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Demand by design: how our infrastructure and professions shape what we do

By Nicola Spurling

At present, there are three questions which concern me: how and why have our everyday lives become so resource intensive?; why are current resource intensive patterns so persistent despite efforts to instigate change?; and, how might these trends be shifted, so that our patterns of everyday life are more sustainable? These questions form the starting point for this short essay, in which I present some recent thinking from the social sciences, which has made headway in tackling these questions. I then build on these ideas, to point out some themes which future research might fruitfully explore.

To bring the ideas which I talk about to life, I use the example of the demand for mobility – by this I mean the contemporary need to move around and make frequent trips on a day-to-day basis. My starting point is that this demand for mobility is historically contingent, and that understanding how it has come to be as it is enables us to recognise possibilities for shaping future trajectories. Within the essay I explore and speculate about some of the interconnected social processes that create mobility demand. The essay is in three parts.

In part one, I make the point that the demand for mobility does not simply exist – people do not move around just for the sake of it – rather mobility makes possible many other social practices in working, leisure and family life which require different scales and intensities of movement. As such the overall demand for mobility at any moment is made up of patterns of social practice (of what we do in our everyday lives, where we do it and how often). To put it differently, the history of changing mobility demand is also a history of changing everyday practices.

In part two, I note how such patterns of practice are embedded in, interwoven with and shaped by infrastructure. It is easy to assume that certain practices (e.g. provisioning a household), requires certain kinds of mobility (e.g. a private car), because of the characteristics of the infrastructure (e.g. the out-of-town supermarket). Yet neither practice nor infrastructure is the 'cause' of current mobility demand. Rather, practices and infrastructures co-evolve. Within this part of the essay I set out three ways in which infrastructure and patterns of practice are interrelated.

The design and layout of roads, or the use of land in particular places for particular purposes does not simply appear from nowhere. This infrastructure is designed, planned and built by particular professions and occupations (including transport planners, urban designers, town planners, landscape architects, architects and engineers). In part three, I speculate on how the histories, structures, systems and working practices of these professions might have implications today, and how they might inadvertently hold in place, particular kinds of mobility demand. I argue that these aspects will form valuable topics for future research.

Part 1: the demand for mobility is made from patterns of practice

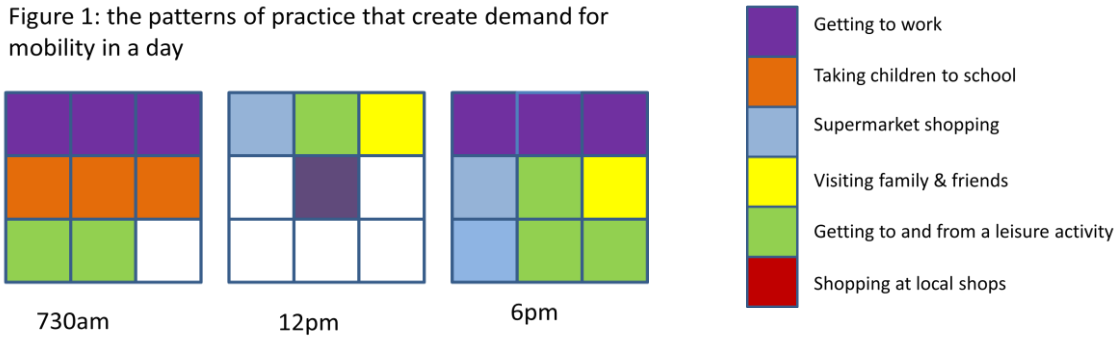
"Consumption is not itself a practice, but rather a moment in every practice". (Warde, 2005: 137)

The starting point of this essay is that the demand for mobility is directly related to the social practices that make up our everyday lives. The basic premise, which has been a key focus of recent debate and empirical research in the social sciences (Shove et al., 2012; Schatzki et al., 2001; Warde,

2005; Watson, 2012), is that rather than consuming services such as electricity, transport or gas for their own sake, these services make possible socially-recognisable activities. These activities might help us to achieve socially-acceptable standards such as cleanliness, for example bathing, showering, laundering (which have a role in creating the demand for water and electricity). They may be part of parenting, or home life, such as eating (and all the necessary steps that make this possible such as provisioning food, cooking etc.). They might also be linked to exercise or leisure, for example swimming, skiing, going to the theatre or sight-seeing.

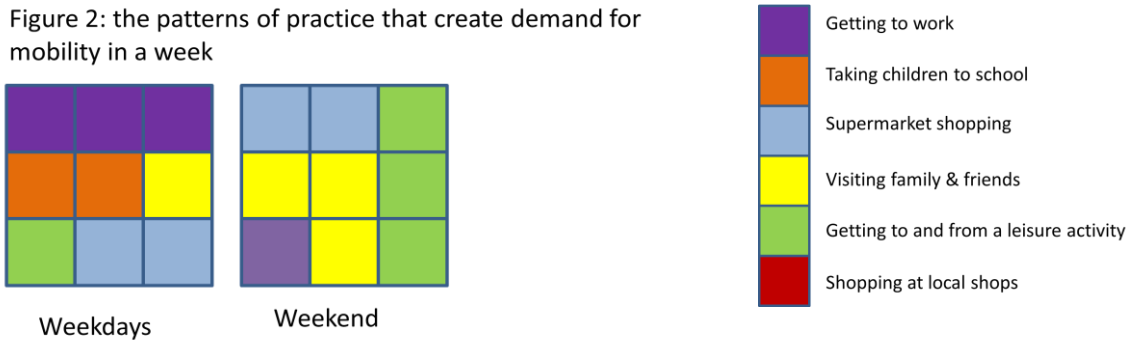
Taking this as our starting point, we can say that the demand for mobility at any moment is made up of the patterns of practice that constitute everyday life. This might be thought of on different scales, for example how do patterns of practice, and thus the demand for mobility, change across a day? across a week? by season? or across decades? The drawings below illustrate this point visually, though please note, these are not real statistics but rather speculation, to help convey the idea.

Figure 1: the patterns of practice that create demand for mobility in a day



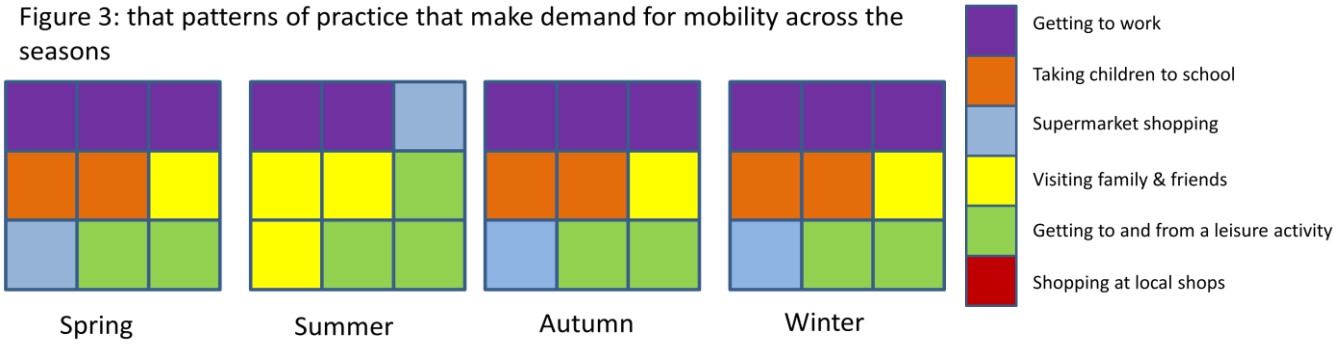
In this figure, I speculate on how the demand for mobility changes across the day, along with changing patterns of practice. At 730am there is a high demand for mobility to get to work and take children to school. At 12 pm the demand for mobility is lower, and it is more mixed. At 6pm demand is comprised of homeward commutes, which might include a stop at the supermarket or gym. The figure also suggests additional mobility for evening leisure activities, for example going to restaurants, pubs and the cinema.

Figure 2: the patterns of practice that create demand for mobility in a week



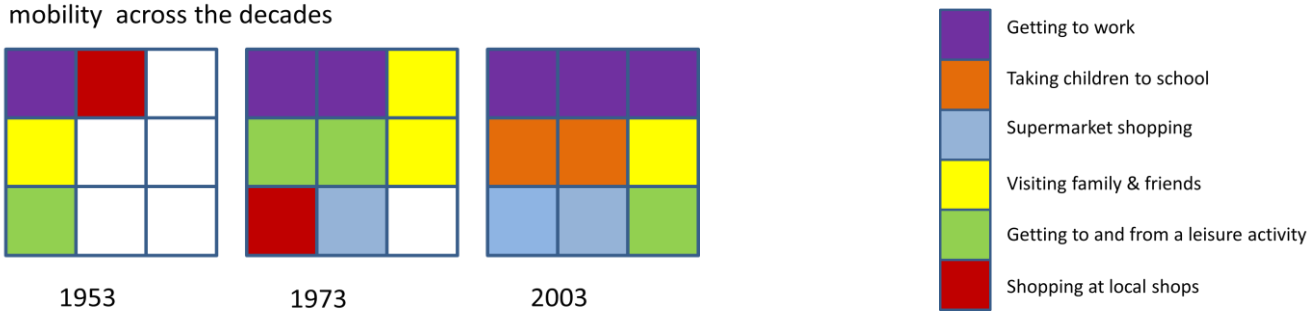
In this figure, I speculate that demand for mobility changes across the week. Whereas a high proportion of weekday demand stems from getting to work and taking children to school, weekend demand might instead be associated with a supermarket shop, getting to and from leisure activities and visiting family and friends.

Figure 3: that patterns of practice that make demand for mobility across the seasons



This figure speculates on how demand for mobility varies by season (at least in England's temperate climate). It is the summer months that stand out, with no mobility demands from the school run as schools are closed, and an associated decreased demand for mobility to 'get to work'. I speculate that summer holidays result in an increased demand for 'leisure' and visiting family and friends. Though the other seasons appear similar to one another, the figures conceal how transport mode might vary by time of year. For example, we might expect greater car use for 'taking children to school' in the winter months, because of parental concerns about child safety on the roads. The figures also conceal how the 'leisure' that the mobility helps to accomplish might change. This may, for example, involve longer trips to holiday destinations in the summer and shorter trips, to indoor venues, in the winter.

Figure 4: the patterns of practice that create demand for mobility across the decades



The final figure speculates on how demand for mobility changes across decades. Importantly, some forms of practice which now exist - for example a weekly supermarket shop - did not exist 50 years ago. Others which had prevalence then are now uncommon – such as shopping locally for groceries - which probably created a less resource intensive demand for mobility. I also speculate that accompanying (often driving) children to school is a relatively recent phenomenon. Prior to policies of parental choice, children attended the most local school, and would have walked with older siblings and friends, or taken the school bus. We can similarly imagine that visiting family and friends is associated with greater mobility than in the past, because the geographic distribution of family and friendship networks has increased – partly because of the possibilities afforded by the car, and other technologies.

The point then, is that current demand for mobility does not simply exist, rather it is created from the everyday practices that make up our working, leisure and family lives. The figures illustrate this, showing how the overall demand for mobility at any moment is made up of patterns of practice, and speculating on how this changes – across the day, a week, the seasons and several decades. In the

next section I talk about some of the ways that these patterns of practice are embedded in, interwoven with, and shaped by infrastructure.

Part Two: patterns of practice are embedded in, interwoven with and shaped by infrastructure

Contemporary practices like supermarket shopping are associated with resource intensive forms of mobility, especially when contrasted with the past. It is important though to note that the development of supermarkets did not precede, create or cause the demand for increased mobility for shopping. Rather, this is more accurately viewed as a co-evolution of infrastructure, practice and mobility, which becomes locked together across time. In contemporary life, it seems that owning a private car is the pre-requisite of provisioning a family home, when in fact this demand for mobility is the outcome of a historical process which includes the development of out-of-town supermarkets and associated forms of land use, the rise of the car, the gradual shift in shopping habits and routines, and the decline of high street shops.

In ways like this, patterns of practice and infrastructures are interrelated. Social scientists have explored these relationships in an attempt to understand how, and the extent to which, planning and design can shape what people do. Initial ideas that technologies and infrastructures 'script' social practices somewhat overstated the case – for example, although designs and plans might be made with a particular purpose in mind (as were, for example, the new towns of the 1960s/70s) such intensions do not directly transpose into practice; people are creative with the spaces they are presented with. A more nuanced idea than 'scripting' is that infrastructures and practices co-evolve. This refers to an iterative process whereby infrastructures and practices shape one another across long periods of time. Although the rates at which patterns of practice change, and the rates at which infrastructures develop are different, the two processes are intimately interconnected and influence one another. I explore three of these interconnections in the paragraphs that follow:

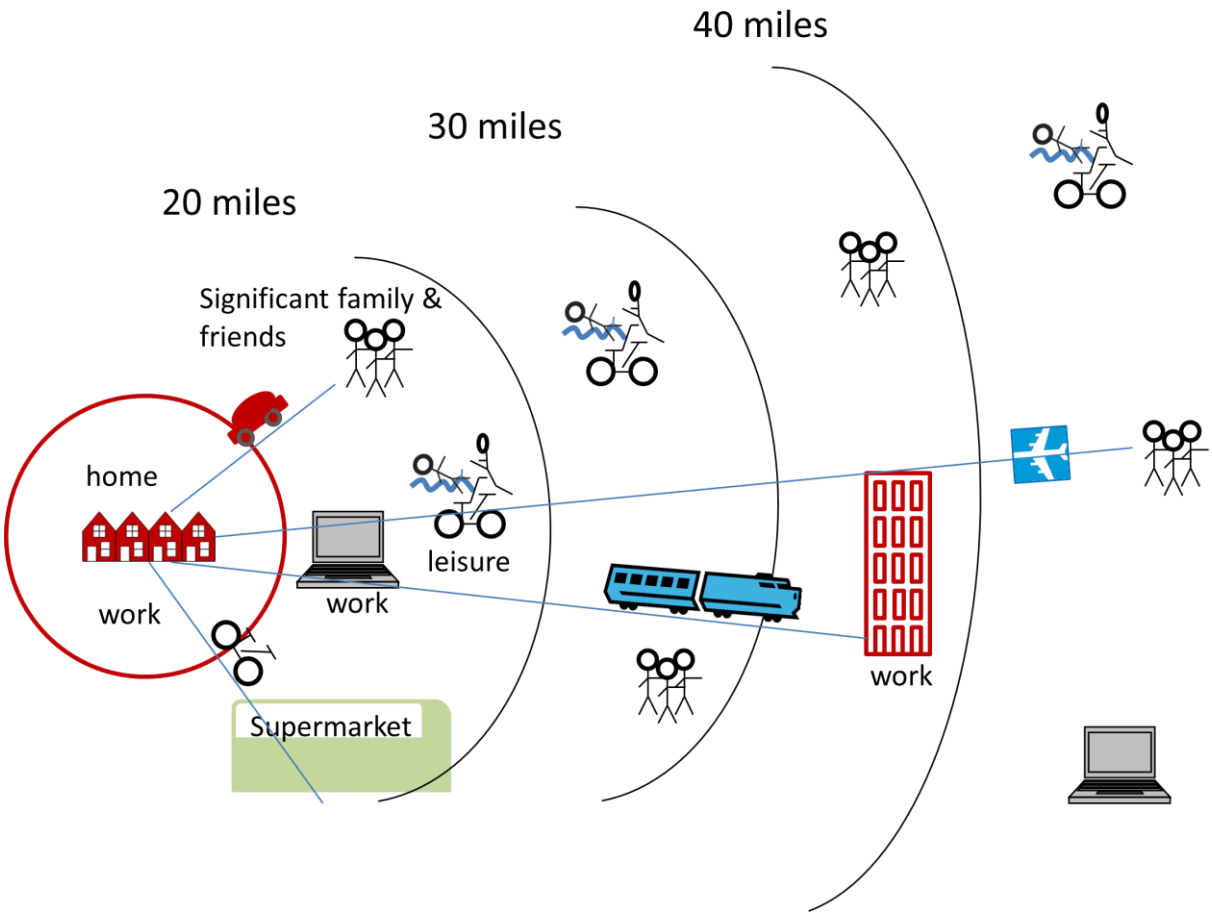
i) Land-use: The demand for mobility is an outcome of patterns of practice, and in particular, an outcome of *where* these practices take place. In the figures above I speculate that a weekday might consist of taking children to school, going to work, a trip to the supermarket, and going to the gym. It is obvious that the location of these different activities in relation to one another, and to the home, will have implications for overall amount and mode of mobility.

   This is not a simple relationship – as Owens (1995) points out "... there is a confusion of the need to travel (which can reasonably be related to land use variables) with the inclination to do so..." (Owens, 1995: 47). That is to say, practices do not only take place in the nearest possible venue, other dynamics are at work. Further, the 'map' of places of practice does not take the exact form that designers and planners have in mind; spaces will be used and developed in unanticipated ways. Neither does it stand still; the patterns of practice as 'mapped' in an infrastructure, as well as the patterns of practice which combine within an individual's life, both change.

   Despite the complexities of the relationship, the point is that land use has implications for both potential and actual 'maps' of practices, and thus implications for current and future mobility demand.

The figure below shows an imaginary 'map' of places of practice in contemporary life. Similar figures for twenty, forty or sixty years ago would likely use a smaller distance scale – representing shorter distances between places of practice, the practices that commonly combined in everyday life would be different too.

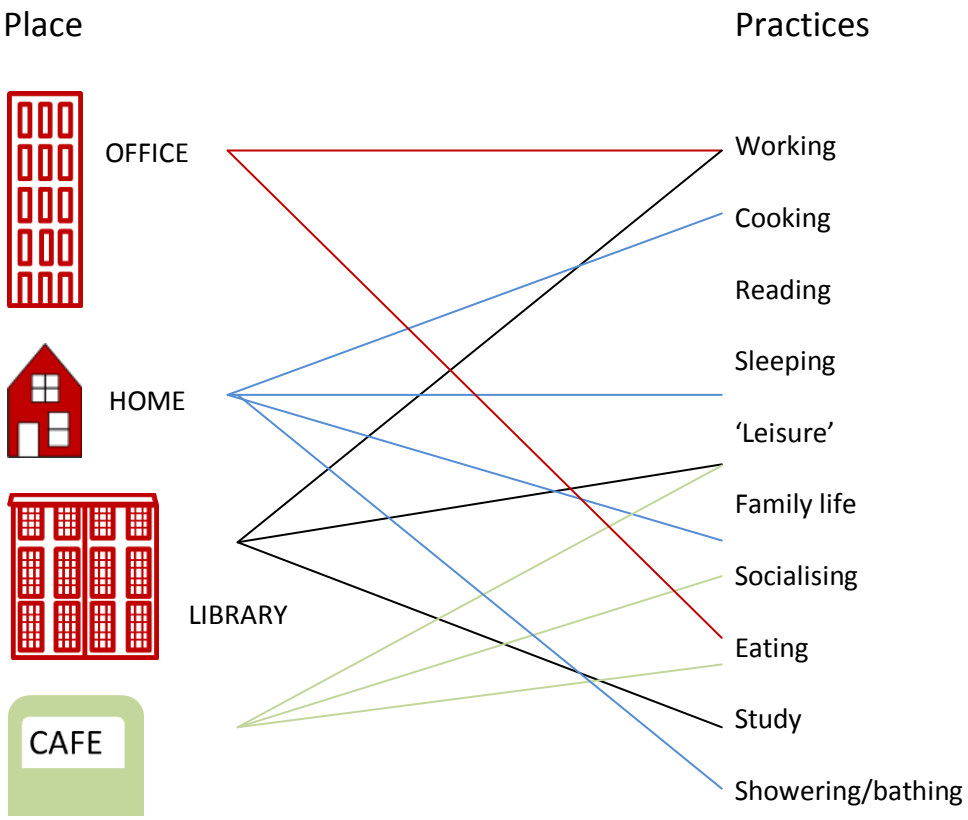
Figure 5: Distance chart: places of practice and mobility demand (based on 'Isotopes' exhibited at the Mass Observation Exhibition, The Photographer's Gallery, London, September 2013).



ii) In (i) above the practices which require particular 'places' are taken-for-granted, and I point out that the map of these 'places of practice' matters for the scale and character of mobility demand. Now I want to put that map to one side. Instead I focus on the implications of infrastructure for *which practices* can (and cannot) be performed in particular places. I suggest that this too has implications for the mobility demands of everyday life.
The point is that categorisations within infrastructures result in particular places catering to particular practices. These categorisations appear normal and 'natural' to us because of their

long histories of co-evolution, institutionalization and standardisation. Figure 6 illustrates some of these taken-for-granted relations between infrastructure and practices. This particular design of the world has implications for mobility demand; in other words, it helps to shape the 'map' in Figure 5 above.

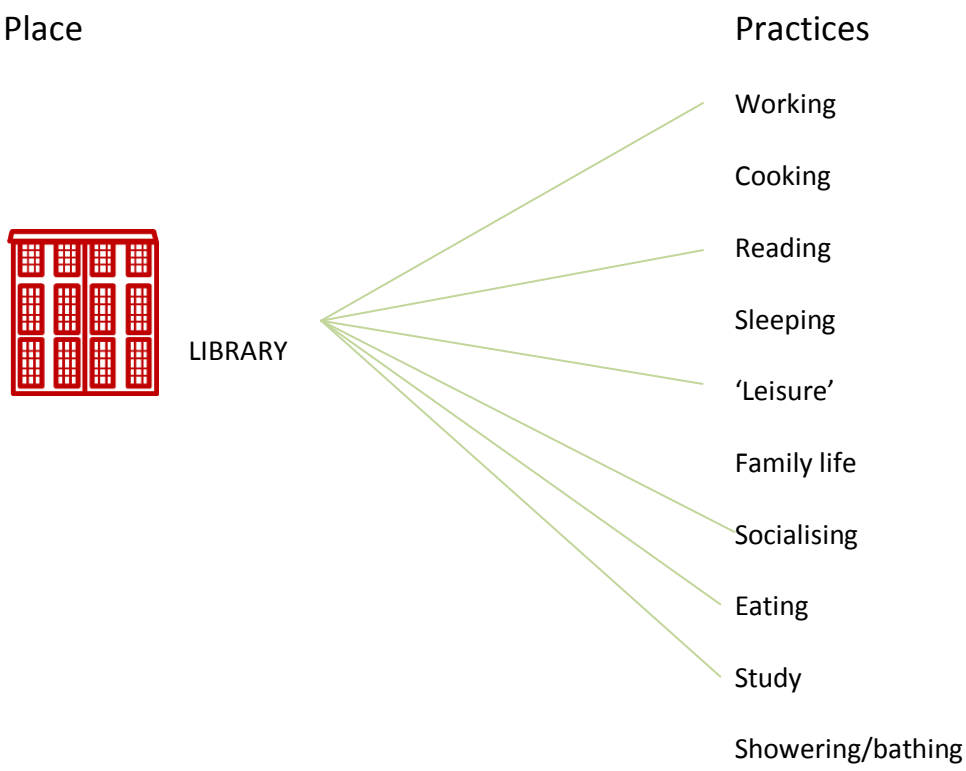
Figure 6: Conventional combinations of practice and place



To illustrate the point I take an example of a building local to me – Liverpool's Central Library (I have used this example elsewhere e.g. Spurling et al., 2013). The Library has recently reopened after a large-scale refurbishment programme. The reason I draw it into this discussion is because the design of the new space challenges traditional ideas of what a library should be and which practices it should 'house' (see Figure 7).

Rather than simply being an archive with facilities for reading, research, silent study, and the loan of books, the new library includes large amounts of empty desk space, electric points, pc, internet and print facilities, different forms of workspace (meeting rooms, games areas, reading rooms, lounge areas), a cafe and a tolerance of talking. As such the Library provides the infrastructural potential for practices of working, commuting, eating and socialising to happen in one place.In this way the library potentially brings to life the idea of 'hubs' in which people 'work from home' together, challenging the mobility demands created by the daily commute. It opens the possibility that the 'map' in Figure 5 might be redrawn (as people interact with the library in new ways).

Figure 7: The reconfiguring of place-practice relationships in Liverpool Central Library



A second example of how place-practice relationships can matter for mobility has arisen from initiatives to promote 'cycling to work'. The general assumption that office workers will arrive to work already showered and appropriately dressed (to meet cultural conventions of self-presentation and cleanliness) means that historically, offices have not provided for showering. When office workers are travelling by modes that require little exertion this is not an issue. However, with the new emphasis on cycling (from both health and environmental perspectives) such a connection, of office and showering, has proved important. Initiatives like the new Manchester cycling hub address this by providing showering facilities so workers can prepare for the day post-commute, similarly some employers have begun to provide showering facilities at work.

Figure 8: The reconfiguring place-practice relationships in city offices

There are two key points to take on board from these examples. The first is that changing places for practice (like the library) can help to shift the 'map' that I introduced in i) above. The second point is that places for practice can have implications for how different transport modes connect different practices together (so how the blue 'mobility' lines on the map are achieved).

iii) A third relationship between infrastructures, practices and mobility is the co-evolution of transport infrastructure and transport mode (cars, bicycles, buses, pedestrians), and how infrastructures can privilege or side-line different 'mobility practices' (driving, cycling, walking). Returning to the idea of co-evolution outlined earlier, mobility practices like driving, or cycling do not exist separate from infrastructure, rather the infrastructure forms an important part of these practices, shaping where, when and how they can be performed.

For a long time, in the UK, the design of road systems and of roads themselves has privileged motorised transport. For example, in the 1970s it was standard practice to re-develop town and city centres so that motor traffic was diverted around newly built 'ring roads'. Such designs aimed to provide motorists with free-flowing, and even aesthetically enjoyable journeys, yet it also had the effect of making centres relatively inaccessible via other non-motorised means.

At a smaller scale, standards of road design specified the minutiae detail of streets – including the width of roads for different forms of traffic, road markings, turning radii at corners and so on. This created roads which themselves privileged driving and 'bussing' over cycling and walking, and through-flow over a sense of place (DfT, 2007). The Manual for Streets (DfT, 2007) and subsequent Local Transport Note on Shared Space (DfT, 2011)has started to challenge these design conventions, proposing infrastructures which lower the predominance of motorised transport, and gives less privilege to ideas of speed, and the 'right of the road' (for motorists) that has become associated with it.

In his study of bicycle use in the 20th Century, de la Bruheze (2000) compares trajectories of bicycle use across nine European countries (and cities within them), including Amsterdam, Holland and Manchester, England. Both places begin with high bicycle use in the period preceding World War II, but this usage declines in the post-war period. This trajectory stabilises at low levels in England (and in Manchester), whereas in Holland (and Amsterdam) there is a resurgence of cycling from the mid-70s. He points out that 'Dutch transport policy and bicycle use' were inseparable, with equal rights, which meant that bicycle paths were built and cyclists were able to use all roads. In contrast, in England (and other European countries) , "...many roads were forbidden for cyclists, bicycle lanes were abolished and one-way traffic rules were introduced". He does not claim that such infrastructural differences should be interpreted as direct causal relationships – indeed he points out that bicycle use did not increase as much as expected when new cycle lanes were built in Amsterdam in the 1980s. However, the (all be it complex) relationship between infrastructure and 'mobility practice' is hard to deny, and provides an interesting focus for further research.

So to summarise the points made so far: I have pointed out that mobility demand does not simply exist, but is rather the outcome of patterns of practice which change across time. Secondly I have shown that these patterns of practice are connected to infrastructure in three ways: through land-use and the 'places of practice' which this creates; through conventional categorizations of which practices require places, and how these practices should combine (or not); and through transport infrastructure privileging certain 'mobility practices' over others. In the next and final section I discuss the role of designers and planners in mobility demand, outlining some questions which I think future research might fruitfully address.

Part 3: the design and planning professions and mobility demand

The design and layout of roads, or the use of land in particular places for particular purposes does not simply appear from nowhere. This infrastructure is designed and planned by particular professions and occupations (including transport planners, urban designers, town planners, landscape architects, architects and engineers). In this way the design and planning professions *make* mobility demand, though the detailed dynamics of this relationship are complex. In this final section, I speculate on how the histories, structures, systems and working practices of these professions might have implications today, and how they might inadvertently hold in place, particular forms of mobility demand. I argue that these aspects will form valuable topics for future research.

i) The design and planning professions have a role in making, and re-making normality. Particular working practices and 'tools of the trade' develop over long periods of time. These can become so engrained in the everyday working practices of professionals that limitations or unintended consequences can become hidden from view. Regulation, standardisation and legislation can operate in a similar way, being made at a particular historical moment and to address the issues of the day, it may still persist in the working practices of professionals even though it is no longer relevant.

For example, 'predict and provide' has existed as the predominant approach to transport planning for the past 50 or so years, despite criticisms of such approaches which have circulated since the 1980s. It is an approach to transport planning in which "... demands are projected, equated with need, and met by infrastructure provision" (Owens, 1995: 144) and strongly

associated with the 'promise' of post-war development, the rise of the car and the development of England's motorway network.

It is easy to see how such an approach might result in design for a particular normality which inadvertently exacerbates rather than challenges current problems. I make a related point in Part 2 of this essay, where I point out how conventional categorisations of 'places for practice' (Figure 6) can remake, rather than innovate, current versions of normality. There is therefore scope for researching the histories of particular working practices and professional 'tools of the trade', to understand what assumptions about patterns of practice and mobility demand are 'built into' designs, and to consider how these might be otherwise.

ii) Studies of various professions by sociologists and historians show that professions and their 'jurisdictions' change across time. New professions emerge, others wax and wane, they may 'amalgamate' with one another, and increase or decrease in their organisational presence. At one time a profession may have full control, and at another it may be subordinate to another group. Design and planning is no exception. For example, architecture and town planning have been established professions for a long time, transport planning developed and gained jurisdiction in the 1960s and 1970s, and landscape architecture and urban design have emerged more recently, growing in organisational presence. What then, is the shifting composition of professions which shapes our world? How do new professions develop and gain in organisational presence and others disappear? How do the jurisdictions of professions shift and change? And what are the implications of all these things for what happens 'on the ground'?

iii) Different professions (architects, town planners, transport planners, landscape architects etc.) are trained in different ways, their ideas of good practice, the ways in which they prioritise interests and concerns, and their associated histories of legislation and regulation vary. The short example below (figures 9-11) shows how working practices of different professionals might have implications for an aspect of infrastructure. The figures are from a meeting between a transport planner and a landscape architect, and show sketched ideas for a busy road which dissects a university campus, and is important crossing point for large numbers of pedestrians. Figure 9 shows the layout as it currently stands, Figure 10 the design of a transport planner, and Figure 11 the design of a landscape architect (the drawings are from an interview with a landscape architect).

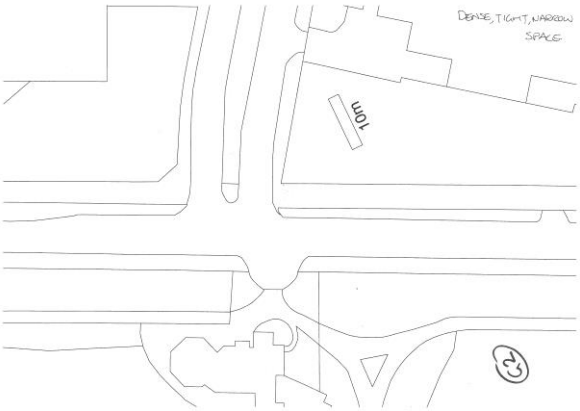


Figure 9: Existing infrastructure

The existing infrastructure of part of a university campus that has funding to be redeveloped; a straight, fast moving road that dissects the campus in two. It is a safety concern due to high numbers of pedestrians

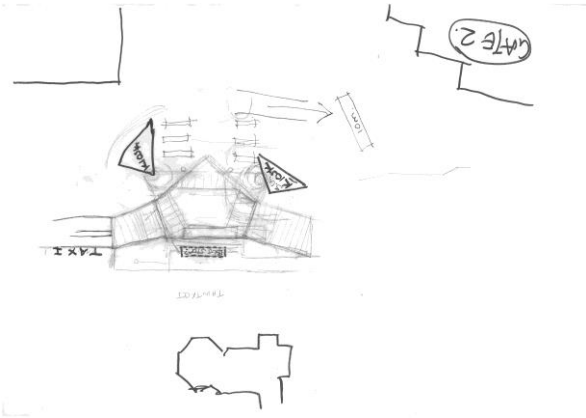


Figure 10: Design of Transport Planner

This design includes some distinct pedestrian crossing places, and a turning point for buses. Motorised transport is still privileged over walking and cycling, and the 'through traffic' is privileged over those using the space (i.e students and staff of the university).

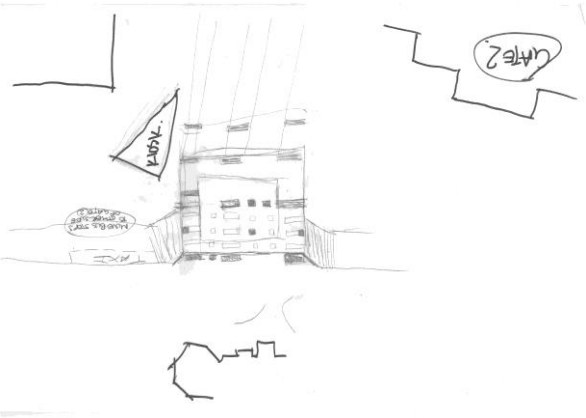


Figure 11: Design of Landscape Architect

The design is a square within the campus that is a 'shared space'. Every transport mode has right of way (including walking and cycling), so traffic must slow down and navigate around people. The 'place' is privileged over the through flow of motorised traffic.

In ii) above, I suggest that the composition of the professions which shapes our world is constantly shifting. The figure above illustrates how differently professions might approach the same aspect of infrastructural development. Combining these two ideas highlights how significant the shifting composition of professions might be for the version of the world that is made (e.g. how would the world shape up if landscape architects rather than transport planners were 'in charge'?).

iv) The final point is about the national and local arrangements which influence when, and at what scale there is scope to reconfigure infrastructure. Large scale investments which were made into, for example, the redesigning of Manchester city centre (after the IRA bomb and for the Commonwealth Games), Liverpool city centre (for City of Culture), and London (for the Olympic Games) are different in size and scale to the everyday work that forms the 'bread and butter' of many design and planning professionals. What then, is the scope of these different kinds and scales of development such that patterns of practice (and thus mobility demand) might be reconfigured at a societal scale? What is the relationship between generic or national ambitions and local specificity? Who makes and manages infrastructure in particular places? How are professional standards and ideas of 'good practice' (which cut across regional and national boundaries) mediated in local contexts? And which broader assumptions underpin piecemeal and large scale developments?

Conclusion

In this short essay I have set out some reasons why I think that design and planning professions are important for mobility demand. The main thrust of my argument is that aspects of infrastructure, such as the design and layout of roads, or the use of land, does not simply appear from nowhere. Rather it is designed and planned by particular professions and occupations. I set out some of the ways in which the histories, structures, systems and working practices of these professions might have implications today. Infrastructure is implicated in the patterns of practice which constitute the demand for mobility, and designers and planners might inadvertently remake current unsustainable demands, rather than providing the potential for new patterns of everyday life.

Within the essay I have been selective with the points and examples that I have included – this means that much has been left out. I focus on the spatial rather than temporal aspects of mobility demand. As such I don't talk about flexible working hours, and the role that office or school opening times might play in creating peak demand, or how changes in infrastructure might impact on the scheduling of everyday life.

I also don't talk about the broad aesthetic movements which can sweep through entire swathes of professional practices in one go – such as the influence of modernism in the 1920s on art, design and architecture – and how these might align or conflict with existing professional practices. Likewise, I do not mention the other 'experts' that might make vital contributions to shaping infrastructure. For example the influence of road safety experts who, for a long time, reinforced ideas of segregation of different kinds of road user, and the predominance of driving on our roads.

I do however hope that I have set out some convincing relationships between the demand for mobility, the design of infrastructure, and the histories, systems, structures and working practices of the professions. At the start of this essay I set out three questions that are central to my research, and which are of interest to all those concerned with promoting more sustainable ways of life: how and why have our everyday lives become so resource intensive?; why are current resource intensive patterns so persistent despite efforts to instigate change?; and, how might these trends be shifted, so that our patterns of everyday life are more sustainable? It is my view that exploring the relations between the design and planning professions and demand, will make some useful headway in addressing these questions.

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