October and November 2006 following the display’s relocation to the post office and increased visibility.

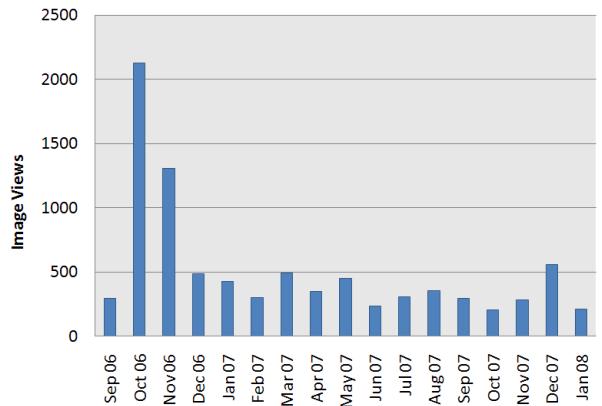


Figure 3. Image views per month.

The residents’ choice of categories for images was also revealing. With the exception of a small number of photos from our previous visits to the village, uploaded to provide some initial content, we made no attempt to dictate what content should be posted on the display. With the exception of just 37 images in a ‘Funny Pictures’ category, all categories and images were related to community events and history.

The ‘Old Photos’ category, containing historical images dating from as far back as the 19th Century and more recent images depicting current residents as children, is by far the most populous category, containing 188 images. Other popular categories include those for the ‘Scarecrow Festival 2006’ (126 images) and ‘2007 Produce Show’ (125 images). Many smaller categories grouped under

'Current Events' totalled 164 images, showing various recent community events. It should be noted that the Scarecrow Festival, the highlight of Wray's social calendar, demanded its own top-level category, showing the importance of this event to community members, and providing even greater visibility to outsiders and newcomers.

Comments left on images have largely tended towards identifying people shown in the images, particularly on historical photos and group pictures. The majority of these have been left using the situated display's on-screen keyboard rather than through the web interface.

3.2 Feedback

Feedback has been highly positive and often replete with functionality suggestions which fall both within and far outside the scope of the system, providing inspiration for improvements to the Photo Display and plans for future display deployments in the community. Many of the comments left have had an effect on the current implementation—categorisation, browsing via the website and comments have all been provided in response to feedback.

Over 70 comment book entries have been left so far; many noted that the display was a useful source of information about current events, particularly for new residents and visitors:

"What a superb idea, especially for those who are new to the village."

"A lovely way to see what's going on for locals and visitors."

This was also seen as an advantage for members of the community who had been absent, allowing them to still 'participate':

"I missed the last couple of days of the Scarecrow Fest and this gives me the opportunity to see some of the activities and scarecrows I missed."

Several early comments requested historical photos be posted to the display, or suggested other possible features, many of which were community related:

"Would be great to see some of the historical pictures of the village and forward notice of village events. What about selling advertising space to villagers, proceeds to a village charity?"

One additional comment received by email very effectively summarised the feedback we've received so far:

"The digital notice board has many advantages for the village... there are quite a few new people in the village and this gives them an insight as to what Wray used to look like, although visually it has not changed very much. The flood photos are one way the old and newer village can be seen. Also the photos of the previous villagers i.e. school photos, weddings, industries carried out in Wray (which many newcomers will probably not be aware of) and just local characters are invaluable in the history of Wray."

3.3 Direct Observation

Observation of community events has also been invaluable, allowing us to meet with regular contributors and gain an insight into community life. It has served to demonstrate how seamlessly the display can play a part in everyday life; during one community event, a new

resident in the village spent some time browsing historical photos, hoping to find an image of his house (Figure 4). He was introduced to a local history enthusiast who helped identify the building and its past uses and inspire a potential name for the house—the presence of the display had facilitated a discussion on community history between two strangers and potentially helped to bring an element of that history back into the present.

Of course, the public nature of the display also lends itself to controversy. During the 2007 scarecrow festival one scarecrow was deemed offensive by several residents and removed—however, photographs had already been taken and were later posted to the display, causing a minor furore.



Figure 4. Two residents discuss local history around the display.

4 DISCUSSION

'Community' has little to do with the individual's geographical location, but is an achieved social construct, a 'persuasion', of mutual ties, orientations and obligations, pointing to the ability of technology to reshape and redefine how people see themselves [14]. What appear to be important features of communal life concerning boundaries and membership, rhythms and relationships, temporality and change, interaction styles and preferences are not naturally occurring features but objects of persuasion, of convincing people to behave, to belong, to relate. Part of the persuasiveness of the technology refers to that nuanced understanding of place and its relationship to community and social practices: the 'situated' notion of 'place' that Harrison and Dourish define as "a space which is invested with understandings of behavioural appropriateness, cultural expectations, and so forth." [9]

This complexity means a sense of community is a difficult phenomenon to quantify, given its dependence on a vast number of everyday variables and even the difficulty in reaching a common perception of what constitutes community. However, we believe our observations demonstrate that the Photo Display has a clear potential for reinforcing values, encouraging participation and building a shared history. While we do not envision this kind of display causing major reversals of opinion, we do see a more subtle form of persuasion in action, making a small but significant difference to the way people see their community and see themselves within it.

Wray may already have a strong existing community spirit and high levels of involvement, but feedback and observations of the Photo Display application have shown various benefits to the community, such as examples of the display encouraging interaction between newcomers and established community members. In another

case, historical photos which were once kept in private collections are now available to the public and are used by local school children for research, helping to pass on the community's history to a new generation.

Many of the comments received seem to evoke community features identified by Mynatt *et al.* [14]: comments referring to the integration of new residents suggest membership and apprenticeship, relating to the notion of boundaries, while the popularity of historical photos strongly supports the notion of change and community history—several residents have commented that the display is a “living history” of the village. We have also seen that the user-generated content added to the display offers insights into the community itself, identifying the events and pieces of history that the community sees as important.

Above all, the turn to user-generated content highlights the way in which a sense of community is accomplished and achieved ‘in the doing’, by putting up photos of village activities and thereby actively reminding a community of their history and mutual ties and obligations etc. Our research suggests that the situated display can operate as elements of Fogg’s functional triad [5]: as a tool, as a medium and as a social actor performing subtle forms of persuasion through influencing people’s attitudes and behaviour and by providing information. However, there is no ‘simple’ persuasion here, no propagandising technology and a gullible public; instead people have to be charmed, to be inveigled, to be intrigued, to be persuaded into communal ways of living and the boundaries, relationships and changes this necessarily requires.

The deployment also illustrates some of the complexities involved in getting a ‘persuasive’ technology to work—that for a technology to be persuasive, people have to be persuaded to use it and that ‘becoming a user’ involves a myriad of both social and technical subtleties that go beyond simple interface design to an appreciation of what it means to embrace the use of a technology. Lie and Sorenson stated that “when studying technologies we are looking for types of use, symbolic expressions and personal attachment remaking the technologies into something close and familiar. This is a way of making them part of everyday life, and it is not accomplished simply by letting them into the home or other daily surroundings.” [13]

In *Community: Seeking Safety in an Insecure World*, Bauman writes that “community is nowadays another name for paradise lost—but one to which we dearly hope to return, and so we feverishly seek the roads that may bring us there” [1]. While clearly technology alone is no easy way back to the ‘paradise lost’ of community, this study reveals some of the myriad technologically mediated ways in which, notions of community, of communal history, of membership, of belonging and responsibility are continuously asserted and reinforced. Nevertheless, whilst still wishing to avoid the hype often associated with new technology, it is our belief that the affordances of the technology in this particular deployment have a far wider relevance and could be used to strengthen struggling communities, such as deprived urban environments or struggling rural communities, by encouraging participation by residents and thereby actively promoting a sense of community.

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REFERENCES

- [1] Z. Bauman, *Community: Seeking Safety in an Insecure World*, Polity, 2001.
- [2] J.M. Carroll and M.B. Rosson, ‘Developing the Blacksburg electronic village’, *Communications of the ACM*, **39**(12), 69–74, (1996).
- [3] E.F. Churchill, L. Nelson, and G. Hsieh, ‘Café life in the digital age: augmenting information flow in a café-work-entertainment space’, in *Proc. CHI 2006*, pp. 123–128, (2006).
- [4] J.N. Cummings, B. Butler, and R. Kraut, ‘The quality of online social relationships’, *Communications of the ACM*, **45**(7), 103–108, (2002).
- [5] B. J. Fogg, ‘Persuasive technologies’, *Communications of the ACM*, **42**(5), 26–29, (1999).
- [6] M. S. Granovetter, ‘The strength of weak ties’, *The American Journal of Sociology*, **78**(6), 1360–1380, (1973).
- [7] A. Grasso, M. Muehlenbrock, F. Roulland, and D. Snowdon, ‘Supporting communities of practice with large screen displays’, in *Public and Situated Displays: Social and Interactional Aspects of Shared Display Technologies*, eds., K. O’Hara, M. Perry, and E. Churchill, 261–282, Kluwer Academic Publishers, (2003).
- [8] K. Hampton and B. Wellman, ‘Neighboring in netville: How the internet supports community and social capital in a wired suburb. city and community’, *Computer Supported Cooperative Work*, **2**(4), 277–311, (2003).
- [9] S. Harrison and P. Dourish, ‘Re-place-ing space: the roles of place and space in collaborative systems’, in *Proc. CSCW 1996*, pp. 67–76, New York, NY, USA, (1996). ACM.
- [10] H. Hutchinson, W. Mackay, B. Westerlund, B.B. Bederson, A. Druin, C. Plaisant, M. Beaudouin-Lafon, S. Conversy, H. Evans, H. Hansen, N. Roussel, and B. Eiderbäck, ‘Technology probes: inspiring design for and with families’, in *Proc. CHI 2003*, pp. 17–24. ACM, (2003).
- [11] A. Kavanaugh, D. D. Reese, J. M. Carroll, and M. B. Rosson, ‘Weak ties in networked communities’, in *Proc. C&T 2003*, pp. 265–286, (2003).
- [12] R. Kraut, M. Patterson, V. Lundmark, S. Kiesler, T. Mukhopadhyay, and W. Scherlis, ‘Internet paradox: A social technology that reduces social involvement and psychological well-being’, *American Psychologist*, **53**(9), 1017–1031, (1998).
- [13] M. Lie and K. H. Sorenson, *Making Technology Our Own? Domesticating Technology Into Everyday Life*, Scandinavian University Press, 1992.
- [14] E.D. Mynatt, V.L. O’Day, A. Adler, and M. Ito, ‘Network communities: Something old, something new, something borrowed...’, *Computer Supported Cooperative Work*, **7**(1-2), 123–156, (1998).
- [15] R.D. Putnam, *Bowling Alone: The Collapse and Revival of American Community*, Simon & Schuster, 2000.
- [16] D. Schuler, ‘Community networks: building a new participatory medium’, *Communications of the ACM*, **37**(1), 38–51, (1994).
- [17] N. Taylor, K. Cheverst, D. Fitton, N.J.P. Race, M. Rouncefield, and C. Graham, ‘Probing communities: Study of a village photo display’, in *Proc. OzCHI 2007*, pp. 17–24, (2007).
- [18] B. Wellman, ‘From little boxes to loosely-bounded networks: The privatization and domestication of community’, in *Sociology for the 21st Century: Continuities and Cutting Edges*, ed., J.L. Abu-Lughod, 94–114, University of Chicago Press, (1999).
- [19] B. Wellman, A.Q. Haase, J. Witte, and K. Hampton, ‘Does the internet increase, decrease, or supplement social capital? social networks, participation, and community commitment’, *American Behavioral Scientist*, **45**(3), 436–455, (2001).