Sharing places, enhancing spaces: an investigation into the effects of mobile networking technologies on physical communities

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Abstract

Commentary on the impact of technology in the area of community-building has tended to concentrate on the creation of virtual communities, particularly Internet-based communities. More specifically Jurgen Habermas's concept of the 'Public Sphere', which he defined as "uncoerced conversation oriented towards pragmatic accord", has been enthusiastically claimed by the proponents of online communities. This paper will explore some of the problems with this idea focusing on the deeper philosophical issues which question whether the increasing unsteadiness of the construction of subjectivity online is compatible with the idea of a public sphere which relies on the Enlightenment ideal of the autonomous rational subject as a universal foundation for democracy. The paper will conclude that if the problem with virtual communities is that people are unconnected to their physical surroundings and other network users, the possible solution may be to focus less on cyberspace and more on traditional environments in order to bring proximity and practical cooperation back into the equation. It is suggested that this could be done through the use of mobile communications and wireless networking technologies. The paper will discuss some existing projects in this area and will conclude by advocating a re-examination of the role of physical place in community-building.

1   Introduction

The dramatic decline of civil society during the latter part of the twentieth century has led many to focus on the notion of community and the importance of this notion to the overall health of our societies. In short communities are seen as the building blocks of civil society which, in turn, is seen as the foundation of our democratic institutions. Those who are interested in the relationship between technology and society have naturally looked at whether it is possible for technology to support community-building projects. This paper is particularly concerned with the effects of networking technology on communities and focuses on the importance of the relationships between people and the places that they inhabit to those communities. In order to demonstrate the importance of this relationship it is necessary to look at the shortcomings of communities that do not inhabit the same physical spaces, i.e. virtual communities. After establishing the importance of place we will look at a number of projects that use mobile technologies, wireless networks, and location-aware devices in order to heighten people's awareness of their shared environment including a number of projects that we in the Disruptive Design Team are currently engaged in.

2   Community, communion, and communication

The links between community, civic society, and the health of our democratic institutions have been mapped by many, most notably Robert Putnam in *Bowling Alone* [1] which provides an exhaustively researched account of the collapse of community in the United States. This book definitively shows how we have become disconnected from one another and social structures and the devastating impact of this upon our civic health. While many have blamed technology for this state of affairs (particularly the car for making suburbanisation possible and the television for its privatisation of our leisure time) early commentary on the communication possibilities opened up by the advent of the Internet, and particularly the world wide web, was marked by an adulatory tone conveying the sense of discovery that many have felt on being exposed to the possibility of instant flows of information across vast geographical distances. Putnam himself is cautiously optimistic about the possible effects of telecommunications' technology on the building of social capital:

> "Community, communion, and communication are intimately as well as etymologically related. Communication is a fundamental prerequisite for social and emotional connections. Telecommunications in general and the Internet in particular substantially enhance our ability to communicate; thus it seems reasonable to assume that their net effect will be to enhance community, perhaps even dramatically" [1].

Howard Rheingold, one of the earliest commentators on the potential of the Internet to reverse the decline of traditional communities [2], has defined civil society as "a web of informal relationships that exist independently of government institutions or business organizations, [it] is the social adhesive

necessary to hold divergent communities of interest together into democratic societies" [3]. This definition is clear about the relationship between civil society and democracy – one is dependent on the other. In order for democracy to flourish it is essential that its citizens believe that they belong to a greater community. While the concept of community commonly refers to a set of social relationships that operate within specified boundaries or locales, it also has an ideological component, in that it refers to a sense of common character, identity or interests. It is this second aspect of community that has led to optimism that 'virtual communities' can help revitalize civil society. This potential reinvigoration has a theoretical basis in the concept of a renewed public sphere.

3   The Internet and the Public Sphere

In his *The Structural Definition of the Public Sphere*, Jurgen Habermas investigated the notion that there was a historical moment when the discourses of "mixed companies" provided the basis for political action. He formulated these moments/spaces as 'The Public Sphere' which he defined as "uncoerced conversation oriented towards pragmatic accord" [4]. As Craig Calhoun notes "[t]he importance of the public sphere lies in its potential as a mode of social integration. Public discourse (and what Habermas later and more generally calls communicative action) is a possible mode of co-ordination of human life" [5]. In essence what Habermas describes is an idealised 'space' in which rational/critical discussion can lead to the formation of an effective and influential public opinion. Unsurprisingly this concept has been appropriated by those lauding the social potential of the Internet (a search for *Internet + 'Public Sphere'* on Google on March 1st 2004 returned over 48,400 results). Indeed it has been argued that the Internet *is* the public sphere of late capitalism; enabling the kind of communicative possibilities that promise a new level of interactive practice which, in the past, was the foundation of democratising politics.

However, there are a number of problems with this formulation of the Internet as Public Sphere. Firstly, there is the ongoing problem of the digital divide. The technology traditionally needed to engage in these virtual communities, a computer and access to a fixed network infrastructure is simply out of reach for the vast majority of the world's population. Secondly, we have the problem that virtual communities tend to be based purely on communities of interest leading to narrow discussions on mostly predefined topics which, while giving the contributors a *sense* of community, can in fact keep them dislocated from the real world. However while both of these are serious problems *theoretically* they are not impossible to solve. With the right policies and enough money the digital divide could be bridged. Many online communities are not just based on narrow interests they are meeting points for like-minded individuals to talk about a broad range of topics. The more intractable questions arise when we consider the fact that the Internet, after all, is in many ways at the vanguard of a new kind of virtual world. The anonymous sociality of the Internet dramatically increases the unsteadiness of the construction of subjectivity in the online world, encouraging an emerging new individual identity or subject position, one that abandons the

idea of the enlightenment individual with its claims to rationality and autonomy in line with postmodernist theory. Also, unlike older physically determined spaces such as the town hall, the Internet provides a *virtual* community space and as Paul Virilio writes, "What remains of the notion of things `public' when public *images* (in real time) are more important than public *space*?" [6].

Indeed in many ways it is ironic that Habermas' concept of the 'public sphere' has been appropriated by those discussing the democratising effects of the virtual communities enabled by the Internet, knowing that theorist's known antipathy towards the postmodern. Postmodern theorists celebrate heterogeneity as the salient characteristic of our age. Drawing on poststructuralism with its lexicon of 'difference', 'dispersal', 'deference' etc., Lyotard's 'libidinal economy' [7], Deleuze and Guattari's 'rhizomatics' [8] and Vattimo's *il pensiero debole* [9] are all among the postmodern events deeply indebted to the imbrication of distance and divergence. These theorists overtly attack Habermas's position questioning the emancipatory potentials of its model of consensus through rational debate [10]. At issue is the poststructuralist critique of Habermas' Enlightenment ideal of the autonomous rational subject as a universal foundation for democracy.

Therefore any attempt to analyse the implications of the Internet in terms of the extension or replacement of existing institutions is problematic. As Mark Poster has pointed out this tension arises from the fact that our existing political institutions, in the main, have their roots in Enlightenment thought [11]. The notion of democracy itself, a central political ideal, is a distinctly modernist conception. However when dealing with *virtual* communities there is a need to move away from modernist political discourse and the problem, of course, is that there is no adequate postmodern political theory. The very formulation of democracy is premised on the existence of the individual outside history. A postmodern definition, in contrast, would have to allow for the construction of identity within the social and within language.

Thus the postmodern position is limited by the insistence of the constructedness of human identity. In an attempt to avoid the pitfalls of modern political theory, it limits its own scope to define a new political direction. In contrast Habermas sees the public sphere as maintaining the promise of liberalism and the essentially utopian content of the first universalising bourgeois ideology (civil rights, free speech, humanitarianism) against the failure of those ideals to develop in the development of capitalism itself. The inherent contradictions make it hard to believe that the realm of the virtual community represents any extension or refocusing of traditional liberal democracy.

So, despite optimistic predictions, the anonymous sociality that is intrinsic to the Internet seems at odds with traditional theories of democracy. This however is not to deny that the current uses of networking technology are contributing to a *sense* of community and democracy. As Jan Fernback and Brad Thompson have argued: "[I]t seems most likely that the virtual public sphere brought about by CMC [Computer-Mediated Communication] will serve a cathartic role, allowing the public to feel involved rather than to advance actual participation" [12]. Despite this *sense* of sociability the disjunction with

geographically-based neighbourhoods means that the subject becomes unstable, enmeshed in the flows of communication rather than actually taking an active part in their localities and because civil society is a locus for the interaction of the self and the social, if that interaction is diminished so is civil society.

4   Sharing places, enhancing spaces

If the Internet has proved not to be the hoped-for panacea for our lost communities is there *any* way that we can use networking technologies to reinvigorate civil society? One of the problems seems to be that only one aspect of communities is currently being provided for. The sharing of psychological space is amply served by bulletin boards, chat rooms, Usenet, the web, IRC, instant messaging, email, etc., but what of the shared concerns of those who inhabit physical spaces? The Internet brought with it the notion of the 'end of geography'. Space and place were deemed no longer important. According to Nicholas Negroponte "the post-information age will remove the limitations of geography. Digital living will depend less and less on being in a specific place at a specific time" [13]. The problem with this kind of rampant virtuality, based on the eradication of time and space as functional communicative restraints is that it can act to separate people from face-to-face relationships and localities.

So if one of the problems with virtual communities is that they leave people unconnected to their physical surroundings and other network users the possible solution may be to focus less on cyberspace and more on traditional physical environments in order to bring proximity and practical cooperation back into the equation. Fortunately disillusionment with virtual communities comes at a time when we have the technological means to start thinking about the shape of augmented physical spaces. The use of mobile communications and wireless networking has proliferated in the last number of years. Unlike access to fixed networks which tends to be indoors in front of a computer monitor, we now have the opportunity to get people to move outside into their neighbourhoods and to still be online. The question is whether this reintroduction of physical space can make people feel more connected to their communities?

A large part of the blame for the collapse of civil society in the latter half of the twentieth century has been placed firmly on television. Specifically its privatisation of our leisure time has been identified as a root cause of the decline of social involvement. TV ownership and usage has been "linked both in this country and abroad, to reduced contacts with relatives, friends, neighbors. More TV watching meant more time not just at home, but indoors, at the expense of time in the yard, on the street, and visiting in others' homes [1].

Using computer networks to communicate using a stationary workstation has the same effects. McCellan has made this connection: "[R]ather than providing a replacement for a crumbling public realm, virtual communities are actually contributing to its decline. They're another thing keeping people indoors and off the streets." [14]. Virtual communities allow our social ties to be cut off from physical encounters. But what if we could use networking technology to encourage physical contact with people and places?

5 So what's being done?

The upsurge of theoretical work on the importance of community building has recently been matched by practical interventions using new networking technologies. Site specific wireless networks, ad hoc and peer-to-peer networks, personal-area networks, and body-area networks are all available working technologies. Increasing numbers in developed nations are carrying devices capable of both computation and communication. GPS, Wifi triangulation, 3G Phone location finding, and conventional current cell tower locating mean that these devices are becoming location-aware. Soon microchips will be embedded everywhere - from our clothes and accessories to buildings and streets they will enable us to connect to our environment in ways that we cannot yet imagine. But this is merely the enabling technology and it is becoming clear that "[t]he 'killer apps' of tomorrow's mobile infocom industry won't be hardware devices or software programs but social practices." [15].

Already projects like *Upmystreet.com* [16] (postcode level bulletin board and government information service), *Consume.net* [17] and *Nocat* [18] (community WiFi networks) have shown how imaginative applications of technology can open up new possibilities for community infrastructure and communication. Researchers and artists, engineers and social scientists are working on projects that use these technologies to promote community building by encouraging face-to-face interaction through location-based services. Examples include The Wearable Computing Lab at the University of Oregon [19] who use their research into wearable and mobile technologies to encourage and assist collaboration between users. The same urge to use wireless mobile technology to share information among users is the motivation of *Bass-Station* [20] which uses a 1980's boom box as the shell for a locally accessible wireless network which allows people in the proximity to exchange digital information [21]. *The Campiello Project* [22] aims to develop new links between the local communities and visitors in Venice (Italy) and Chania (Crete) by the sharing of local information using a range of networking technologies.

To-date a lot of these projects have taken as their focus the idea of connecting people to people or people to information but the really unique feature of mobile wireless networks, the thing they can do that fixed networks cannot, is that they can enable more meaningful connections between people and places – they promise the end of 'the end of geography'. There is little doubt that the connection of people to the places that they live and work is integral to their sense of belonging and community. The new confluence of wireless, mobile technology and decentralised networking raises the prospect of encouraging both face-to-face interaction and a new identification with the public spaces of our immediate physical surroundings. As those who share common spaces have a common interest in making those spaces better places to inhabit it is hoped that making people more aware of their environment will help to reinvigorate their engagement in their communities. In short, there has been a lot of talk about the use of location-aware devices and the provision of location-based services, what we would like to advocate is the creation of *location-aware people*.

One of the most significant interventions in this area is *Urban Tapestries* [23], a dynamic public authoring platform which allows users to share their experiences of public spaces. Users can add sound maps, content and their own threads, each attached to a physical place, to a database for others to retrieve. Access to the database is provided by mobile and WiFi radio technologies. Threads can be followed as a trail around a city or users can be alerted when an augmented location is nearby. The creators have explicitly identified this project's potential to build community through making its users 'location aware' placing it firmly within the theoretical context which has been outlined here: "The system's ability to engage people with local geography has the potential to encourage greater knowledge of and sense of ownership of an area. This could have the effect of promoting a 'cultural investment' in the environment." [24].

This kind of integration of networks and public spaces particularly appeals to the gaming community. Turning the image of the solitary player hunched over his/her console on its head, *NodeRunner* [25] uses the existing wireless infrastructure in New York to turn the city into a playing board as teams compete to log into as many wireless hotspots as they can and upload photographic proof to their server. Their website encourages competitors to "run the street, enter buildings and galleries, climb up fire-escapes but find more nodes then the other team!" Also bringing the gaming community out onto the streets are UK-based *Blast Theory* [26] who use games to explore how real spaces and virtual spaces are linked and the blurring of the boundaries between them.

What all of these projects have in common is a desire to reaffirm our connectedness to the physical world. Broader movement in this vein include the *Locative Media Lab* [27] and *Headmap* [28]. *Locative Media Lab* explores how digital media being actively used in real places has the potential to influence community. It consists of a syndicate of artists and researchers who host workshops and provide a forum for people interested in the artistic and social applications of mobile technology. *Headmap* is a self-styled distributed think tank which looks at the social implications and applications of location aware devices, augmented social networks, wearable computers, thinking tools and semantic network interfaces. What we can learn from these projects is that with new technology it is possible to augment and transform the physical world. If we can use this ability to re-establish the importance of our locale to our sense of self and community perhaps this will give people an incentive and a forum to interact hence going some way towards rejuvenating our civil society.

6   Disruptive design

It is this interest in people's relationship to their environment that has led to the creation of the Disruptive Design Team in the Networks and Telecommunications Group at Trinity College Dublin. Our projects aim to disrupt people's everyday thoughts and actions, to make them stop and take note of the people around them, the places they're in, and the connections and flows between them. It is intended that by doing so people might be more thoughtful

about their impact on the world around them, that this might go some way towards reconnecting them to their communities.

Inside/Outside is a mobile ad hoc network application designed and created by Katherine Moriwaki. The creation of a hand bag that is capable of collecting digital objects as the wearer moves around the city landscape was undertaken as an experiment in reconnecting people to the urban space:

"While an ordinary handbag collects physical objects which are often personally invested, Inside/Outside collects digital data about the environment, allowing processes of reflection and action to create personally invested relationships to the city and other individuals in the urban space" [29].

The current prototype is capable of collecting air quality and noise pollution data. Thermo-chromic ink reacts to these levels changing the outward appearance of the bag. When the bag comes within radio range of other bags the collected information can be exchanged giving the users an alternative visualisation of the pollution levels over both the route they have chosen and other routes in the city. It is hoped that the increased awareness of the city environment will lead to increased connectedness to that environment.

Another of our projects *Graffiti Wall* consists of a virtual wall projected on to a real public space. As a public collaborative digital space, it provides a digital meeting ground for participants to 'paint' graffiti using SMS, MMS, e-mail, email image attachments, or a web-based interface. The slogans added to the Graffiti Wall appear in a haphazard fashion and the messages fade with time as real graffiti fades. There is complete freedom of expression, as there would be in a physical environment. Graffiti was specifically chosen over other forms of public expression for a number of reasons. When a piece of graffiti is added to an area, other pieces are added in reply or retort creating a collaborative space whereby people can interact through both pictures and words. However, as well as being elaborate visual displays, these art forms are also objects. As such they are as much artefact as art. As artefacts they are produced to be seen at fixed sites and in specific locales, and an extension of their significance is generated by a dynamic which involves the images taking meaning from their location and the location in turn having a different significance because of the paintings. While on one level, it is primarily the image that it is being used and transformed, on another level it is the physical artefact, fixed in space, which is the subject of activity; taken still further it is the public space in which the artefact is sited that is changed. As such graffiti creates a new type of space; redefining mundane public space as politicised place and thereby helping to reclaim it for the community.

The same impulse, that of making people aware that public space is shared space, informs *Oscillating Windows* [30], an ad hoc network application designed on the principles of enforced cooperation. It consists of two static nodes that control projected images that are displayed on two sides of a large public space. A mobile population of ad hoc nodes associated with the flow of people through the space can lead to the creation of an ad hoc network though which it is possible to make an image oscillate from one static node to the other.

However, the occupiers of the space must form particular patterns in order to create a route for the image. Users can either be instructed to behave in a certain fashion of be allowed to come to their own conclusions about the operation of the project through observation. The users become more aware of their movements through public space and the effects this can have on their environment.

While all these projects are still being developed and tested our interest in them here is based on the premise that by augmenting the local and the physical rather than retreating from it into the global and the virtual we can promote community integration.

7   Conclusion

The underlying concern of this paper is with the purpose and function of technology, the relationship between innovative technologies and emergent values. It is based on the theoretical model of community being the basis of civil society which is in turn is the basis of democracy. In Habermasian terms civil society operates by using the public sphere as an arena for rational/critical debate leading to the formation of a consensus of informed public opinion which can then influence public policy. However in the present communication or media society, the growing commodification of the public sphere is a matter of concern to proponents of the democratic project. The development of the Internet has led some to believe that it could have a role to play in hosting the public sphere of late capitalism. Unfortunately, as we have seen, its tendency to cut some people of from face-to-face interaction and from their local geography encourages a kind of anonymous sociality which renders the basis of democracy, the autonomous rational subject, unstable. It is clear that the importance of the geographical location to communities has been overlooked by those eulogising the 'end of geography' and the 'global village'. The fact of the matter is that an emotional connection to the physical spaces that we inhabit and share is an important element in promoting social interaction. Of course there can be no going back; the poststructuralist knowledge of the world as human construct is undeniable, but that should not of itself breed solipsism. We can acknowledge that the intelligibility of the world depends on our ordering perceptions of it but in order to engage with each other and the world around us we need to acknowledge the world's ontological 'thereness'. The projects that we have looked at are those which are beginning to recognise the significance of a sense of place to our common psyche and their importance lies in their insistence on a *real* world out there which we can interact with and maybe even make better.

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