Cities xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Cities

journal homepage: www.elsevier.com/locate/cities

Exploring segregation and mobilities: Application of an activity tracking app on mobile phone

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ARTICLE INFO

Article history:
Received 31 March 2015
Received in revised form 5 January 2016
Accepted 8 February 2016
Available online xxxx

Keywords:
Mobilities
Residential segregation
Mobile phone app
Activity tracking
Hong Kong

ABSTRACT

Increased mobility has posed a challenge to the study of social segregation which conventionally adapts a static view in linking people's source of identity and social interaction to confined spaces of their residence. This is a paper reporting an exploratory study in the use of a mobile phone app in tracking the mobility patterns of selected sample of people in Hong Kong. It explores the impacts of mobility on whom people engage their activities with, how they interact with people in their home neighbourhood and how much likely they would in interacting with people of different socio-economic backgrounds. Patterns of mobility are very uneven among people in Hong Kong and as a city of long working hours and heavy work burden, the time people stay in their home neighbourhood and interaction with friends are in fact very limited. There are also high opportunities for them to move to neighbourhoods with a different socio-economic profile with that they live in. Yet people from poor neighbourhoods tend to move to poor neighbourhoods whilst richer people to richer neighbourhoods. Thus pole may be mobile but interaction with other income groups may be limited. At the same time, the mobile phone app that has been developed offers a very robust instrument for social research which needs to track people's movement

1. Introduction

There is a continuing and important debate about the nature of urban social segregation. In particular, it is argued that there has been an overemphasis on residence and neighbourhood, a relative neglect of other potentially important dimensions and sites of social interaction and a rather static conception of the city in these discussions. The new mobility narrative suggests the need to approach the issue of segregation in different ways and to acknowledge that the urban experience may be qualitatively different now compared to when many of the core concepts of segregation were initially developed. Mobile technology may also offer important new ways to collect relevant data. This paper aims to contribute to this literature and reports on the use of a smart phone app in an exploratory study of mobility and segregation in Hong Kong. This paper attempts to address three specific objectives. First, what do people do in their own neighbourhood and how long do they spend doing it? Second, to what extent do people move between areas of different socio-economic status and what do they do there? Third, what can be learned from this pilot exercise in the use of a smart phone app for mobility research?

2. The neighbourhood and social segregation

Social segregation and the neighbourhood has been an enduring theme in urban studies since the early writings of the Chicago School sociologists. Numerous studies, across a wide range of cities and societies, have revealed high concentrations of socially disadvantaged populations. These spatial patterns have been generally interpreted as involving negative impacts on those populations and aggravating other forms and processes of disadvantage and exclusion (van Kempen & Wissink, 2014). Accelerated international migration generated a new wave of residential segregation studies, particularly in Europe. Again the primary concern has been the likely (negative) impacts of the spatial concentration of migrants (e.g. Dhalmann & Vilkama, 2009; Muench, 2009; Phillips, 2010).

The residential neighbourhood is thus at the centre of most research on social segregation. Such research, however, has tended typically to adopt a rather static approach. It assumes the dominating importance of space and place within the specific boundaries of the neighbourhood, embedded perhaps within its morphology and functionalities. This static view has, however, come under increasing criticism. For instance, Chaix, Merlo, Evans, and Havard (2009) examined seven different ways of defining neighbourhood with the aim of developing more theoretically robust conceptions of the neighbourhood beyond the oversimplified, fixed boundary territorial neighbourhood. At the same time, changes in the morphology and functionality of post-industrial cities have transformed the residential neighbourhoods and consequently

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http://dx.doi.org/10.1016/j.cities.2016.02.003
0264-2751/

the impact of the neighbourhood on social segregation. The increased mobility of residents has been pinpointed, together with the emergence of enclave urbanism, as phenomenal features associated with such changes (Wissink et al., introduction to this special issue). In fact, social relationships are being redefined with the increased mobility of goods, capital, people and ideas which involve not just physical but also virtual movements. It may be that even for migration over a long distance to a totally unfamiliar place, segregation may not be as serious as was once thought. The newcomers to a neighbourhood are now able to link to their old networks with free communication software.

The argument that we need to transcend static conceptions of neighbourhoods and over residentialised notions of segregation sits, therefore, within a more pervasive paradigm shift in the social sciences (e.g. Murray & Upstone, 2014; Sheller & Urry, 2003). Within this "new paradigm of mobilities" (Urry, 2007), space may no longer be such an important determinant of social relations (Rofe, 2003), or at least, we need a more fluid and dynamic conceptualization of the way space impacts on social relations. Murray and Upstone (2014) suggest that mobility is now "integral to a complication of representation, and a freeing of space from static representation and of representation from rigid spatialities." (p. 5).

The metaphor of the nomad is also increasingly used to evoke the contemporary urban experience (Pinder, 2011). The relationship between the social dimension of the city and its physical dimension is therefore argued to be changing fundamentally (Bertolini & Dijst, 2003). What Bertolini and Dijst (2003) refer to as the 'action radius of urban dwellers' has expanded enormously with modern transport technologies. Dutch urbanites apparently now travel as far in one day as their 17th century ancestors did in one year (p. 28). With improved private and public transport, people may therefore spend much less time in their neighbourhood. The frequency as well as the intensity of interaction with people in the neighbourhood will inevitably be reduced. At the same time, however, mobility may act as a mitigating factor for residential segregation (Wong & Shaw, 2011). In this respect, the erosion of social capital and civility in the United States as observed by Putnam (2000) may not be an indication of an absolute decline but merely a re-terrorisation of social relations (Van Kempen & Wissink, 2014).

In the networked city of flows (Bertolini & Dijst, 2003) therefore, a better understanding of residential segregation should encompass not just the residential neighbourhood but also other socio-geographic spaces frequented by the residents (Wong & Shaw, 2011). In this respect, a more comprehensive appreciative of segregation should consider the dynamisms of the "flow" of people (Farber, Páez, & Morency, 2012) and a people-based rather than a place-based approach may be a better alternative (Kwan, 2009). We must, nevertheless, be wary of constructing new conceptions of segregation (or lack of segregation) which may be partial and elitist. Mobility and its meaning are highly varied among people in different places, of different socio-economic status and different stages of the life course (Forrest, 2008).

Moreover, as Cresswell (2010) has illustrated, increased mobility is open to a wide range of interpretations and societal responses. It may be about empowerment or disempowerment, choice or constraint. As argued by Rofe (2003) and Couclelis (2009), increased urban mobility may also be more common among the professional global elites or flexible workers who have adapted better to the new economy, but the majority may not experience the city in the same way. And even if most people do feel more mobile, their access to opportunities or social participation may not have been boosted as a result of that increased mobility (Farber, Páez, Mercado, Roorda, & Morency, 2011).For example, long commutes from places of exclusion to places of low paid work may involve considerable movement but little feeling of empowerment or freedom.

Given the potential impacts of increased and transformed mobility on residential segregation, it would seem essential to introduce new dimensions into the study of residential segregation and to include the activities of residents in other spheres (Wissink et al., introduction tof this special issue). In doing so, however, we also need to take account of the negative impacts of residential immobility (Jaffe, Klaufus, & Colombijn, 2012). Recontextualised entrapment may be as significant a phenomenon as new forms of hyper mobility. Indeed, being 'stuck' or 'still' is intrinsic elements of the mobility narrative (Cresswell, 2012). Some are, however, more stuck than others, some are stuck in places of exception, and others trapped in places of exclusion. The disempowered such as the poor elderly, the sick and disabled and the long term unemployed are likely to be much more spatially constrained. We should thus be wary of assuming that increased mobility has made the concept of the neighbourhood obsolete (Forrest, 2008). Neighbourhood is still significant and in fact may be more significant to some groups than ever.

3. The specificity of Hong Kong

High population density and highly efficient public transport are perhaps the best known features of Hong Kong. However, the population is spatially very unevenly distributed — Hong Kong is one of the densest cities in the world. High density and a very efficient public transportation system have enabled over three quarters of the population to use public transport for their daily commuting (Census and Statistics Department, 2012a, 2012b, 2014).

Hong Kong is also a quintessential global city which has a high and increasing degree of income polarization and extreme wealth and income inequalities (Chiu & Lui, 2004). Such a wide gap between rich and the poor does not, however, translate spatially to the creation of ghettos in the city (Forrest, La Grange, & Yip, 2004). This can be attributed to its substantial public housing sector (with half of the population in publicly developed owned or rented flats), its specific town planning system (social mix in large private housing estates) and high density living (with high quality public services) which act as intervening factors in creating a more equal spatial distribution (Forrest et al., 2004; Yip, 2012).

In the context of this very distinct urban fabric, it is perhaps surprising that the neighbourhood has been a rather neglected dimension in research on the social life of Hong Kong. Interest was revived by Forrest, La Grange and Yip (2002) with their indepth research on neighbourhood issues within the high rise high density environment of Hong Kong. Since then, there has been a steady stream of research on physical health (Cerin, Sit, Barnett, Cheung, & Chan, 2013; Leung et al., 2014; Pang, Leung, & Lee, 2010); neighbourhood income inequality and perceived health status (Wong, Cowling, Lo, & Leung, 2009); sense of community and well-being (Mak, Cheung, & Law, 2009) as well as neighbourhood cohesion and class (La Grange, 2011). The relative lack of sustained attention may indicate that in Hong Kong the sense of neighbourhood is relatively weak. However, the sense and experience of mobility may be high. These features may differentiate Hong Kong from other major cities and should be acknowledged for the purposes of this paper. Mobility is cheap and most people use public transport. It is therefore not a city where there is a strong class dimension between the users of public and private transport. Indeed, even its substantial taxi system is relatively cheap and more inclusive when compared to other international cities.

4. Tracking people-based activity

In taking detailed records of daily activities, the use of diary and survey methods have been the most frequently employed strategies (e.g. Islam & Habib, 2012; Sevilla, Gimenez-Nadal, & Gershuny, 2012). For instance, a study looking at the activity space and exposure between residents in the public and private housing sectors was undertaken in Hong Kong using a 24 hour activity diary (Wang and Li, 2015). Diary methodologies are, however, costly and also have problems of accuracy. Modern GPS technology eases the burden of recall and helps participants in recording important non-routine activities. It can also pinpoint the

Please cite this article as: Yip, N.M., et al., Exploring segregation and mobilities: Application of an activity tracking app on mobile phone, *Cities* (2016), http://dx.doi.org/10.1016/j.cities.2016.02.003