

Technology and geography: some work in progress Barry Brown and Louise Barkhuus

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The interactions of technology and location have been a topic of much interest for both technology designers and social theorists, although as an area it has also attracted some confusion. Indeed, there is perhaps a nascent conflict brewing: do we need more critical social theory, uncovering and questioning the building of technology, and the ideologies it replicates, or do we need design led investigations which produce technologies to explore, empirically, our interactions with space and place?

Some authors have seen the opportunity to import social theory wholesale into technology studies and design. However, it is, as is often the case, yet unclear how this can assist in the design of new technologies. Alternatively, in terms of technology design, a number of the same designs or concepts are being replicated time and time again, with little in the way of innovation. For example, the 'tagging' of locations with information has become a frequent feature of geographical systems, yet there is still little in-depth enquiry as to whether this tagging supports activities of genuine interest to users.

In our own work we have studied these issues in a range of conceptual, empirical and design led activities. These two approaches can be categorised as either "space" work, concerned with how specific places and activities are connected together (potentially globally), and "place" work, concerned with the details of interactions in specific places. While we can divide up our work in this way, this is perhaps a difficult distinction to make since many technologies (such as maps) cross over, since although they are used in specific places they are produced as a standardised spatial view.

Space work

Through a number of ethnographic studies we have investigated the ways in which technology can connect together the details of interactions and involvement in specific places. This is what might be called a 'spatial' approach to technology, asking how it connects into longer term and broader patterns and engagements. Yet, unlike writers such as Castells (e.g. (Castells 1996)), we seek not to ignore the specificity of action in individual places. As we have argued, a problem with many discussions of the spaces involved in our technological age is that they ignore the work which makes the generic or worldwide happen. For example, in a recent ethnography (Brown and Laurier 2005) looking at how a large truck manufacturer distributed their spare parts we discussed how individual technicians has the power to order parts from all over the world, to the point where individual purchases could enable the production of parts on the other side of the world. Yet, as always, this spatial enabling of the spare part ordering system depended also on local practices - for example, technicians from different garages meeting locally to exchange surplus spare parts.

In a related line of work we have investigated the nature of technology standardization (Brown and Perry 2002). The standardisation that technology supports is possibly the most 'spatial' of all the effects of technology, even more so than its ability to connect together through computer networks. Even countries which are otherwise isolated are connected together through their use of microsoft windows. We have also investigated the ways in which maps and guidebooks act as standardisations on practice, how even the existence of a guidebook about a place can put into onto the 'tourist circuit' or not.

Yet again, we would not want to overplay the generality of the spatiality of technology. The hard work of defrosting standardisations - of making them work in individual, very different, places is crucial (Brown and O'hara 2003). As our work on guidebooks showed, tourists do not blindly follow what guidebooks say but instead use them as flexible frameworks which can be incorporated into their practice (Brown and Chalmers 2003). Space does not dominate over place - the standardization offered are flexibly incorporated into ongoing practice.

Place work

In a second line of work we have investigated what might be called the 'place' work involved in technology use. This has more specifically engaged with the design of technology. One part of this has been our studies of the use of maps in specific places, and how maps are used to do a whole range of work beyond navigation. In particular, our descriptions of the work around maps looked at how conduct around maps was negotiated and co-operated as groups plan activities (Brown and Laurier 2005). So, in one study of a group of daytrippers planning a day out in the country we described how the activity was as much one of negotiating what to do that day, as it was finding where things were on the map. The map was used as a collection of instructions, a collection of methods for finding how to get to different places and how long it would take to get to different places. Seeing the map as a 'representation' fails to see how the map is used in different ways as a tool for group action.

We have built two technological systems that investigate these interactions. The George Square system supported tourists sharing different places across the internet (Brown, Chalmers et al. 2005). A tablet PC allows city visitors to swap their location, pictures, voice and webpages. Of particular interest was the ways in which location became a resource for participants in using this system. Implicit location (reported through GPS) could be used to understand the context of a visitor - so they talked about "the statue", a statue which was local to them could be found. In a different way, self reported location (given by clicking on the map) could be used as kind of pointing - as a way of indicating which parts of the square that a visitor was talking about.

A second system which exploited location was the game "Treasure" (Barkhuus, Chalmers et al. 2005). This game made use of technological seams - the exposed limits of a wireless network - in its game play. In a study of the game being played we found that players developed different strategies as they became more familiar with the area and were able to take advantage of the virtual aspects of space mapping it unproblematically onto the actual environment. The network signal strength became exposed and acted on as a feature of physical space. Another game feature was pickpocketing of opposing team mates. Players were observed using physical aspects of the environment, (hiding behind trees), in combination with 'virtual' features (needing to be close to pickpocket another player).

These projects have covered a range of different interactions and method of thinking about, studying, and designing location and technology. While it is difficult to summarise all this work, for discussion we would draw out four very general findings:

- Technology has both spatial (global) aspects and place (local) aspects. Using technology is frequently a case of mapping abstractions onto the particularities of specific situations and places.
- Space does not dominate over place - rather spatial interactions, such as the synchronicity of business transactions across the world is an accomplishment of local interactions, and individuals in specific places.
- Dealing with location is an interaction matter, often embedded in our communication with others be that face to face or at a distance.
- Technology which deal with location should do more than simply 'tag' individual places with information, much more powerful is support for collaboration around locations and information about locations.

In our current work we are exploring much more the choices that individuals have in their location and mobility. We are also interested so called 'folksomologies', ad hoc structures that can be built and span across different locations.

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