

Change in the social life of urban public spaces: The rise of mobile phones and women, and the decline of aloneness over 30 years

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Abstract

This study illustrates that over the past 30 years, Americans have become less socially isolated while using public spaces. Based on content analysis of films from four public spaces over a 30-year period, the behaviour and characteristics of 143,593 people were coded. The most dramatic changes in the social life of urban public spaces have been an increase in the proportion of women and a corresponding increase in the tendency for men and women to spend time together in public. Despite the ubiquity of mobile phones, their rate of use in public is relatively small. Mobile phone users appear less often in spaces where there are more groups, and most often in spaces where people might otherwise be walking alone. This suggests that, when framed as a communication tool, mobile phone use is associated with reduced public isolation, although it is associated with an increased likelihood to linger and with time spent lingering in public. We argue that public spaces are an important component of the communication system that provides exposure to diverse messages, brings people into contact to discuss their needs and interests, and helps people recognise their commonalities and accept their differences. The increased tendency to spend time in groups while in public contrasts with evidence from other research that suggests a decline in American public life, and that mobile phones have increased social isolation in public spaces. The increase in group behaviour, women and lingering in public may have positive implications for engagement within the public sphere.

Keywords

civic engagement, gender, mobile phones, public sphere, social isolation

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Introduction

A number of studies in the USA have found that people are increasingly likely to live alone, to engage with smaller social circles, to disengage from civic institutions and to spend time in private spaces (Hampton et al., 2011c; Klinenberg, 2012; Lofland, 1998; Putnam, 2000). These shifts are often attributed to large-scale social change, such as the movement of women into the paid labour force, and technological change, such as the rise of home computing, the internet and mobile phones. These studies have primarily examined shifts that have taken place within institutions and private spheres of interaction. However, it has generally been assumed that these shifts have consequences for contact in public spaces. One common scenario suggests that opportunities for private engagement lead to a withdrawal from public life (Sennett, 1977). Technologies such as the mobile phone may further undermine public life by increasing the opportunity for people to spend time in private while in public spaces (Turkle, 2011). A shift in the social life of urban public spaces, toward aloneness, might have very negative consequences for individuals and society: higher rates of loneliness and depression (Matias et al., 2011) and a general decline in trust and exposure to social diversity (Sennett, 1977). However, to our knowledge, no study has attempted to measure change in social interaction in public places over time. Whether people are more alone in public, and amongst less diverse companions than in the past is an open question. We explore this question with a longitudinal study of public spaces and change in the composition of individuals and groups in these spaces over the past 30 years.

The public

A place where people come together, face-to-face. The [city] center is the place for news and gossip, for the creation of ideas, for marketing

them and swiping them, for hatching deals, for starting parades. This is the stuff of the public life of the city – by no means wholly admirable, often abrasive, noisy, contentious, without apparent purpose. But this human congress is the genius of the place, its reason for being, its great marginal edge. (Whyte, 2009 [1988]: 341)

Public spaces are a component of the public sphere (Habermas, 1989). The public sphere is where strangers meet; it stands in contrast to the private sphere, where close relationships, such as the family flourish (Sennett, 1977). Like other components of the public sphere; such as the mass media, civic institutions, and informal civil behaviours; we conceptualise public spaces as an opportunity for the exchange of messages with diverse others. Public spaces include a city's streets, sidewalks, parks, and plazas to which all persons have legal access (Lofland, 1973). Thus, the distinguishing feature that separates public space from private space is that it minimises the segregation of people based on lifestyles, such as their opinions, income, gender and race (Strauss, 1961). One recent study found that three visits to public spaces per week was associated with having a network of contacts one half standard deviation higher in diversity when compared with the average; similar in magnitude to civil and civic behaviours, such as the difference between knowing most versus no neighbours, and the difference associated with belonging to two different voluntary organisations (Hampton et al., 2011b).

Opportunities for public engagement can vary by individual, place and time. A place that is public for one person, in that the proportion of copresent others clearly leans towards the unfamiliar, may simultaneously be a private place for another who is surrounded by an entourage of close friends. A truly public space brings people from diverse backgrounds and classes into contact (Low et al., 2005). Although this contact can be

informal and fleeting, such interactions contrast with the homogeneity of close friendship groups, which tend to minimise opportunity for encounters with diverse others (Lofland, 1998).

Serendipity, chance encounters and people watching are important subsets of the interactions that take place in public spaces. Indeed, much of the activity that takes place in public might be viewed as non-purposeful. That is, people chatting informally, or hanging around a place with little apparent purpose. While this might be negatively characterised as loitering, it is better described as lingering. The urbanist William H. Whyte (2001 [1980]) argued that public spaces should be designed to encourage people to linger, as it provides for conversation and chance encounters. In one study, one in six people interviewed across a variety of public places reported that, in their history of use of that place, they had met someone new and continued that relationship to form a long-term friendship (Hampton et al., 2010). Whyte's contemporaries, such as Jane Jacobs (1961), similarly noted the role of people who linger for the opportunities in sidewalk life that they provide for interaction and surveillance.

Nevertheless, serendipitous encounters are the minority of all public interactions. Public spaces are primarily a forum for interacting with friends rather than strangers (Demerath and Levinger, 2003). Thus, public space can be 'a discursive space where individuals and groups congregate to discuss matters of mutual interest' (Hauser, 1998) as well as a social and spatial semiotic (Ravelli and Stenglin, 2008). That is, public spaces shape public opinion by affording deliberation, and through meaning-making that results from observing the context of the space, and the artefacts and people within. Although contact in public spaces is likely to be incomplete when compared with more formal forms of political deliberation

(Fishkin, 2000), influence need not involve persuasion, or manipulation, but can take the form of imitation or contagion (Hamilton, 1971). The meaning and messages contained within a public space might act directly on an individual's opinion, or, as with other modes of communication in the public sphere, fit into a multistep flow of opinion formation (Katz and Lazarsfeld, 1955). Public spaces are an important component of the communication system that provides exposure to diverse messages, brings people into contact to discuss their needs and interests, and helps people recognise their commonalities and accept their differences.

Beyond democratising effects, the contact that takes place in public spaces has other, well-established benefits. Walking on public streets in the company of others, as opposed to walking alone, is associated with revitalisation and reduced levels of anxiety and depression (Staats and Hartig, 2004). Time spent in public spaces has been found to increase attachment and sense of community, lead to higher levels of perceived health, and reduce feelings of loneliness (Cattell et al., 2008; Kweon et al., 1998). A shift toward higher levels of isolation while in public may be tied to other large-scale, social trends, such as increased treatment for depression and anxiety disorders (Comer et al., 2011; Marcus and Olfson, 2010) and declines in generalised trust, empathic concern and perspective taking (Konrath et al., 2011; Wilkes, 2011).

The shift toward aloneness

Some studies indicate that people are more isolated and removed from public spaces than in the past. Interactions with social ties may be undertaken increasingly within the confines of private spaces (Lofland, 1998; Popenoe, 1985). This trend is not new; privatisation has its roots in the rise of capitalism,

industrialisation and urbanisation (Tönnies, 1887; Wirth, 1938). The responsibility for this shift is often charged to technological change. The infrastructure of the city; water, sewage and electric systems; highways; and the telephone all enable a separation of home and work that permits people to reduce the time they spend in public. For example, refrigerators and freezers reduce the need for daily visits to the market; air conditioners remove people from the stoop; and television reduces the need to visit the theatre (Lofland, 1998; Putnam, 2000). When it is necessary to travel through public space, the automobile makes it possible to enclose oneself in a bubble of private space (Lofland, 1973).

The rise of new, digital technologies, such as home computing and the internet, have similarly been tied to the ability of people to spend leisure and work time within the confines of the home (Graham and Marvin, 1996). It is easy to infer that when people have access to technologies that afford the opportunity to spend time in private, they will do so. However, it has not been demonstrated empirically that home centredness comes at the expense of time spent with acquaintances in public spaces. Indeed, there is some evidence to suggest that technologies that afford home centredness, such as the television, enhance, rather than displace time spent in public (Robinson, 2011). The internet may also offer a new type of online public space (Papacharissi, 2002). A number of scholars have pointed out that new mobile technologies, such as the mobile phone, extend this trend in a new way by allowing people to create a cocoon of private interaction in urban public spaces, which, like the automobile, shields them from those around them (Hampton and Gupta, 2008; Ito et al., 2008). The mobile phone can transform public companions, what Goffman (1971) called 'Withs', into a 'Single' (Humphreys, 2005). Some scholars have argued that new mobile

technologies have resulted in public spaces that are no longer communal spaces; fewer traditional in-person interactions in public; and people in public spaces engaged through technology with someone miles away rather than with someone in the same space (Turkle, 2011: 155). Not only may people be spending more time alone in public, but the availability of close social ties through mobile devices may lead to intense participation in networks of close relationships at the expense of exposure to diverse others (Gergen, 2008).

A growing literature to suggest a rise in the related concept of individualism has accompanied evidence of a rise in privatism. Individualism, described by de Tocqueville in his reflections on American democracy, is the tendency for man to 'isolate himself from the mass of his fellows and withdraw into the circle of family and friends; with this little society formed to his taste, he gladly leaves the greater society to look after itself' (Tocqueville, 2007 [1835]: 281). Moreover, de Tocqueville felt that individualism was of 'democratic origin and threatens to grow as conditions get more equal' (Tocqueville, 2007: 281).

Data from the US General Social Survey (GSS) suggest that individualism in America may be increasing. McPherson et al. (2006) found that the core networks of Americans – their closest circle of friends and family – have become smaller and more closed. This contraction has come at the expense of diversity – the maintenance of core ties outside of the home. In 1985, approximately 64% of American adults reported discussing an important matter with someone outside of their family; by 2008, this number had dropped to 45% (Hampton et al., 2011c). Although some have disputed the validity of the 2004 GSS data (Fischer, 2009), three subsequent replications have found average network sizes and distributions that closely mimic the GSS (Brashears, 2011; Hampton

et al., 2011a, 2011c).¹ New technologies were also targeted as a possible cause for this trend, however, Hampton et al. (2011a, 2011c) largely excluded an association between the use of the internet, mobile phones and related technologies and smaller or less diverse core networks. (In fact, much the opposite seems to be true.) Whatever the cause, this trend may have negative consequences for individual social support as well as opportunities to engage with diverse others (Hampton and Ling, 2013).

More together

In this paper we question whether the growing literature on aloneness can be extended from private and institutional settings to public life? In questioning whether public life is less diverse and more alone than in the past, we also ask if recent technological change is the most significant large-scale social change to have affected public life? The focus on technological change in the literature on privatism and individualism has drawn attention away from other sources of large-scale change that may have had the same or a larger impact on interaction in public spaces. The list of social changes that may have affected public interactions over a time period that coincides with the rise of new digital technologies is long and includes trends that the urban literature has treated extensively. They include the privatisation and 'Disneyfication' of public spaces (Hannigan, 1998; Kohn, 2004; Zukin, 1995) and those that have received less attention, such as restrictions on tobacco use in the workplaces that have pushed smokers into public doorways and sidewalks (Kaufman et al., 2010). However, one major social change stands out as particularly important – increased gender equity.

We anticipate that a shift in the public and private lives of women has had major implications for the use of public spaces. It

is no secret that over the last three decades, women's participation in the labour force has grown sharply, whereas men's participation has fallen over the same period (Inglehart, 2003; US Congress Joint Economic Committee, 2010). In the USA, the number of women in the workforce has increased by 44.2% since 1984, with nearly all growth occurring by 2000 (US Congress Joint Economic Committee, 2010). Women are spending much more time out of the home than in the past (Jacobs and Gerson, 2001). This trend combines with related trends, such as women staying in school longer (Peter and Horn, 2005), a decline in occupational segregation (Blau et al., 2013), an increase in the average age of marriage and child bearing (Goldin and Katz, 2002), and the movement away from the segregation of women's activities into private spaces and men's activities into public spaces (Bott, 1955). There is little doubt that the movement of women's activities outside of the home is one of the most significant social changes of recent decades.

Scholars have not consistently interpreted increased gender equity as positive for participation in the public sphere. McPherson et al. (2006) suggest that much of the recent shift in core network diversity can be attributed to a tendency, as labour force equity increases, for men to shrink the number of non-kinship ties rather than for women to increase the number of ties outside of the home. Similarly, Putnam (2000) argues that women's increased labour force participation has reduced civic and civil behaviours and may share responsibility for the decline in social capital over the last half century. Although these and other scholars have focused on the implications of increased gender equity for participation in civic institutions and in private spaces, to our knowledge no one has considered how the recent shift in women's activities outside the home has affected participation in public

spaces. This deficit is likely based on the assumption that most women enter their cars at home, exit at their place of work, and do not have meaningful opportunities to engage with public spaces. However, this assumption ignores the role of the street and public spaces in general as places for walking, lingering, watching and socialising. Gender is one of many possible sources of diversity in these spaces. Participation in public spaces is as much a part of the public sphere as is the mass media, civic institutions and civil behaviours. In contrast to speculation that the increased participation of women in the labour force has driven down participation in the public sphere (McPherson et al., 2006; Putnam, 2000), we anticipate that women have fundamentally reshaped interactions in public spaces over the past 30 years. Women of the late-20th and early-21st centuries have better access to public spaces, in America and in most Western countries, than women of the century before them (Bondi and Domosh, 1998).

Method

This paper provides the results from a longitudinal study of interaction patterns in public spaces that cover a 30-year period. It analyses the behaviour and characteristics of 143,593 people in four public spaces, based on the content of time-lapse films created in 1979 and 1980 and videos of the same spaces shot between 2008 and 2010.

The time-lapse films used in this analysis are from an archive held by the Project for Public Spaces (PPS). PPS is a non-profit organisation founded by Fred Kent, who worked as a research assistant to the urbanist William H Whyte. Whyte and his assistants used Super 8 film to inform the Street Life Project (Whyte, 2001 [1980]), which was started in 1968 in response to new zoning regulations in New York City that gave incentives to builders to include plazas and

other public spaces as part of the construction of large, commercial buildings. Whyte used a variety of methods, including time-lapse films, to assess variation in pedestrian behaviour and the use of public spaces in New York City and around the world. The result of this work was a comprehensive amendment to New York City zoning laws in 1975 and, in 1980, a summary of findings published as *The Social Life of Small Urban Spaces* (Whyte, 2001 [1980]). PPS works to apply and expand Whyte's work.

PPS created and archived more than 3600 canisters of Super 8 film. Our team spent more than 3000 hours digitalising and cataloguing these films to serve as a baseline for comparing public life 30 years ago with urban life today. The corpus of the film archive was narrowed for our study, based on the visibility of pedestrians, the duration of film available, the consistency of camera angles and similarity in time period. We recognised that local, historical factors, such as changes in neighbourhood characteristics (e.g. crime and physical design), were likely to influence activity in any public place. Although it would be impossible to control completely for these threats to historical validity, we attempted to minimise error as a result of external factors by sampling from a range of locations. Four locations, all filmed between 1979 and 1980, provided a relatively large number of films. They were taken from a stationary view point, using a camera angle that provided a view of pedestrians that would allow us to identify group activity and some individual characteristics. The four locations were Chestnut Street (between 10th and 11th Streets in Philadelphia, PA), Downtown Crossing (Boston, MA), Bryant Park (northwest corner sidewalk in New York City) and the steps of the Metropolitan Museum of Art (New York City) (see online supplement, Movie S1: Bryant Park 1980). These four small, urban public places have distinct characteristics:

Chestnut Street: Located in Center City Philadelphia, this area is within one block of a subway station and provides access to a number of low-rise office towers, a hospital and a small number of retail establishments. There are no benches or other seating, and there are no public parks or significant residential areas within a four-block radius. This area might best be described as an 'in-between' space, serving as a pedestrian transit point between destinations.

Downtown Crossing: A shopping district located within Boston's downtown, one block east of Boston Common, and a number of blocks west of the main financial district. Adjacent to a subway station and closed to vehicular traffic, pedestrians can walk freely in the streets to access a major department store, restaurants and other retail establishments.

Bryant Park: Located in Midtown Manhattan, outside of the northwest corner of the park at the corner of West 42nd and the Avenue of Americas. Bryant Park is a major destination. The northwest corner is located within a block of two subway stations and provides easy access to a number of large office towers and retail establishments. It is one block from Times Square.

Metropolitan Museum of Art: Located on 5th Avenue on the eastern border of Central Park in New York's Upper East Side. Granite steps lead to the entrance of the museum and are positioned between two fountains. The steps are a well-known public place and a destination for people to meet and eat. A ten-minute walk from the nearest subway station and a popular destination for people who live and work in nearby low-rise residential, office and retail establishments.

In 2008 and 2010, we returned to these four locations to re-film pedestrian life at comparable times of day, day of the week, and in weather conditions similar to the original time-lapse films (see online supplement, Movie S2: Metropolitan Museum of Art

2010). The original films were typically obtained from the vantage point of a window or rooftop. We were not able to secure permission to access the same filming position, but were able to reproduce a similar vantage point through the use of a 16-foot cine stand (a long pole with support legs). Our video unit was stationed outside of pedestrian flow and camouflaged by positioning the apparatus next to a building or light post. The video unit received little notice from pedestrians. Security guards located in Bryant Park and Downtown Crossing briefly interrupted our observations to ask that we request permission from their private management companies to set up our video unit, which we did.

The original and new films totalled more than 38 hours of footage. Films were sampled at 15-second intervals for a total of 9173 observation periods. The original films were often made using time-lapse techniques. To standardise our film sample at 15 seconds of standard film speed, we took advantage of one of Whyte's common techniques: he often recorded a stopwatch at the start of his films before adjusting the frame rate for time-lapse. A comparison of the film before and after the camera was adjusted for time-lapse allowed us to calculate the correct sampling interval.

The coding procedure involved taking a screen shot of the sampled video frame and dividing the frame into a number of predefined coding areas. Coding areas were standardised so that the same geographic space was coded in both the new and original videos. The position of our video camera was at a slightly lower altitude than that of the camera in the older films. As a result, our videos typically captured a smaller geographic space than what was captured in the original. So that the space represented by the older films matched the location and size of our current day videos, we cropped the Super 8 films to match our modern vantage

point. In this way, we coded a space that was consistent in size and location across time.

The quality of the Super 8 films as a result of their vantage point, the characteristics of the film, and their general deterioration after being warehoused for three decades limited the amount of information that we could reliably code. For example, it was difficult to determine personal characteristics, such as race, other than gender. Researchers coded individuals in each area for four characteristics: gender, group size, lingering and mobile phone use. Each variable was coded as a dichotomy. The focus on few phenomena and the use of dichotomous units simplified the coding instructions. Individuals were coded as being members of a group if observed walking, sitting, or standing in close proximity of another individual. If a coder was uncertain if an individual was part of a group or merely in close proximity, the coder reviewed the video immediately before and after a sampled frame to verify that the individuals represented a collective unit (e.g. it was relatively easy to conclude that two people sitting immediately next to each other on a long bench were part of a group). Additional indicators that an individual was part of a collective unit included physical touching, apparent talking and collective locomotion. Lingering was defined as an individual's presence in two or more consecutive film samples (inhabiting the same area for 15 seconds or more). Mobile phone use was captured through the observation of a handset held to an ear or mouth, or the typing of a text message.

On average, each observation of a film frame required 13 minutes of content coding (a total of 2000 coding hours). For consistency, a single researcher was responsible for training and accessing the reliability of all coders. The reliability of each coder was assessed informally during training, in a series of pilot tests, and through subsequent

formal assessments. During training and pilot testing, using Krippendorff's Alpha as an indices of reliability, pairs of coders achieved reliability on each of the four variables >0.90 . In subsequent formal assessments, coders maintained reliability for measures of gender, group size and lingering, but Krippendorff's Alpha for mobile phone use was lower (0.75). The lower level of reliability for mobile phone use is consistent with a pattern within binary observations where one of the values is relatively rare (mobile phone use); Krippendorff's Alpha is lower in this instance even when coders made few mistakes. Indeed, the use of mobile phones with headsets (such as Bluetooth devices) is likely underreported, because coders may have had difficulty observing this activity.

Findings

We are not alone together

The results show that over the past 30 years in the majority of public spaces, there has been a decline in the tendency for people to spend time alone and a corresponding increase in the proportion of people in groups (Table 1).² In 1979, 32% of people who visited the steps in front of the Metropolitan Museum (Met Steps) did so alone. In 2010, only 24% of visitors were alone; a percentage decline of 24% in the presence of singletons. In Downtown Crossing, the proportion of people observed walking alone declined from 69% in 1979 to 53% in 2010; a change of 24%. Similarly, the proportion of people walking alone on the sidewalk outside of Bryant Park dropped from 72% in 1980 to 66% in 2008, a proportional change of 8%. In only one setting, on Chestnut Street in Philadelphia, was there an increase in the number of people walking alone. In 1979, 66% of people on Chestnut Street walked alone; in 2010 this had grown

Table 1. Characteristics of public spaces over time.

	Chestnut Street		Bryant Park		Downtown Crossing		Met Steps	
	1979	2010	1980	2008	1979	2010	1979	2010
Total film observation time (s)	15,435	11,070	18,660	20,655	14,235	13,980	30,615	12,945
Total film segments coded (15s)	1029	738	1244	1377	949	932	2041	863
Total number of people	5095	2726	11,235	11,997	12,365	14,973	59,482	25,720
Men (%)	53.38	52.55	63.84	57.21	52.30	59.61	55.80	41.19
Women (%)	46.62	47.45	36.16	42.79	47.70	40.39	44.20	58.81
People alone (%)	66.05	73.66	72.18	66.17	69.28	52.88	31.86	24.15
People in groups (%)	33.95	26.34	27.82	33.83	30.72	47.12	68.14	75.85
Same sex dyads (%)	64.32	44.69	66.90	51.71	59.97	68.94	49.28	38.72
Mobile phone users (%)	—	6.05	—	9.68	—	4.45	—	2.94
Mobile phone users alone (%)	—	96.36	—	93.63	—	88.14	—	43.05
Mobile phone in a group (%)	—	3.64	—	6.37	—	11.86	—	56.95
People lingering (%)	3.30	5.03	2.44	3.43	4.54	2.93	4.53	7.10
Mean linger (s)	58.48	44.45	120.27	111.42	79.65	209.97	230.03	170.19

to 74%, an increase of 12% in the proportion of people who were alone.

The finding of increased group activity in three of the four field sites is a good indicator of change in the direction of reduced activity spent alone in public spaces. At the very least, it refutes the counter hypothesis that there has been a large, widespread social change in favour of people spending time alone in public spaces. We have no definitive explanation for the increase in the proportion of singletons on Chestnut Street. However, we can infer that it is related to the unique character of the space as a transition point between destinations. This section of Chestnut Street lacks much of the diversity in leisure and commercial activity present in the other three spaces. If, pedestrian traffic in this area is disproportionately accounted for by transits to and from the workplace, the observations of Whyte (2001 [1980]) suggest that such public spaces are less likely to provide opportunities for social engagement. A closer examination reveals that the finding may be tied to a large, social trend: the presence of women accounts completely for the increase in people walking alone on Chestnut Street. Of those who were alone, there was a 9.70% increase in the proportion of women, whereas there was a 6.54% decrease in the proportion of men.

Gender equity in public spaces

A substantial shift in the composition of groups and the presence of women accompanied the decline in the number of people walking alone in public. Men and women increasingly socialised together in public, and women represented a larger proportion of people in public. At the Met Steps, the proportion of women increased by 33%; in Bryant Park by 18%; and on Chestnut Street by 2%. Only in Downtown Crossing was there a decline in the proportion of women –

a decline of 15%. The proportion of dyadic groups that were homophilous based on gender declined by 21% at the Met Steps. There was a similar decline in group homophily of 23% in Bryant Park and a decline of 31% on Chestnut Street. The only place where groups became less diverse was in Downtown Crossing, where same-sex dyads increased by 15%.

Equalisation in participation in public spaces has accompanied changes in women's participation in the labour force. Women represent a larger proportion of people observed in public in three of the four field sites. That the proportion of women in Downtown Crossing has decreased over time is somewhat surprising. First, it is counter to the broader trend toward greater equity in public, although, with the exception of the Met Steps, men are still the dominant presence in all the observed public spaces. Second, the decrease is counter to expectations that shopping is a 'feminine' activity, that women would have a greater presence in a public space that is dominated by retail opportunities (Falk and Campbell, 1997), and that as women's incomes have increased, they would increasingly be responsible for purchasing decisions. However, this outlier may also be related to equity. Although there was an overall increase in same-sex dyads within Downtown Crossing, male-only dyads increased by 51%, whereas the presence of female-only dyads declined by 329%. The decline of women within this setting could be interpreted as a shift in gender roles, consistent with other reports (Otnes and McGrath, 2001), that men may increasingly be taking on an activity that was traditionally regarded as feminine. The 27% drop in men who are alone at Downtown Crossing, compared with the 19% drop in the percent of women, may suggest that men no longer view shopping as more instrumental than social (Falk and Campbell, 1997).

Mobile phone use in public spaces

Despite anecdotal perceptions of the ubiquity of mobile phone use in public, the rate of observed mobile phone use was relatively low and limited primarily to use by people who were not with co-located companions. The rate of public mobile phone use ranged from a low of 3% on the Met Steps to a high of 10% of people observed outside Bryant Park. On Chestnut Street, 96% of mobile phone users were alone, 94% of mobile phone users in Bryant Park were alone and 88% of mobile phones users in Downtown Crossing were alone. Only on the Met Steps – the location of the lowest overall proportion of mobile phone users, were mobile phone users more likely to be in a group than to be alone (43%).

Mobile phones users appear less often in spaces where there are more groups, and most often in spaces where people might otherwise be walking alone. Mobile phone use may support gender equity in public space. On Chestnut Street (the only space where we observed an increase in people walking alone, and only for women), 11.74% of women who did not have a collocated companion were using a mobile phone, compared with only 6.26% of men. The mobile phone may provide women with a means to balance paid work, unpaid work and 'net work', as well as reduce the vulnerability that women experience as a result of being alone in public (Goffman, 1977).

One argument, from the study of mobile phone use, extends Goffman's (1971) observations that there are two types of individuals in public spaces, 'Singles' and 'Withs', to suggest that mobile phone can transform Withs into Singles once a companion starts using a mobile phone (Humphreys, 2005). The argument that mobile phone use distracts from co-present interactions within public spaces is dominant within the study of mobile phone use (Ling, 2008). This

perspective explicitly suggests that being alone in public has more value than communicating on a mobile phone. Presumably, the public street provides opportunities for serendipity and exposure to diversity that would otherwise be missed. There is some empirical evidence to support this claim (Hampton et al., 2010), but the logic of this argument overlooks the value of any communication exchanged over a mobile phone in public. It could be argued that mobile phones reduce social isolation in public by providing people who would otherwise be Singles with an opportunity for direct interaction. When mobile phone use is treated as a communication tool that brings individuals who would otherwise be Singles into Withs, the rate of public isolation decreases on Chesnut Street from 73.66% to 67.83%, at Bryant Park from 66.17% to 57.11%, in Downtown Crossing from 52.88% to 48.95%, and on the Met Steps from 24.15% to 22.89%.

However, if mobile phone use that takes place while in the presence of a companion does transform Withs into Singles (Humphreys, 2005), we should consider an additional adjusted isolation rate for those who are transformed into Singles. If the isolation rate is adjusted to treat as alone those individuals who were observed with a companion, who had disengaged to talk on a mobile phone, the rate of isolation fluctuates only marginally, increasing by 0.18% on Chestnut Street, 0.46% in Downtown Crossing, 0.99% on the Met Steps and having no change on public isolation around Bryant Park. Even in the most intrusive of situations, when used in the presence of a companion, mobile phone use suppresses opportunity for public interaction only marginally.

Anecdotal impressions of a high rate of mobile phone use in public spaces may be related to an increase in the tendency for more people to linger in public and for

people on mobile phones to linger more and for longer periods. The overall proportion of people lingering is low, relative to the total number of people in a space, ranging from 7% of all people at the Met Steps to 3% of people in Downtown Crossing. However, over the last three decades, there has been a 57% increase in the proportion of people lingering at the Met Steps, a 52% increase in people lingering on Chestnut Street, a 40% increase in people lingering in Bryant Park and a 36% decline in people lingering in Downtown Crossing (we suspect this reduction in lingering is a result of the removal of a series of benches from the area). The likelihood of a mobile phone user lingering, relative to other people, was 2.87 times higher on Chestnut Street, 3.14 times higher in Bryant Park and 4.96 times higher at the Met Steps (all $p < 0.001$). Mobile phone users were no more or less likely to linger in Downtown Crossing. The mean lingering time for mobile phone users at Bryant Park was 175% longer than for those who did not use a phone ($\bar{x} = 167.55$ s; ANOVA, $p < 0.001$), 183% longer at Downtown Crossing ($\bar{x} = 343.20$ s; ANOVA, $p < 0.01$) and 208% longer at the Met Steps ($\bar{x} = 345.60$ s; ANOVA, $p < 0.001$). There was not a significant difference in lingering times for users and non-users of mobile phones on Chestnut Street.

Discussion

Our evidence does not support the conclusion that people are more alone in public spaces than they were in the past. In three of the four sites observed, the tendency for people to spend time in groups was more prevalent than it was three decades earlier. The absence of a trend toward increased public isolation, or a strong tendency for frequent disengagement from co-located companions, does not support speculation that mobile phone use drives a trend whereby people are

‘alone together’ (Turkle, 2011). The incidence of mobile phone use as a proportion of pedestrian activity is relatively low and rarely performed in the presence of groups. In some public spaces, the tendency for mobile phone users to linger at a higher rate than other people may in part explain a perception of higher rate of mobile phone use in public than what is actually observed.

The context of the place can likely explain the contrasting variation found between settings in the incidence of isolation. Bryant Park, the Met Steps and Downtown Crossing are specific destinations for leisure and shopping, but Chestnut Street is primarily a transitional space, used when travelling to and from a workplace. Consistent with Whyte’s original observations, diverse public spaces are more likely to host diverse forms of engagement (Whyte, 2001 [1980]). Some other observations are also likely driven by contextual effects. One example is the observation that the proportion of women present in Downtown Crossing has declined over time. Although not conclusive, the observations of public life on the streets of a shopping district may reflect the broader trend toward men taking a greater responsibility for shopping, and possibly, men experiencing shopping as a more social activity.

The four public spaces observed for our analyses represent a small sample of the types of public spaces in America, and beyond. In three decades, much more has changed in the nature of public spaces than we could hope to capture through our case studies, including the growth of the American shopping mall, changes to public safety (both perceived and absolute) and increased population diversity. The quality and availability of public spaces has changed greatly, this is true in general, and specifically for the places we observed. Generalisations from our four case studies should be made with appropriate caution. The sociological analysis of video and film

brings its own unique challenges in terms of the reliability of our observations. Concerns for issues of historical validity that simply cannot be controlled amplify these concerns in this study. Nonetheless, it is hard to imagine any other opportunity to conduct a longitudinal study of life in public spaces.

Historical comparative research has repeatedly demonstrated a tendency for people to assume that the grass was greener in the past (Tilly, 1988). The findings of this rare, longitudinal study of public spaces suggest that assumptions about the changing nature of public spaces are no different. From our case studies, there is little evidence that people today spend more time alone in public. On the contrary, group participation in public spaces appears to have increased. Social mixing between men and women and public participation by women has also increased. The most significant change in public spaces over the past three decades has been the decline of social isolation experienced by women. The increased presence of women in public spaces is likely tied to the increased participation of women in the labour force and the accompanying tendency for women to spend more time out of the home. In contrast to speculation that the participation of women in the labour force has driven down engagement in the public sphere, such as participation in voluntary associations (McPherson et al., 2006; Putnam, 2000), our observations suggest that women's participation in the workforce is associated with an increase in other forms of participation, such as time spent with others in public spaces. The increased tendency for men and women to spend time together in public is a significant societal shift. It is part of a historical trend toward friendship groups that are desegregated by sex and parallel shifts away from the tendency to segregate women's activities in private spaces and men's activities in public spaces (Bott, 1955). New technologies may also support women's

use of public spaces. Women may be using mobile phones when alone in public to balance paid work, unpaid work and 'net work', and as a means to reduce the vulnerability associated with being alone in public. Mobile phone use affords lingering, which may increase surveillance and public safety.

If privatism and individualism are increasing in our society, the implications of these trends on the use of public spaces may not be as commonly imagined. If, as de Tocqueville argued, individualism is a unique quality of life in a democracy, and if individualism increases with equity, then counter to concerns that individualism will lead to a loss of the public, much the opposite may be true. Increased gender equity has spillover effects that provide new opportunities for participation in public spaces. Although contraction within core networks may come at the expense of diversity within the core, it may free time to network in more diverse social settings. Similarly, while it is common to infer that technologies that afford activities in the privacy of the home contribute to a decline in public interactions, this may not be the case. In general we are critical of the focus that new technologies have received as a cause for social change in public spaces, but are not unconvinced of their potential for providing new opportunities for public interaction (Gordon and de Souza e Silva, 2011). As these technologies become part of our everyday lives, they may allow the reorganisation of time for work, leisure and sociability to accommodate a higher level of public participation. Indeed, other studies have found that individuals who use a broad range of new information and communication technologies spend more time in public and semi-public spaces (Hampton et al., 2011b). Contrary to a shift towards social isolation and spending time alone, the broader trend in public spaces may be towards more time together.

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Notes

1. These studies have not replicated the spike in the number of people with no core ties; they have found core networks of similar size and diversity to the 2004 GSS.
2. We report change in proportions rather than change in absolute numbers. We do this to minimise error as a result of changes to the design of the spaces observed. For example, for Chestnut St, the width of the sidewalk area was reduced between observation periods, reporting absolute numbers may under-report social change as a result of fewer people being able to occupy the sidewalk at time two; proportional change is less susceptible to error of this type.

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