Contextual geographies and children’s wireless soundscapes

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Abstract

The trend in government and business to demand ever more of Geographical Information (GI) is resulting in an increasing emphasis on qualitative as well as quantitative data. A contextual approach to understanding the nature of people that Government and businesses provide services and products to, and the locations in which to provide them, is also becoming more important. Achieving this depth of understanding demands a closer look at the essential subjects of GI, namely the people that shape the physical and social environment.

Through the work of the Mobile Bristol ‘A New Sense of Place?’ project, this paper takes a look at the (detailed) spatial world as perceived by children, and investigates the way that their views of the world could influence how GI is designed and portrayed to make it more inclusive and relevant to a broader range of people. The aim of the paper is to promote a ‘worm’s eye’ approach to GI creation, exploring the potential of wireless technologies that enable ‘self-authoring’ of space, to enrich our definitions of GI.

The ‘A New Sense of Place?’ project explores how one group of children, from a primary school in Bristol, would use wireless devices to leave sounds ‘hanging’ in the air around their local neighbourhood. These sounds, which can be listened to by parents or friends using appropriate technology, collectively form a ‘soundscape’ or a landscape of sounds. The results of this research have been analysed using GIS software, revealing to us the spaces that are important in the children’s individual imaginations, as well as the role of sounds in forming their sense of place.

This paper presents the findings from this research, and considers how a more contextual understanding of GI could influence the way that large organisations create and understand Geographical Information.

Introduction

This paper looks at the relationship between information that is about people, and information that has been created by people themselves. The former is largely information gathered by public and private bodies, and is composed of some kind of measurement of factors such as wealth, health or crime figures (the bird’s eye view). The latter is an expression of an individual’s understanding of their world, influenced by their social and spatial contexts (the worm’s eye view). Collectively, many individual’s understandings of their spaces can be brought together to better understand the total character of that space.

As last year’s AGI papers demonstrated, the ‘snapshot’ view of society, as captured by the 2001 census results, results in an abstraction of society that may not always reveal detailed spatial differences in trends, underlying causes, or temporal effects. It was also evident from these papers that requirements for extra detail on social statistics are being addressed through combining information across private sector and public sector organisations, resulting in a better understanding of the complexity of the social processes being measured, as well as some excellent methods of analysing and portraying the information using Geographical Information Systems (GIS) and the Internet.

Geo-statistics and geo-demographics are also playing an increasingly important part in understanding society by introducing more detailed spatial analysis into the equation. The use of geo-demographics collected at postcode level has been shown to be highly useful in understanding a wide range of social phenomena such as performance in schools, access to
higher education, political voting patterns and trends, and evaluation of crime patterns, enabling
customisation of policing to particular neighbourhoods.

The bottom line for all private and public sector information requirements, is the desire to target
resources where they are most needed and/or are most likely to be effective. A better
understanding of a social phenomenon will hopefully result in a higher quality solution. There is a
natural tension between an obvious need for more contextual information for detailed analysis,
against the equally obvious need for privacy of personal data. However, the benefits to society of
having an in-depth understanding of social trends, and applying well thought out solutions, may
through time become equally apparent. For example, the predictive power of geodemographic
analysis on crime victims, locations and perpetrators is expected to have the following benefits:

“pro-actively directing policing strategies based upon propensities for crime incidence rather than
reacting to reported crimes is an exciting development in this arena. Resource *allocation* will not
be differentially distributed on this basis alone, rather such analysis can provide the evidence
base for improving the delivery of effective “targeting” of resources to specific neighbourhoods.
This will ultimately improve policing efficiency and performance and subsequently should be
reflected in public satisfaction.” (Ashby 2003)

**Individuals’ knowledge**

Taking these factors into consideration, this paper explores the role of information that could
potentially be produced by people themselves, in forming a clearer picture of the nature of
neighbourhoods, the range of views represented, and important events or influences. Given that
large private sector and public sector organisations are seeking to improve their understanding of
social practices and patterns over space, including more contextual and qualitative information,
awareness of information generated by the subjects of investigation (the individuals that make up
society), may result in a richer and more inclusive understanding of society. These more ‘ad hoc’
information sources can vary in type and content over space, but could be useful when combined
with more generalised information sources. Qualitative information of this kind may be more
inconsistent and unpredictable than rigorously collected information, but what it lacks in method
may be more than made up for by its ‘local flavour’.

There are several ways that technology has helped people on the street to have a voice,
interactive internet sites such as the [Knowhere](#) guide being a prime example. Originally designed
as a website for skate boarders to exchange information, this invites people from all walks of life
to pass comment on places of their choice. Reading through this web site provides a fascinating
cross section of views that together form a ‘colourful’ picture of what a place is like for its various
residents. As one person says for the best thing about the town where they live; “the weather is
good - with the added benefit being that global warming will eventually submerge Southampton”.

There are plenty of other examples of web commentary, more commonly termed ‘blogs’ or ‘web
logs’, where people can write diary style comments to a web page rather than just read them, for
example [spacename](#)london, [photoblog.org](#), or the RGS/IBG Geo Blog. Blogs can be on any
subject, and are quick and free to set up. They can be based around specific locations, or on
particular subject matter unrelated to location, such as hobbies or material culture. Shared
knowledge resources are taken a step further in open-content encyclopedia type blogs such as
[Wikipedia](#), [Culture Cloud](#) is a prototype Internet blog where users can create ‘a living digital
collage of the Angel Community’ in Islington. Other tools for society to give feedback on their local
environments, such as neighbourhood issues, can be found on Local Authority web sites such as
[Kingston](#), which invites residents to report pot holes online, or text the council about particular
issues, but do not provide a blog where users can read each others comments

All of these examples show that it is possible for individuals to author their thoughts about their
local neighbourhood using electronic formats quickly and cheaply, and in most cases read other
people’s comments as well. This is effective in terms of empowering people to have a voice about
issues that may affect them, but it does not place the comment in the location or context that it
relates to. This is where wireless mobile computing technology and applications have the
potential to enable mobile blogging and context-specific authoring, where users can leave virtual
tags in the real world.
A few projects have experimented with wireless computing and what is called ‘digital graffiti’ or ‘self-authoring’ of the environment. They use virtual tags consisting of sounds, voice, text or picture files which are associated with a location by the author, and then activated by a mobile device such as a Personal Digital Assistant or ‘PDA’ when the user moves through these locations.

The Proboscis ‘Urban Tapestries’ project is one such example, using technology that is currently available, to set up a mobile blog in and around the Russell Square area in London. This project invited a number of volunteers to try out the technology and leave their personal thoughts and comments in the streets around this part of London. A similar example using context-awareness and historical narratives, ‘The media portrait of the liberties’, was developed by researchers at Media Lab Europe, enabling people to wirelessly connect to historical accounts of the location they are in. In this case, the stories were collected from community members by the researchers and entered onto the system for them. Likewise, [murmur], an archive of audio stories relating to certain locations, and accessible through mobile phones, has been set up in Toronto. Here, some stories invite people to follow a trail of stories, while others encourage people to randomly explore the stories and locations with the following effect;

“The smallest, greyest or most nondescript building can be transformed by the stories that live in it. Once heard, these stories can change the way people think about a place and the city at large.”

[murmur]

The Mobile Bristol ‘A New Sense of Place?’ project is another example of community authoring where primary school children were given the chance to create wireless sound tags in a small area opposite their school (Old Chapel Park), for their friends and family to listen to.

This last project, which forms the subject of this paper, raises a number of questions about the role of self-authoring in society, through its exploration of how one group of children might use wireless mobile technology to leave virtual sounds in their local neighbourhood. It highlights the effectiveness of self-authoring in empowering children to have a greater presence in urban spaces in a society where children are excluded from many spaces for social and environmental reasons. It also asks if the ‘worms eye’ view of the world represented by children’s virtual soundscapes enhances our understanding and representation of geographical spaces and how virtual digital spaces might relate to the use of physical spaces. While the findings from this project are not necessarily applicable across society as a whole, they certainly flag up areas worthy of further investigation.

Mobile Bristol ‘A New Sense of Place?’ project

The rationale behind the ‘A New Sense of Place?’ project is to explore the potential role of wireless mobile technologies to combat the perceived trend for children in the UK to be increasingly contained into regulated spaces, becoming ‘battery-reared’ rather than being ‘free-range’:

“In our wish to do the best for our children we have unwittingly cast them in the role of second-class citizens through an oversight of the role of their personal autonomy in the outdoor world. One could draw an analogy here between the battery-reared childhood of today and our own relatively free-range childhoods. The situation is far more serious than I think is realised: remarkably society – central and local government, the educational system and, we ourselves – have all connived as active agents in the process of infringing children’s civil liberties and, in the process, have damaged their physical, social and emotional development. Sadly, the age at which most children are allowed to get around on their own has been steadily raised.” (Hillman, 1999)

While technologies such as the television and the Internet are sometimes seen as having a negative influence on children with relation to this trend, by keeping children fixed firmly in front of a screen of some sort, wireless mobile computing has the potential to link virtual information sources to actual locations in the environment. This creates the possibility of re-engaging the users of that information to the real-world places involved.
For the Mobile Bristol ‘A New Sense of Place’ research project, the best way to test out how children responded to this technology, and whether it might result in a re-engagement with their local neighbourhood, was to give the children the technology and see what they would do with it. This was done through a series of workshops over a period of 12 weeks with a class of 36 9-10 year olds at a primary school in Bristol.

Before introducing the children to the technology, we set up a number of indoor and outdoor mapping-related exercises, each looking at different aspects of children’s geographical perceptions. We wanted to see what the children remembered about Old Chapel Park in terms of the way that it looked and the events that occurred there. We conducted drawing and writing exercises to see how the area was depicted by each child, and the words that they used to describe it. We also carried out a blindfold walk to see what sounds the children noticed in that space, and if they noticed changes in texture underfoot.

These exercises were in preparation for the main purpose of the workshops, which was to introduce the children to the concept of wireless soundscapes. This was done by setting up a sample soundscape composed of various sounds in the park. Once the sample soundscape had been tried out by the children, they were let loose to create and trial their own soundscapes using the editing software on their school IT suite. The finished soundscapes were aimed at their parents and friends and were to be presented in Old Chapel Park on an open day at the end of the workshops.

The mapping-related exercises demonstrated that the children noticed a lot more detail than is currently represented in Ordnance Survey large scale mapping. The children's representations of the small park opposite their school contained considerable detail of the fauna and flora, and mentioned events and memories relating to that space that showed its importance to their lives. Having said that, the virtual sounds that they chose to place in the park had little relevance to the features or memories of the park. It was as though the park was a neutral backdrop for random sounds derived from commercial music tracks, sound effects from the internet and self-recorded mini-dramas. Some individual’s soundscapes were themed with titles such as ‘evil footsteps’.

Once the children were familiar with soundscapes and soundscapes technology, we carried out a ‘big map’ exercise (similar to the Urban Tapestries ‘body storming’ research methods), involving large floor maps of the children’s local neighbourhood. We used Ordnance Survey’s most detailed mapping (OS MasterMap ®) for this exercise. Working in pairs or threes, the children were asked to stick annotated labels onto the map to show places they liked and disliked, real-world noises they associated with particular places, and sounds they would like to place into their local area using wireless soundscape technology.

The results of the ‘big map’ exercise did reveal an element of patterning in this group of children’s use of space. As discussed by White & Siegel (1984) and Hillman (1999), children’s emotional, physical and mental development is intrinsically tied in with an individual’s lifestyle and geographical experiences. Therefore, if a child’s experience of their local environment is highly regulated, being based on a set repertoire of spaces, and they spend a large proportion of their time immersed in computer games and television programmes, this may become apparent in their choice of locations and sounds for a virtual soundscape.

To certain extent, this was the case, with many of the soundscape designs having a close spatial relationship with the spaces that the children talked about the most in their comments. The public places that feature highly in the children’s soundscape designs are the football ground, the school, local (sweet) shops, parks, and the theatre/arts centre holding dance classes. Houses belonging to friends and family also featured regularly on individuals’ soundscapes, showing the importance of social lives in the children’s take on their world.

Few if any sounds were placed in informal spaces that children use to play without supervision, especially since these types of places did not figure prominently in many children’s comments. It was noticeable that only one child roamed extensively around their neighbourhood without adult supervision. All the other children were accompanied by friends or adults for most of the time, with some unsupervised activity in the immediate vicinity of their houses and their friends’
houses. However, a fenced off river to the north of the study area was the only area that the children did not actively visit for any particular reason, but inspired a number of comments.

The types of virtual sounds that children chose to place into their local neighbourhood, using wireless technology, were highly indicative of the children’s interests, tastes and social lives. Many of the sounds that children said they would like to place into their local neighbourhood seem to derive from contemporary media, which may indicate the effect of commercial influences on the children’s lives. For example, music tracks by artists such as Eminem, Busted and Justin Timberlake to name but a few were placed in all types of places ranging from the school to the park, their houses and their friends’ houses.

However, unlike the soundscapes developed for the small park opposite the school, the soundscapes for the children’s neighbourhood did sometimes relate to the characteristics or properties of the locations that they would be placed in. In certain locations, the sounds were designed specifically to enhance the real-world sounds that you might hear there some of the time, such as cheering and football songs in the football ground, or robins, ducks and squirrels in a large park. Alternatively, some sounds were pure fantasy. Other sounds have the inkling of an application like ‘directions to where you want to go to’ on a main road out of Bristol, and ‘Songs at traffic lights’ at a road junction, presumably to entertain the person in a car waiting at a red light. Some locations were singled out as being unpleasant in some way, or dangerous, suggesting that soundscapes could be useful for ‘hazard tagging’ style applications.

Hazard tagging is an idea that came out of the ‘A New Sense of Place?’ project, and could be a very interesting application of soundscape technology. Examples of hazard tagging used by the children include ‘do not go in river’ and ‘warning message’ for the site of a smelly factory. These types of tags could be developed by children (or adults) to provide notes to others where there might be a danger such as busy roads, icy surfaces in winter, or large lorries emerging suddenly out of an entrance. Of course there is the possibility that warning tags would increase curiosity as to what the factory smells like, or how likely it is that their ball will be confiscated by a neighbour if they kick it over the garden wall, but the way that such information would be used is ultimately the choice of the individual.

In the context of this paper, the main value of hazard tagging could be for children to comment on places in their local neighbourhood that cause them worry or concern. They could mark out alleyways or subways that they are worried about going down because it is dark in winter time, or they feel vulnerable there and out of sight. They could mark out road crossing points where they were nearly hit by a car, or that they use frequently, but do not have proper pedestrian lights, or they could point out parks where there is a lot of broken bottles and litter. If these types of hazard tags are made public by children, they could provide a valuable resource for planners and local authorities alike to take on board children’s concerns and feedback regarding their local environment, and act to change or enhance it.

Hazard tagging need not be the only wireless content that space designers might want to be aware of. For example, if children place a large number of music tracks, or comments about particular sport or leisure activities, as wireless sound tags in one part of their local neighbourhood, this could be a pointer to planners that this is a place that is enjoyed by children, and use the soundscapes to inspire a theme for a new landscape or architectural design, or an art installation. That art installation could be yet another soundscape that draws upon the informal virtual sound content already in that place.

Social implications of the technology

The results from the workshops in the primary school are valuable because they tell us a great deal about these children’s geographies, the places that are relevant to them and the places they would like to virtually enhance with sound using wireless mobile technology. We found that the children responded well to the technology, enjoyed the experience of the workshops and adapted quickly to the idea of self authoring and its potential. The researchers who ran the workshops were keen to not influence the children in any way or make suggestions about how they thought children could use this technology, or what places should be of importance to them in their local area. The result is hopefully a snapshot of the places and wireless content that these children
naturally thought of by themselves. Had we prompted them, we may have obtained greater detail about their lifestyles, important places and desired soundscapes, but equally we may have placed too much emphasis on the things that we think children should be interested in rather than the things they are actually interested in.

What becomes apparent with these children’s use of the soundscape technology is that their digital graffiti serves to enrich the physical environment, giving children virtual space to make comments, have fun and share favourite music tracks. Likewise, the adult perception of space that is represented by OS MasterMap® can also be digitally ‘scribbled-on’ by children’s use of soundscapes to change what appears as blank spaces on the map, into an information and association-rich zone for some younger individuals. In a world of contested spaces where adults’ spatial control sometimes conflicts (literally at times) with young people’s requirements for the same space (Travlou, 2003), the freedom that is potentially generated by virtual spaces becomes very significant. This digital annotation could provide useful pointers to planners and map-makers alike as to what elements of the environment are of interest and significant to younger members of the population, and take their views into account when designing spaces or Geographical Information content.

The potentially dramatic effects of wireless technologies to break down the barriers between the physical and virtual worlds is best articulated in the following:

“We have the opportunity now to build in to emerging communications networks unparalleled possibilities for re-appropriating public (and private) space, changing our perceptions of ‘ownership’ of space and challenging conventions which traditionally bind our behaviour in relation to ‘public’ spaces…Now we can begin to imagine such technologies allowing us to construct our own practices of inhabitation, to occupy and communicate beyond the physical limits of places, to treat the city as a kind of conversation where community and communal life begin to collapse physical boundaries and become structured more (for example) by emotional, spiritual or linguistic spaces” (Lane 2004; 7)

While this almost sounds like the technology will break down the Pink Floyd wall, in the manner of the biblical collapse of the city walls of Jericho, the point is that virtual space is far less rigid than physical space and allows for a greater fluidity of expression by many more voices. Of course there are many issues associated with this technology that are far from resolved such as privacy of information, surveillance, institutional control and the role of commercialisation and market forces (Galloway, 2003), but the main potential of the technology is that it could be used to empower people to have a voice where they didn’t before, and in places that were not noticed before.

Future research directions

The ‘Big Map’ paper exercise as carried out with these primary school children will form a part of the next stage of work, but this time will be based on a community centre in the same area of Bristol as the primary school. The participants will be drawn from a variety of (adult) groups that use the community centre, and their soundscape designs will be translated into actual soundscapes in the neighbourhood, using the same wireless mobile technology that was provided to the children.

This work will reveal some of the multiplicity of virtual sounds that a community would potentially leave in their local neighbourhood, and how these sounds might relate to the locations that they are placed in. It will be interesting to see if these sounds capture the qualitative nature of the locations and people that they belong to, and if they could form a multi-layered impression of space to inform space and resource planners’ decisions.

Conclusion

For decision makers in Government and large business organisations, soundscape and other wireless technologies could be used in a positive way to understand the people that they target resources, services and products to, rather than relying on information that has been divorced from its original and individual context. It would also mean that the information flows are a more balanced two-way affair, with useful information coming from centralised sources, with equally useful information flowing from numerous individual sources. There is certainly potential for
people to be ‘consumers’ of ready-made soundscapes such as local government information, tourist trails, historical trails, games, educational applications, transport information and the like, but there may be real social benefit, and the possibility of social inclusion, if soundscape technology of the future can be used to enable different groups of society to have a voice, and better understand each others’ perceptions of their environments.

Acknowledgements

Many thanks to Class 5S, Mandy Johannson, Sheena Stewart and Paul Hiscox of Ashton Gate Primary School for their participation in, and help with, the workshops.

References and further reading


ESRC Research Programme on Children 5-16 Research briefings: growing into the 21st Century Available on-line at: http://www.hull.ac.uk/children5to16programme/


URLS

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ManchesterWireless.net www.manchesterwireless.net
Mobile Bristol www.mobilebristol.com
Proboscis www.proboscis.org.uk
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