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Citation for published version:

Stewart, J, Coyne, R, Travlou, P, Wright, M & Ekeus, H 2011, The “Memory Space” and “The Conference”: Exploring Future Uses of Web2.0 and Mobile Internet through Design Interventions. in J Pierson, E Mante-Meijer & E Loos (eds), *New Media Technologies and User Empowerment. Participation in Broadband Society*, vol. 6, Peter Lang Publishing Group, Frankfurt, Germany, pp. 213-230.

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Early version, also known as pre-print

Published In:

New Media Technologies and User Empowerment

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THE MEMORY SPACE – EXPLORING FUTURE USES OF WEB2.0 AND MOBILE INTERNET THROUGH DESIGN INTERVENTIONS.

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Paper for ‘Users as Innovators’ stream of COST 298 The Good the Bad and the Challenging: the user and the future of information and communication, Copenhagen

Abstract

New digital media offers use many opportunities to record, organise and review our activities, communications and thoughts. Much of this activity is conceived of in terms of ‘real-time’ communication, or abstract, disembodied information access. However, we propose that Web2.0 and personal mobile media are having important implications for collective memory practices. We need to understand how this is happening, and how ICT can design to support memory practices within the context of particular of communities and localities. This paper explores experiments with a ‘Memory Space’, concentrating on imagining the future of The Conference, and building and testing a tool to make the intense, and multilayered experience of conferences more productive and reorienting. It particularly taps in to the use of place and space as key elements in producing and linking to memories of encounters and ideas. It suggests new ways to record and access informal conversations and encounters using mobile messaging, social networking, text, images, voice and video, and linking these with the formal and informal physical spaces of conferences using the web, GPS, and mobile phone interfaces, creating a much richer record of a conference than formal Proceedings and private memories.

Keywords

Design, web2.0, mobile, space, memory, conference, meeting, location-based media, place, internet

1 INTRODUCTION

This paper describes some of the results of a creative and a design-led methodology that explored the possible outcomes of three trends in social behaviour: the increasing use of public spaces for a wide range of meetings and social encounters, trends in online sociality – with the emergence of social network systems, and the use of advanced mobile phones. We added a new emerging element of technology use and social practice - location aware wireless technologies for the mass market.

The project set out to explore ‘Design for the 21st Century’, looking at the practice and theory of branding, and the changing use of space for formal and informal meetings and social encounters. The project deployed a ‘research by design’ methodology, and using exploratory studies and speculative designs around games in urban spaces, social networking systems, and virtual environments a common theme of ‘Memory Space’ was identified.

The Memory Space concept was developed in a workshop with a range of academic participants from across disciplines who developed an analysis of conference attending, and set a brief for the development of a tool for an ‘intervention’, exploring means of recording and accessing the informal conversations, notes and social encounters that occur in the formal and interstitial spaces of conferences. The tool was used as part of the following day’s workshop, populating a database of geo-tagged notes, observations and conversations by participants that could be accessed via a map, time-based web and GPS-triggered mobile interface.

The intervention was not intended to produce a working prototype, but to pose new questions and open new research avenues, stimulating investigation on emerging memory practices in a world where we can record so many of our activities, but need tools and new social practices to make sense and use of these vast databases.

This paper describes the series of experiments leading up to the research-by-design event. This includes a discussion of 'The Conference' based on the ideas of 'branded meeting place', and the inputs by the 'designer-users' who participated in the research by design workshop. There is a short discussion of the research methodology, already presented at the previous COST 298 conference [9]. We briefly situate the concept of Memory Spaces in a discussion of collective memory practices from the literature, and conclude the paper with some thoughts on the future of memory practices in the world of social networking, mobile internet and user-created multimedia databases.

2 SOCIAL MEMORY AND THE MEMORY SPACE

While our practical implementation of a 'Memory Space' emerged from interdisciplinary conversations and our experiments, we can also explore the idea through a rich literature on memory, archives, space, and social practice. Our concept of memory is not primarily a cognitive one, but a social one, following Halbwachs [7]. Memory is not about 'things remembered, or forgotten' but collective, social, or cultural practices that generally involve not only people, but objects, texts and spaces - mnemonics that exteriorize cognitive memory, and enter into the social and physical world [8].

We have long associated places and objects with relationships and events, and we all create artefacts such as photo albums, home videos, and new commemorative events, such as anniversaries and reunions, to relive and celebrate particular events in the past, keeping them alive are important episodes defining individual and collective identity. We are all familiar with a range of conventional domestic memory supports, such as pin boards, fridge doors, or notebooks. With today's technology we have ever more ways to record events as they happen, store them, share and recreate them, from chat logs to blogs to Facebook or online photo albums [2]. New possible artefacts and systems are continually being suggested – including 3D virtual places, and dynamic online maps. These artefacts not only provide opportunity for reminiscence, but also act as guides for future behaviour and activity.

The same practices occur in the world of work. We minute meetings, build databases of events such as sales, decisions, hold workshops and conferences to share experiences and build common pasts and visions of the future. There are a variety of tools available to help organise and make meaningful this information, and use it to help create our identity in work relations. Slowly we are starting to see the use of new web and mobile tools that go beyond these conventional CSCW or knowledge management systems to enable richer memory practices that leverage the tacit and informal knowledge and relationships so essential in team work.

Our concept was first developed upon reflecting on memory practices associated with specific events - weddings, births, holidays etc; events that we take special care to document in photographs, diaries, videos, address books etc that can then be reused at later times. This reuse can have many aspects - nostalgia, sharing collective memories to reinforce collective identity, and to initiate new community members into collective identity. As well as descriptive records, we also associate events with places, objects, music etc, either specially chosen, or that just happen to intervene.¹ Our initial design concept was to create a 'Second Life' space to celebrate a wedding, or as a recreation of a holiday resort that people could visit to remind themselves of the visit, but also to 'meet' others who were there with them, or liked the same place. A virtual space would be created in which to enact common memory practices. Later work on tagging physical spaces, reflecting on the appropriation of space to produce places with personal and collective meaning led us to introduce the possibility of linking online information systems and the physical space. As we moved into examining online, user-tagged maps the idea of the 'memory space' re-emerged. We now had a technical concept of memory space as an electronic repository of media objects that could be populated and referenced with a visual, spatial model - a map - but also in the 'real' space. However, a generic tool to 'capturing' and 'revisit' media objects is only part of the process of design - the next stage is to re-embed it with the type of situations for which we already have strongly developed memory practices. The following sections describe the emergence of memory space concept, and the intervention done to situate it within the concept of 'The Conference'.

¹ There is a whole realm of work on the political use of memory practices, commemoration [8].

3 RESEARCH BY DESIGN

ICTs are continually offering new possibilities for innovation and use. Social researchers who observe current trends may often get led into studying a particular technology – we have seen the rise of ‘mobile phone’ studies, and ‘internet studies’. However, these are often only temporary, if important configurations of society and technology. We are used to trying to drawing conclusions about the future, using theoretical concepts and empirical evidence of the past and present. However we can also conduct speculative future-oriented research by conducting experiments and engaging in design activities that that are informed by our knowledge as social scientists, while also using the practices of designers and engineers to explore emerging socio-technical configurations, and indeed influence them.

This work used an exploratory method which we have called ‘Research by Design’ [9]. Research by Design combines the power of theoretical perspectives with tangible ‘human-centered’ design activities, ‘designer-user’ approaches and exploration of the affordances of emerging technologies. The research group was multi-disciplinary, designing novel products and services within a framework defined by academic questions and an exploration of concepts. A series of events involving ‘user-designers’ was created, carefully set up by preparing a toolkit of technologies and concepts from which to assemble a technical system that could be used to explore the research questions and issues identified by the participants. The technical development was pursued using lightweight mobile applications, tying together of existing web and mobile services and content, with the help of professional developers and designers. More account of the method is given later in the paper.

4 A SPECULATIVE JOURNEY - AN EXPLORATION OF LOCATIVE AND DIGITAL MEDIA FOR SOCIAL ENCOUNTERS

We have arrived at the current research focus through a development path of several years in terms of technological configurations and theoretical perspectives. The initial work was a series of workshop interventions on the concept of non-place [1], exploring the past and future of public spaces such as airports and shopping centres. Communication and media technologies were identified as being very important drivers for change of the design and our experience of these places. Funding was obtained² to explore the way we use these places in more depth, using a tool developed by one of the team members, ‘Spellbinder’, which uses image recognition of photos sent in by MMS³ to trigger a range of response from a server, such as ‘unlocking’ invisible images ‘embedded’ in the environment. It conceptualised places and objects as the site of digital content and as physical instantiations of hyperlinks⁴. This tool was used as the initial basis of the research method. For each experiment we show how it enabled us to extend our conceptual view and open up new directions for research based on work with people, technology and theory

4.1 Early Experiments

These experiments had the grand sounding aim of exploring ‘the use of ubiquitous technology for meaningful social encounter in urban spaces’. Memory was not explicitly a topic on the research agenda, but the project was informed by ideas of place as having cultural ‘depth’ in time, and our use and interpretation of spaces being closely linked to memory practices [2] [5]. The early design interventions were conducted with groups of students acting as the designer-users. Successful early interventions included *Invisible Art* and *Comera*.

Invisible Art enabled artists to embed ‘invisible’ art works in the facades of public buildings. On an application level this was envisioned as a public art or a civic heritage tool. However we then began to conceive of user-generated art and a simple interface for the public to upload images to the same facades. This was the beginning of the notion of a shared social practice of embedding and retrieving geo-referenced⁵ digital media, to enable anyone to add signs or tags to the urban landscape, a practice usually limited to government and commercial organisations.

² Branded Meeting Places: Ubiquitous technology for meaningful social encounter in Urban spaces. 2007-2009 Funded by AHRC-EPSRC Design for the 21st Century Programme. <http://ace.caad.ed.ac.uk/branded/>

³ Multimedia messaging – a rather clumsy and unstandardised method of sending images and other multimedia content via mobile phone. However, at the time of the researcher it was much more widely available compared to mobile Internet and GPS.

⁴ An unusual “memory practice” which was put forward at this time was to make personal memorials. Spellbinder used images rather than position sensing so the emphasis is on what is looked at not just where phone is as with GPS.

⁵ Geo-referencing can use any technical system to pinpoint location, not necessarily numerical coordinates. We recognise places by sound, smell, vision, branding, and the people who occupy a place. One challenge is to create technical systems that support the way that human beings recognise place.

Comera was a social network application which allowed people to “log in” to buildings and inform friends where they were. People logged in by taking a picture and sending it to a server. Those using the system were updated by SMS text and on Facebook as to the whereabouts of their ‘friends’. The system left a short-term working memory of people’s location as well as a long term record of their paths. This was developed over a series of interventions with students using and abusing the system. As well as supporting useful learning around the value and limitations of ‘realtime’ knowledge of where friends were, the logs of images turned out to have their own fascination, as we could explore through often obscure images where we and our friends had been, reconstructing paths and routines. It also gave us a way to see what images users chose to portray the places they used, and therefore have meaning for them.

Secret Postcards was a simple application similar to *Invisible Art* but the released content was a personal text message⁶. This took the emphasis beyond the visual and also democratized the embedding and releasing of content to all.

4.2 Memory, meta-verse and universe

The concept of “memory space” was first evoked on the project as a literal use of a meta-verse or 3D social world such as *Second Life* as a catalyst for memory sharing. One envisioned application was as a “reunion” perhaps of students or holiday makers. The “memory space” would be a semi-literal imagining of a real place such as a city or institution evoking the landscapes in the work of Salvador Dali such as his painting “The persistence of memory”. Memory objects could be placed in the space and social encounters created using avatars in the space. Iterative design interventions looked at sharing these spaces more literally by walking into a mixed reality room. A concept of “augmented duality” was finally considered as not a single space but an extended social metaverse parallel to the real world and with portals between them [10]. In terms of cultural memory we theorised the use of such a social duality to encounter cultural memory in the context of museum encounters with heritage.

4.3 The Tag

A research theme we tried to address was the role of the ‘branded document’. On reflection, and through experiments with ‘leaving’ digital traces using *Invisible Art* and *Secret postcards* the design team converged on the seminal notion of “the tag” as a core concept to be unpacked. The tag was explored extensively in a research-by-design workshop, exploring the many different types of physical and online tagging, how they work semantically, socially, politically, visually and electronically. They involve labelling ownership, classification⁷, signalling that one has seen or noted an object or text, or passed through a place, or a means to link two concepts, objects or people together. We propose that tagging is an appropriation process, a means making sense of the world and establishing an individual order on experiences, that eventually leads to emergent collective meaning making and social order or conflict.

Mass tagging is already a practical fact, rather than a theoretical concept. For example, one of the main services that we have tapped into is the Flickr geo-tagged image database⁸, where users simultaneously tag their images with geographic coordinates, and tag a map with their images. A research-by-design workshop⁹ was set up to explore how we might take the rich use of tagging that now occurs in online environments – especially in Web2.0 services, and link that more closely to tagging of physical space.

Visual thumbs –was the application that came out of brainstorming at the “tagging” workshop and extended the media content to spoken words. To overcome the problem of lack of ‘call to action’ that using virtual tags has, paper tags were left in the street to indicate that someone had left a voice message that could be unlocked by sending a message to a special phone number. Text messages could also be embedded and shared through Facebook. The emphasis was not just on a preoccupation with geo-spatial referencing but on the sharing of social discourses on topics with a geographic dimension such as the impact of urban development¹⁰.

⁶ It enabled one to send a picture of a place or object to one’s friends who would then have to find and visit the same place to photograph the same object/place to unlock a secret message: for example, telling the receiver that the sender had arranged to pay for the drink in the café if they showed the message to the staff

⁷ In the field of mass tagging practices, the concepts such as folksonomy have been developed to try and understand ‘bottom-up’ tag practices with emergent classifications.

⁸ <http://www.flickr.com/>

⁹ UBIQr 2 Workshop: < Tagable > Media, 8-9 May 2008. Details <http://ace.caad.ed.ac.uk/branded/>

¹⁰ This was to a certain degree inspired by the Yellow Arrow project (<http://yellowarrow.net/>), and various systems for citizens to complain about their urban environment that are now being implemented in mobile and online forms around the world.

4.4 Placemaking by Placemaking

The final workshop of the Branded Spaces project was on “brandsapes”, which was reframed as ‘tagscapes’. Not only are our urban and private spaces shaped and labelled with the logic of commercial and corporate branding[3]¹¹, and with the ‘tags’ of spray-paint wielding youths, but are likely to become the site of mass, individual tagging practices overflowing from digital spaces to real spaces. The workshop of some 20 participants was convened to explore the possibilities of completely open electronic tagging systems as forms of appropriation of space: what we termed *placemaking by placemaking*. The common use of user-tagging on online mapping systems, and the availability of these on internet enabled mobile devices also meant we could explore this new platform as a way of visualising where tags and messages were both from a desktop computer, but now out and about on the street.

By this time we had assembled a rich network of technologies, applications case studies and theoretical perspectives. Memory Space was now more than a literal virtual space but had social and experiential dimensions both virtual and real, spatial and symbolic, across many forms of media and application. Tags in any form – text, images, voice, video could be left and shared online or in virtual or real urban environments. Technologies now included various place recognition technologies such as image matching, GPS or street indexes, comprehensive content and location services with open APIs such as Flickr and Google Maps, and established social network systems including Facebook and Twitter to be used in mashups. We had all of these accessible through mobile devices via voice, SMS, WAP, and HTML. Section 5 describes the context within which we asked our user-designers to explore tags, and the re-emergence of the ‘memory space’ concept.

4.5 Recent Directions: Google Street Level and Flickr geo-referencing

More recent work has focused on the use of images from public internet applications such as Google Street Level and Flickr. We have developed methodologies to harvest these applications spatially and temporally to access narratives and perspectives which capture the general and the ephemeral and personal. Examples include photographic trails through the Obama inauguration, or glimpses behind the windows to private events in the buildings along urban walks. A particular influence here is Michel de Certeau and in particular “walking the city” [6]. Certeau theorises the inhabitants of the city as invisible authors unaware of the “text” their activity “writes” on the fabric of the City. Perhaps the cultural significance of developments in social and locative media, of which our work is a part, is to provide tools to make visible these narratives and help co-create new forms of media with which to create, experience and share them.

5 THE CONFERENCE AND THE “MEMORY SPACE ENGINE”

In order to run a final research-by design workshop we wanted to choose as the topic the types of event that involve intense communication, engagement with other people, creation and annotation of new knowledge, and with strong symbolic and emotional factors. Given the audience of academics (mostly drawn from creative arts and design) and overall brief of the project to study work-oriented meetings, we chose ‘the Conference’ as the topic. This choice had the advantage in that any technical system developed could actually be used as an intervention in an actual conference event. The following discussion of conferences was largely drawn from the work of the workshop participants and based on our earlier work on meetings.

5.1 The concept of “The Conference” as formulated by our workshop participants

Conferences are a particular form of meeting that is intense and demanding on physical, interpersonal and intellectual levels. From being the preserve of politicians and academics, they are becoming a normal part of many people’s working activities, thus deserve more critical analysis and practical innovation.

Conferences have a whole range of formal and informal aims and uses: explicitly, they bring people together to share ideas and experience they have developed elsewhere, and often to develop common understandings and to negotiate future activities. They are highly social, enabling us to meet new people, re-establish old relationships, share ideas, and develop new ideas, and plan future cooperation. Conferences are seldom one-off – like other meetings, they are part of a series (Coyne et al, 2008), with an established structure, a cohort of regular attendees drawn from a larger community. Conferences are often central to a larger occupational community, or community of interest or practice, and used to help create a common identity, involving rituals such as election of officials, giving prizes, celebrating current leaders, and deceased members. These are important practices of memory and identity.

¹¹ Corporate being both commercial and governmental: city governments were previously known as ‘Corporations’

There are many different sorts of conferences. Smaller workshops and conferences are easy to develop and attend - the groups are small enough for everyone to interact and share common experiences. Our concern is for the super-conference, with hundreds or thousands of participants, often taking place in a vast conference centre in a strange city. These types of conferences can be disorientating in many ways, with high risk of getting lost, physically, socially and emotionally. They are not clearly focused in one location and with a clear social group, but occur in a network of formal and informal venues, attendees forming a network rather than a precise community. The workshop participants explored a variety of issues related to this type of event, and were keen to imagine how they could be improved.

As well as existing as a series, conferences are not just the few days of the event itself – they exist in three stages: before, during and after.

Before: as we submit our abstracts, find co-authors, struggle to meet the deadline, book flights, and hotels, receive and study the programme, try to find out who else is going etc. When we are travelling to the conference we finish our presentation, study the programme and try to decide what sessions to go to, look up details of the presenters, so that by the time we arrive the conference has already been underway for a long time. It would be very useful to know who was attending a conference in advance, and use this to help plan how to attend it.

During: There are a large number of way finding activities: find the hotel, finding the venue from the hotel, finding old friends and colleagues, deciding on and finding the right sessions, finding the social events and getting home again. Workshop participants highlighted a number of important problems with conference, for example: the parallel session problem, and how to decide which to attend, and on what criteria; the getting lost for dinner problem; nerves pre-presentation; avoiding people one does not want to meet; the problems of social hierarchy – how to integrate new attendees, and create the balance for old hands between meeting old acquaintances and playing the role of building the community. It was felt that there was lots of basic information that is not available that would be very useful to know, such as who else is in the session, the names of those asking the questions etc.

After: After the conference there is the problem of making sense of all the new ideas, and following up new contacts or promises to share work and collaborate. We may have to make a formal report to our colleagues, send off some papers, but frequently a conference is forgotten all too quickly.

Conference organisers implement a range of formal devices to help each stage of a conference, as do regular conference goers. Here we see an interesting relationship between the design of a conference, and the activities of the attendees who perform the conference. Social events help to introduce attendees to each others, lists of other attendees, artists in residence, even musicians¹². These are intended to help people get the most out of the event.

In recent years we have seen the emergence of new ICT tools to facilitate conference attendance. Some of these are provided by conference organisers, some are deployed by attendees. Example of the former include setting up social networking sites for participants, or creating groups on systems used by many of the attendees¹³. These are sophisticated version of the participant list, enabling people to see who will go, look up people afterwards, and sometimes, start and continue discussions, as well as share pictures, documents etc - these are Memory Spaces that link the three stages of the conference.

With the arrival of mobile phones and Wifi, we now see the actual conference emerging as a moment of high ICT use. Mobile phones have made attendee's lives much easier of course, but there are other innovations. For example, live online discussion boards projected in conference halls which allow those not in the room to comment, to create dialogues between audience and speakers and at the end of the talk to have more than the individual notes available. These could also be wikis and blogs open to conference attendees to create dialogues, which become a repository of information, links and views that exists after the event. Other experiments include RFID badges to find people with common interests or to register meetings on a social network service¹⁴. With mobile social media now in common usage, group messaging, and systems such as Twitter¹⁵ the discussions in and out of formal sessions are can be shared in real time, but also recorded providing a textual and visual record of events. These real-time communications make it easier to identify the underlying concerns that are being expressed by participants or in other words 'catching the vibe'.

¹² e.g. Pegasus Communications conferences <http://www.pegasuscom.com/pc07/experience.html>

¹³ e.g. LinkedIn Mobile City conference <http://www.themobilecity.nl/>

¹⁴ e.g. the RFID system developed by Mediamatic (<http://www.mediamatic.net/>) the PICNIC conference <http://www.picnicnetwork.org/>

¹⁵ e.g. Steve O'Hear Twitter, the ultimate conference 'backchannel' ZD Net 12/03/2007 or bogs of personal experiences: Netsquared Blog <http://www.netsquared.org/blog/metromapper/use-twitter-conference-organize-and-meet-other-attendees>; Karen Blakeman's Blog <http://www.rba.co.uk/wordpress/2008/02/11/the-insource-conference-twitter-experiment/>

After conferences it is becoming more common to post images of the event on Web2.0 sites such as Facebook and Flickr. These images are sometimes formally posed, but often images of the many informal activities conferences. These new uses of ICTs start to provide records of many of the informal interactions not usually captured by the formal preparation and reporting processes.

In short, The Conference is a complex and rather taken-for-granted activity, an activity that may seem simple, but is actually multilayered and exists in many and fragmented place and times. As conferences become every more common, there is considerable scope for rethinking how they work and can be experienced in light of new technologies and technology mediated practices.

5.2 The Design Intervention

The workshop participants then reflected on what aspects of The Conference raised in their discussions they would like to focus on as a design intervention. Ideas include better preplanning and coordination tools, and ways to deal with uncertainties and social problems. However a key interest was to explore the informal aspects, especially those conversations and moments of idea creation that occur in *interstitial moments* : to capture something of the many informal exchanges and meetings that occur that are not recorded centrally, but exist in the memories of participants, and the rows of empty coffee cups and beer glasses. To this end, the designers proposed the development of a shared Memory Space: a system which would catalyse and record informal social interaction off the main conference stage. The key technical outcome proposed was the creation of a general platform for media embedding, retrieval and memory making completing what we call the “memory space engine”. Images, text, video can all be embedded and shared and accessed. Geo-referencing can be by image matching, GPS or Google place search on street and city names.

The technical developers spent the night developing and extending the ‘Memory Space engine’, choosing to base its operation on GPS devices linked to mobile phones, and a website with a map interface. The next morning the workshop participants were briefed as to the progress and shown how to access and use the memory space engine online and with their mobiles.

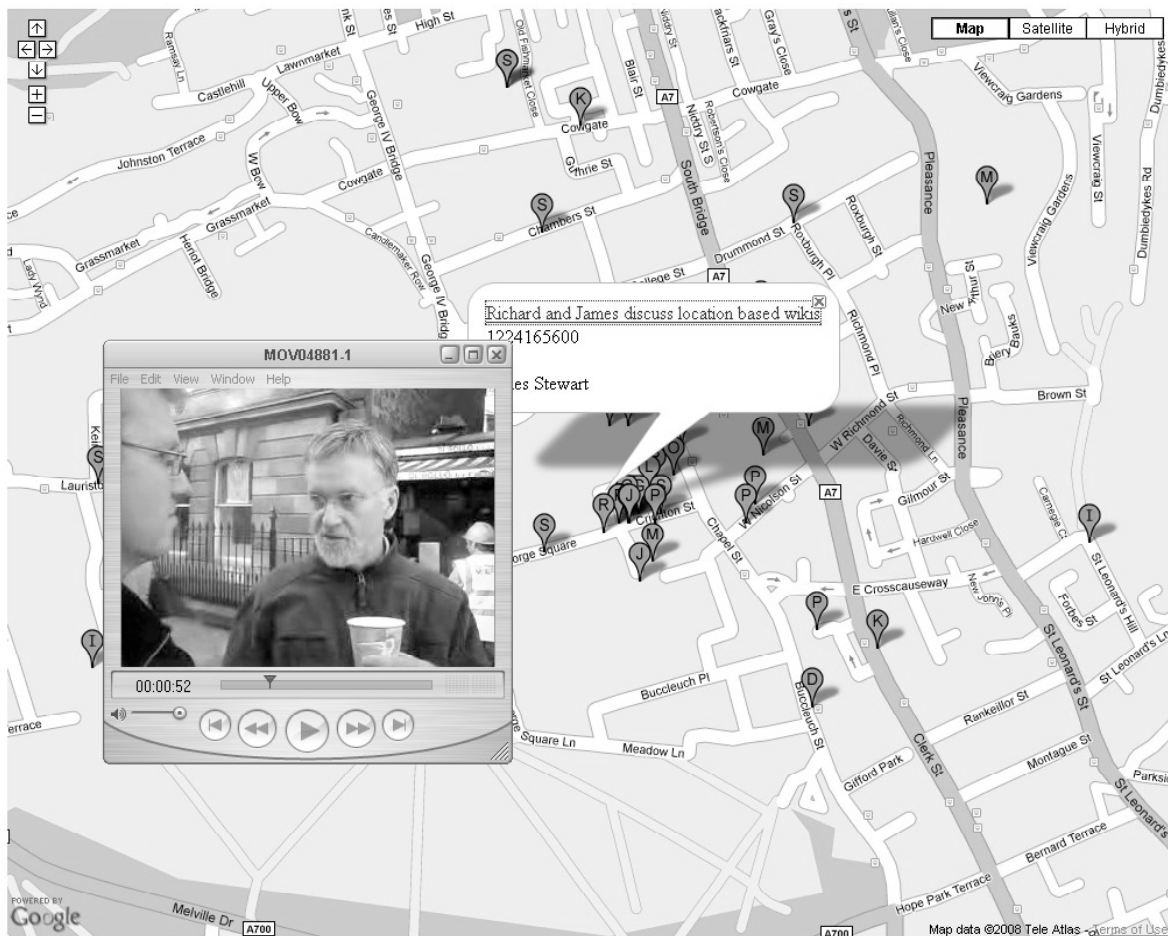


Figure 1 A screen shot from the map-view of the conference Memory Space.

Workshop participants could send text messages from wherever they were, including the street name in order to place it on a map automatically; record and send audio and videos blogs of conversations with GPS coordinates and submit their notes from discussions or personal thoughts. These could then be visualised on a map of the conference area, that showed where these media objects had been created, and by whom. These could be tagged with any extra information. An added feature was to be able to find these on a mobile device – receiving a text message triggered by GPS, to see notes or hear recordings that other participants had had in the same place at another time. Workshop participants were then asked to use the system online and in the city. By the end of half a day of activity the map was being populated and paths and ideas could be explored. As can be seen from Figure 1, the map view of the memory spaces gives a spatial visualisation of the conference posts, most clustered around the main conference venue, but other located in bars, restaurants and in the street.

Of course the implementation allows much scope for improvement. We propose integrating it with social network tools, with visualisation of data based on time and social network as well as space, and automatic linking of different sorts of texts. The receiving of location-based ‘pushed’ text messages was interesting experience, but a far from ideal interface for deposited media. For the purposes of the intervention it was the part of the system that created the most interest, probably since it is the most novel: most participants had not experienced location-based media on their own phone before.

6 FINAL REMARKS

We have attempted to describe a research journey, built with a multidisciplinary approach that engaged with practices of design and intervention to explore and enrich conceptual ideas. We proposed an intervention that explored an increasingly common form of work meeting – The Conference, but one that could clearly be improved a great deal with a set of tools to capture and integrate a wide range of interactions and information. However, while this is technical possible, the technologies are also limited, and would require considerably more work to explore how new practices might emerge.

We are keen to developed the Memory Space concept along the axes of both memory and space. Memory practices are likely to be radically changed with new media as we are able to recall not only ‘facts’ from the Web, or communicate in real-time, but selectively leave and reuse all sorts of traces of our public and private activities. On the spatial dimension, we have a range of new ways of activating our experience and use of space and place using new ICTS that are being widely explored. We suggest that the junction of these two domains opens up considerable scope for design, technical development and academic enquiry.

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Our video blogs of the preparation for and events of the workshop are available here :<https://ace-podcast.ace.ed.ac.uk/groups/branded/blog/>