MapLocal: use of smartphones for crowdsourced planning

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Urban planning policy in England has been reshaped around a discourse of localism, with communities nominally given the power to set planning priorities for their neighbourhoods (Painter et al. 2011). This approach is problematic as little or no support is being given to communities to overcome the familiar problems of translating local aspiration into a highly technical and legalistic planning framework. In this pilot project, a smartphone app ('MapLocal') was developed to provide a tool undertake a simple baseline survey of a neighbourhood that could inform a plan making process. Individuals were loaned a smartphone and asked to walk around their neighbourhood recording audio clips, taking photographs and adding comments, all of which were geo-referenced using GPS and uploaded automatically to a central community map.

The smartphone app was designed to be a useful tool within a wider planning process, particularly for community members with lower levels of spatial literacy, younger people who would be less willing to engage in traditional town-hall style participatory planning exercises, and those less comfortable expressing their own views within a group setting. The intention was not only to facilitate communication between communities and local government, but also communication within communities to build resilience. The paper discusses the tensions between using crowdsourcing as an intelligence gathering exercise (cf. Goodchild 2007) and the need for more meaningful collaboration between communities and local government within processes of land use planning.

Keywords

Neighbourhood planning, localism, neighbourhood forums, crowdsourcing, smartphones, GPS, Birmingham

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Background & English context

England's Localism Act, 2011 is built upon the idea that communities should be empowered to 'shape the place'. A series of new powers were granted at the neighbourhood scale, including communities having the right to buy local assets, a right to build new developments within their neighbourhood and the right to draw up Neighbourhood Plans. Neighbourhood Forums have been established in towns and cities to manage these new powers at the neighbourhood scale. These Forums can draw up development plans which can, providing these do not contradict plans at local authority and national scale, be put to a local referendum and given official sanction.

In principle the 2011 Act represents grass roots, bottom up, participatory planning in action, integrating this into a contemporary legislative and administrative framework that seems to prefer the local scale for decisions about place making. Yet neither the Coalition nor previous Labour government have given a clear rationale as to why place making is better governed at the neighbourhood rather than local authority or regional scale (Purcell 2006). The most frequent reason given is that people living in communities are the best informed about the needs of their local areas (DCLG, 2013; Coles et al 2004). Central to this is the underexplored notion of 'local knowledge' and what this might mean for planning and formal place shaping processes. This project has engaged with these legal and policy developments, drawing on three strands of academic research to interrogate the idea of local knowledge in a neighbourhood planning context as well as beginning to consider how these multiple, relational understandings might be integrated into policy and decision making.

The first strand of research the project has drawn on is the idea of multiple knowledges. While education and training in planning emphasises the acquisition of 'planning expertise', academics frequently acknowledge multiple planning knowledges (Rydin 2007, Jones 2012). This raises the question identified by planning theorists of 'how knowledge should be conceptualized within the planning process and how, institutionally, arrangements should be put into place for handling knowledge within that process' (Rydin, 2007, 53). This pilot project attempted to do this 'on the ground' in an empirical setting.

The second strand, which itself incorporates understandings of these multiples knowledges, is the longstanding work on collaborative planning. For many years now, planning researchers have proposed greater collaboration, communication and interaction between 'experts' and the 'public' in the planning process (Friedmann 1973, Forester 1999, Healey 1997; Innes and Booher, 1999, Allmendinger & Tewdwr-Jones 2002). The broad approach these academics have taken is to emphasise the locally contingent ways in which policy processes are invented by political and other communities.

The third strand of research draws on phenomenology to consider the everyday, lived quality of being immersed in places (Norberg-Schulz 1980, Relph 2009). Work on the sensory (Upton 2007; Jones 2012) and affect (Lorimer, 2005, Duff 2010) has given particular insights

into how people experience cities in their everyday lives. There is a growing need to consider ways in which these impressions and representations might be captured and used in conventional planning and place making processes.

The MapLocal project

Drawing on these three strands (multiple knowledges, collaborative planning and multi-sensory understandings of place), the key research aim was to find ways to capture local understandings of both the built and *felt* environment. This challenged us to ask how these scholarly insights can help neighbourhoods to be represented in meaningful and effective ways within a planning process that has been designed around particular legal and policy ends. The project sought to deliver on this aim through the development of a smartphone application, 'MapLocal'. This app allowed participants to collect information and express anonymous opinions about their neighbourhood while walking around it, unburdened by the need to sit in conventional town-hall style meetings or, indeed, without needing to have sufficient spatial awareness skills to interpret and contribute to paper-based mapping exercises.

Technology in planning

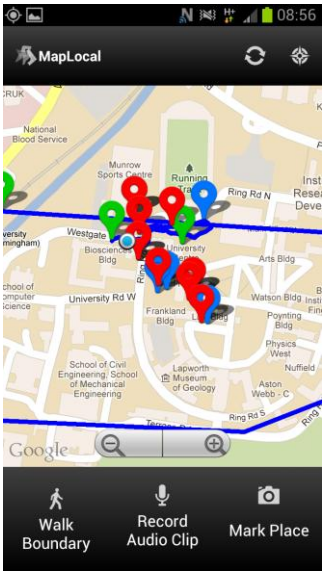
The conventional image of people being involved in local planning or governance processes is a room with chairs, flipcharts, sticky notes and a facilitator or someone from the council. However well designed, these procedures require people to *come to* them and to feel sufficiently confident and articulate to get their views across. Many of these more holistic participatory planning processes also require that some kind of intermediary steps in to help communities translate neighbourhood aspiration into a programme of action compatible with the policy landscape. This has been recognised in highly innovative work in this area including Gordon & Koo's (2008) use of SecondLife to allow participants to build 3D models of their ideal urban environment and Nold's (2009) artistic mapping of participants' stress levels. The DCLG has provided funding for 'frontrunner' pilot schemes to pay facilitators to help parish councils/neighbourhood forums develop neighbourhood plans, but this funding is limited and not available to all.

While interactions on blogs and Facebook can solicit contributions, they require participants to *come to* the website rather than bringing the technology to them. The MapLocal app is free to download onto participants' smartphones or onto relatively cheap tablet computers. As one participant in the pilot project observed, phones/tablets could easily be distributed in school playgrounds, community groups or local choirs, reaching a wide range of people within the community who can contribute their views at a time convenient to them and without the need to put their hand up in a meeting and talk in front of other people.

Design

Discussions were held with Chamberlain Forum and MADE to inform the design of the MapLocal app. Chamberlain Forum describes itself as a 'think-and-do-tank' and is a third sector organisation which has worked extensively with Neighbourhood Forums in Birmingham. MADE is a hub for architecture and planning expertise in the West Midlands, working amongst other things on community involvement in urban design. These discussions identified key types of information that could be easily gathered using a smartphone and these were used to inform the design of the user interface:

1. Photographs: different locations can be photographed, commented on and given a ranking using a sliding bar to indicate whether the scene in the image is perceived positively or negatively.
2. Audio clips: allowing participants to record an audio commentary about a location to gain in-depth information, rather than relying on short comments typed into a smartphone keyboard interface
3. Boundary data: allowing people to mark where they consider the edge of their area to be simply by walking down the street along that edge. This gives an opportunity to judge whether boundaries set down by the Neighbourhood Forums accurately reflect local perceptions of where the boundaries are.



A mock interface for MapLocal was produced by Chris Speed and used as the basis for app design by Chris Blunt of Plymouth Software. The decision was taken to use Android smartphones for this because they are relatively inexpensive and increasingly common compared to the iPhone.[2]

The app went through a rigorous process of development and testing prior to being given to participants involved in the pilot scheme. The emphasis was on producing an interface that was extremely simple to use with 'big buttons' and an intuitive feel. The key was in users not having to focus on the technology, but simply to walk, talk and take photos, with the more technical processes such as tagging to location using GPS and uploading via 3G to a central server all happening in the background.

Pilot study

Balsall Heath is located in a relatively deprived part of Birmingham, just to the south east of the city core. It is an ethnically mixed community, with a high proportion of Muslim residents. The Jewellery Quarter is primarily an area of small scale manufacturing and

[2] Use of the cross platform HTML5 had to be rejected as it is unable to 'call' the camera app from phones to allow participants to take photographs which could then be automatically brought onto the webserver underlying the project database.

various creative businesses. It has a small residential population primarily comprised of middle class white professionals. Balsall Heath was granted Frontrunner funding by the Department for Communities and Local Government and has already undertaken a series of data gathering exercises, facilitated by an external urban designer (Joe Holyoak) in preparation for the production of a Neighbourhood Plan. The Jewellery Quarter is much less advanced in moves toward producing a Plan.

These two sites provided an interesting contrast, with participants in the Balsall Heath neighbourhood able to compare the experience of undertaking a more conventional local information gathering exercise with the use of the smartphone interface. Fifty people in total took part in the pilot, twenty five in each of the two study areas. All the participants engaged in an initial training session with Colin Lorne, the field researcher for the project. These training sessions took the form of a walked interview, with participants shown how to use the device and asked to reflect on previous experience of using technologies and neighbourhood planning exercises as well as user-friendliness of the MapLocal app. Participants were then loaned a smartphone for up to two weeks and asked to use the device to help them map their neighbourhood. A debrief was carried out by Colin when he collected the phone once participants were finished.

People using the app in the street looked unremarkable, appearing as though they were texting, taking a photograph or talking into a phone. The fact that smartphones are becoming cheap and ubiquitous makes this project timely, as carrying a fairly powerful small computer in the street, even in relatively deprived neighbourhoods, is much less likely to result in a threat to personal safety compared to even five years ago. The walking interviews and debriefs revealed that a range of people were quite confident using the app, even those of an older generation who had not used a computer before. Likewise participants in Balsall Heath who had previously engaged with a more conventional participatory mapping exercise commented that they found it much easier to express their views privately by simply talking into the phone than they would have done talking in front of a group of people at a public meeting. Younger participants also commented favourably on the use of the app compared to attending a more formal meeting.

The main problems identified in the pilot, feedback from participants and a follow up focus group was in accessing the data that had been uploaded to the central database and technical issues in how the data were displayed, as well as problems with photos appearing 'in the wrong place'. Based on this feedback a completely revised web-portal was designed for the project. This allowed for separate community maps to be set up, which could be contributed to and edited by people participating in a planning exercise. Tweaks were made to the underlying code within the app to iron out bugs relating to how the data were uploaded to and displayed on the central database. Similar revisions to the code were also made to tackle the problem of a 'wandering' GPS lock putting the images in the wrong location on the map. All the data generated within the pilot study can be viewed online at www.maplocal.org.uk where it can also be downloaded into Google Earth or a more conventional GIS mapping system.

Project Findings

Over 1000 photographs, 626 audio clips and 182 boundary lines were gathered by participants as part of the pilot study across two neighbourhoods. All the data gathered by participants are available to view on the MapLocal website where they appear as pop-ups on top of a Google map www.maplocal.org.uk.

Representations by more than the 'usual suspects'

Of the 50 individuals who took part in the pilot, many would not normally have become involved with participatory processes in neighbourhood planning, including young people, women and people from minority communities. Key details are set out below:

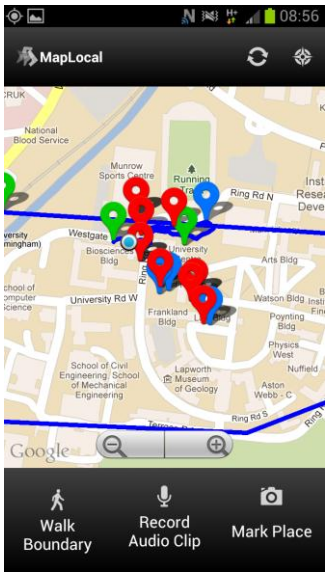
	Non-white	Female	30 or under	18-20
Balsall Heath (n = 26)	18	10	11	6
Jewellery Quarter (n = 24)	0	10	16	1

It was clear from the outset of the project that using technology to gather views and information on the neighbourhood appealed to participants. While attempts have been made to demystify planning ('Planning is simply about where stuff goes' TCPA, 2011), this project has been based on the premise that local people understand complexity and are good at portraying it.

Each individual makes their views known through the app without anyone being able to identify them as individuals. This means that the technology is relatively egalitarian, particularly as it was designed to minimise the degree of training required even for those with little or no experience of IT. At the information gathering stage, the app enables a large number of people to have their say, even if their views are contentious ("Can I say that I want a Tesco's in the area?", "This is the planned site for the travellers to come and park here... I think the planners need to hurry up and do something because this is affecting the residents of Highgate").

This matters because there has been real concern that the retired and/or wealthy are better placed to campaign on behalf of a vision for 'their' place. The Intergenerational Foundation puts it bluntly in the title of their 2012 Report on the localism agenda: *How the Localism Act hands power to older generations* (Leach & Kingman 2012), while in the House of Lords debate on the Localism Bill, there was frank acknowledgement of 'the advantaged position of those with social capital' (Baroness Hamwee, 2011). Expanding the range of participants is then an important objective in information gathering exercises, empowering a diverse set of respondents to become involved.

The 'lived neighbourhood'



While planning processes are conventionally concerned with the built environment, this project also drew on phenomenological understandings of place and the 'felt environment'. The project was framed by drawing on these theoretical debates to pilot a technique which incorporates multiplicity in a way that might, in future, be fed into legal and policy systems; these systems currently presume a much more unitary understanding of place ('the' local or 'the' neighbourhood). Certainly, as with conventional interviews, words spoken or typed into the app were mediated through several layers of reflection and self-censorship; there is no direct line into the emotions and perceptions of the participant (Jones, 2012). MapLocal does, however, have the advantage of immediacy, as thoughts and emotional reflections about the neighbourhood are captured in the moment and in that place. These reflections can also include memories stimulated by place:

> '[T]he really tragic thing about that building is, I remember when it was derelict, it has in fact been renovated, so this is a classic example of be careful what you wish for. I used to walk past this building and think crikey, it's beautiful... And as I watched them renovate it, I was excited. I thought what are they going to do with this beautiful building? They turned it into a bookmaker! I couldn't tell you how disappointed I am.'

In feedback sessions, participants reflected on how the app could collect information that could be used for neighbourhood planning 'in the round' using both visual and audio commentary, even if, as more experienced participants reflected, this ultimately is likely to be translated into more conventional 2D paper form. The imperfection of translation, and associated disappointment felt by participants and planning officers, is not a new problem (Tewdr-Jones and Thomas, 1998). Today, however, new technology and the localism agenda present opportunities to find ways of keeping the holistic quality of the information gathered; participants in the project were very keen to keep working with researchers to explore these opportunities.

Policy Impact

The principle behind MapLocal is that the information gathered is *crowdsourced*. By gathering the views of many people, some kind of consensus about the key issues facing a neighbourhood can be identified. As well as providing richer information, through drawing in representatives beyond the 'usual suspects' and being mobile, the technology saves time and money by not needing a professional facilitator. This was recognised by participants in Balsall Heath, a 'Frontrunner' Neighbourhood Plan area with DCLG funding, where

individuals had already spent considerable time and energy in putting together neighbourhood planning materials. As one of the participants at the focus group commented:

> a lot of power is being devolved to community level, so to me [MapLocal] would be really useful for the Neighbourhood Plan. Instead of Joe [the paid facilitator] going to each residents' group, we could use this, and I've picked up exactly the same things in a shorter space of time.

Nonetheless, 'local knowledge' is itself not unitary and may itself need to be triangulated. By consulting with local councillors and officers, the pilot project began to investigate how one might bring together resident expertise with other more conventional data sets that inform planning decisions – demographic sources, police intelligence and so on. One participant, for example, identified the closure of a public house in Balsall Heath as being part of a transition from being a white working class area into a more predominantly Muslim area. A local councillor drawing on police intelligence, conversely, identified the closure as being a result of the landlord refusing to pay protection money to a local gang. These different perspectives tell interesting stories about the neighbourhood that can usefully be brought together to inform neighbourhood redevelopment.

This project was set up with the aim of developing techniques for both individuals and communities to independently gather data about their area and identify the key issues that need to be addressed. It enables a broad range of opinions to be gathered at the agenda setting stage, which has been identified as important in collaborative planning research, before established stakeholders take up the negotiation processes (Margerum, 2002).

Even with diverse sources of information, a decision making consensus is, of course, not always easy to reach. A number of participants in the Jewellery Quarter commented on the recent opening of the 'Libra Parlour' on the edge of the neighbourhood. Some were not particularly concerned, or wryly amused by the presence of a massage parlour in their area. Others were upset about this new development. The app merely allows these views to be aired and recorded, it cannot itself undertake the tricky process of trying to balance different priorities for development in a neighbourhood.

Lastly, in the end of project workshop, some councillors identified the app's possibilities in consulting local people about budget cuts, shared service delivery, commissioning and co-production. Integrating multiple voices in these decision-making processes acknowledges (even if it cannot resolve) tensions between input and output legitimacy; the development of local places and neighbourhoods cannot possibly be value free. Nonetheless, MapLocal as a pilot study identified real possibilities to integrate a broad range of holistic, lived experiences in local decision-making processes.

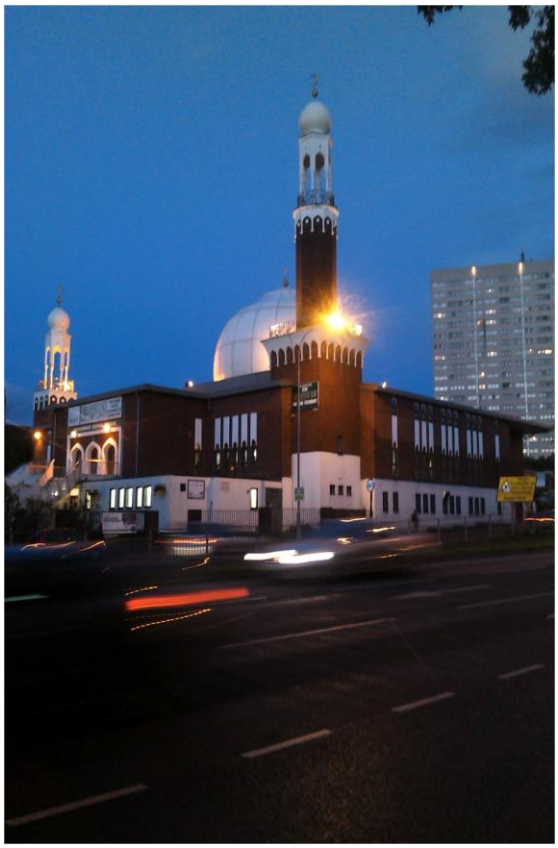
Conclusions and Next Steps

In the context of increased power being handed to communities at the same time as funding is being withdrawn from local government MapLocal provides a useful means of augmenting traditional participatory planning exercises. It allows communities to gather a large quantity of material and canvas a range of views about their neighbourhood without the need to pay an external facilitator to undertake this exercise. The pilot study demonstrated that although MapLocal was by no means perfect, it could be a valuable tool for communities to gather material to inform their Neighbourhood Plan. Data gathering is, however, only the first stage of a plan making exercise and needs to be supported by more conventional techniques to examine different priorities within a neighbourhood when attempting to draw up plans for redevelopment.

Next steps from this project would include finding a way for participants to prioritise the data themselves (perhaps through identifying the ten most significant sites for intervention), and finding a coherent way to feed this material directly into local authority and neighbourhood decision making processes. MapLocal can capture a broad range of experiences, from a wide range of people beyond the 'usual suspects' and represent these visually and in audio. The question is how to take these representations of the urban and translate them into political representation to make a positive difference to the quality of the urban environments in which people live.

Sample Data Gathered Via MapLocal

"...recently, this pub has been closed down and is up for sale and most likely I think some restaurant will take over, they'll turn it into a restaurant and they'll include this in the Balti Belt."



"This is Birmingham's Central Mosque which actually... comes under Highgate. But I thought I'd add this because it is visual from the Balsall Heath side, or the boundary of what I perceive to be Balsall Heath. It's a really iconic Mosque built in the 70s and serves a huge purpose to the local community."

“This place used to be very notorious. Before, there used to be maisonettes, high-rise maisonettes. There used to be lots of drug activities in here, prostitution, all sorts of undesirable people used to live here. It took the residents five years of meetings, persuading the council to knock it down and build new houses. Now, these houses recently, a year ago it was completed, now the residents have moved in and the area has changed completely from what it used to be.”

“So can't be certain what goes on inside Libra Parlour, but there's rumours it's a massage parlour and I don't like the idea of that sort of thing on the edge of where you live. I'm sure it goes on everywhere but it seems pretty blatant and pretty unnecessary.”

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