Multimedia and the Hybrid City: Geographies of Techno cultural Spaces in South Korea

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Abstract

The purpose of this research is to explore how multimedia technologies such as the Internet, satellite TV, cable TV and mobile phones, combined with people's everyday practices, produce the hybrid city where the boundaries between binary territories are blurred; and to offer implications for understanding our everyday lives and cities. Here, multimedia technologies are crucial triggers by which the boundaries between binary categories such as time/space, actual/virtual, human/machine and so on are blurred. And, cities, where urban locales are connected to electronic networks and human bodies are wired to electronic machines, are locations where such boundary-blurring processes occur intensively. I call such a city the 'hybrid city' where we can observe various geographies of technocultural spaces formed by multimedia technologies. In this epistemological context, I investigate cities in South Korea, a country that is one of the most 'wired' to electronic networks in the world.

My argument is that the hybrid city, composed of global-local networks, actual-virtual circuits, centripetal-centrifugal vectors and human-machine hybrids, cannot be explained as a singular and consistent space, but rather as multiple and complex spaces. This is because the hybrid city itself exists in between different categories or territories. That is, the hybrid city does not exist as A or B, but instead in between A and B which are deterritorialised towards each other through a-parallel evolution or co-evolution, and thus it can be seen as fractal and fluid. In this sense, the hybrid city can be defined as not a 'being', but 'becomings' always in motion through the continuous 'dis/appearances' or 'dis/connections' of heterogeneous networks. In Latour's, Deleuze and Guattari's and Haraway's terms, the hybrid city is not only composed of a number of actor-networks, rhizomes or cyborgs, but also a kind of actor-network, rhizome or cyborg itself. That is, the hybrid city is the 'middle kingdom' in Latour's terms.

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Declaration

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No part of this thesis has previously been submitted for a degree at this or any other university.

Statement of copyright

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Chapter 1

Introduction

"How are we to gain access to networks, those beings whose topology is so odd and whose ontology is even more unusual, beings that possess both the capacity to connect and the capacity to divide – that is, the capacity to produce both time and space? ... We have to trace both the modern dimension and the nonmodern dimension, we have to deploy the latitude and longitude that will allow us to draw maps adapted both to the work of mediation and to the work of purification" (Latour, 1993: 77).

"Each of these becomings brings about the deterritorialization of one term and the deterritorialization of the other; the two becomings interlink and form relays in a circulation of intensities pushing the deterritorialization ever further. There is neither imitation nor resemblance, only an exploding of two heterogeneous series on the line of flight composed by a common rhizome that can no longer be attributed to or subjugated by anything signifying. ... The aparallel evolution of two beings that have absolutely nothing to do with each other" (Deleuze and Guattari, 1987: 10).

"One should expect control strategies to concentrate on boundary conditions and interfaces, on rates of flow across boundaries, not the integrity of natural objects. ...... No objects, spaces, or bodies are scared in themselves; any component can be interfaced with any other if the proper standard, the proper code, can be constructed for processed signals in a common language" (Haraway, 1991: 212).

1-1 Research background and objectives

The purpose of this research is to explore how multimedia technologies[1] such as the Internet, satellite TV, cable TV and mobile phones, combined with people's everyday practices, produce the hybrid city where the boundaries between binary territories are blurred; and to offer implications for understanding our everyday lives and cities. Here, multimedia technologies are crucial triggers by which the boundaries between binary categories such as time/space, actual/virtual, human/machine and so on are blurred. And, cities, where urban locales are connected to electronic networks, and human bodies are wired to electronic machines, are locations where such boundary-blurring processes occur intensively. I call such a city the 'hybrid city' where we can observe various geographies of technocultural spaces formed by multimedia technologies. Of course, this does not mean that all parts of the hybrid city are connected electronic machines and networks. It should be noted that such disconnected landscapes are the other side of the hybrid city because the hybrid city itself is composed of digital and analogue landscapes at the same time.

Recently, some researchers in the discipline of geography have begun to draw much greater attention to the hybrid spaces between natural and cultural spaces, between social and technological spaces, between human and machine spaces and so on, drawing on post-structuralist concepts such as Bruno Latour's actor-networks, Gill Deleuze and Félix Guattari's rhizomes or Donna Haraway's cyborgs (Harvey and Haraway, 1995; Thrift, 1996b; Bingham; 1996; Hinchliffe, 1996; Murdoch, 1997a, 1997b, 1998; Graham, 1998; Whatmore, 2002). For example, Sarah Whatmore (1997, 1999, 2002) proposes 'hybrid cartographies' and 'hybrid geographies', rethinking what

[1] According to van Dijk (1999: 248-9), 'multimedia' is "used with two meanings: (1) a connection or system of a number of devices (media); (2) a single device integrating several functions formerly used separately, like a multimedia PC (computer, VCR, audio, photo-editing and telephone in a single machine)". 'New medium' is a "medium at the turn of the millennium integrating infrastructures, transport, management, services and links of data in tele-, data and mass communications and being interactive at a particular level". Multimedia technologies can be seen as new media technologies in narrow terms. In this thesis, I use the terms multimedia and new media in the same context that they are information and communication technologies which began to appear with the fifth long-wave cycle of capitalism in the 1970s and have been more rapidly evolved with the development of digital technologies since 1990s.

is the human in human geography and calling for geographies attentive to 'more-than-human' worlds. One of the significant characteristics of such 'hybrid geographies' is that the boundaries between taken-for-granted binary categories in the modern society are challenged and blurred by relational, multiple, contingent and dynamic networks (Whatmore and Thorne, 1997; Graham and Marvin, 2001; Amin and Thrift, 2002; see also Cloke and Johnston, 2005). As Whatmore (1999: 33) puts it, "such geographies alert us to a world of commotion in which the sites, tracks and contours of social life are constantly in the making through networks of actants-in-relation that are at once local and global, natural and cultural, and always more than humans". In particular, recently developed various technologies such as info-technologies, bio-technologies and nano-technologies are making our everyday lives increasingly hybrid and fluid, blurring the boundaries between binary categories such as natural/cultural, social/technological, human/machine, actual/virtual, global/local, public/private, inside/outside, present/absent, cyclical/linear, synchronic/diachronic, diurnal/nocturnal, centripetal/centrifugal and so forth, producing the 'crisis of representation' in such hybrid and fluid landscapes.

Consequently, in such technologically-induced 'hybrid geographies', it is also argued that we need to pay attention to the theory of 'practise' rather than 'representation', because many spaces/places and landscapes in our everyday lives are being produced and transduced through the continuous interactions of people's practices and coded technologies (Dodge and Kitchin, 2005; Thrift and French, 2002; Amin and Thrift, 2002). In this sense, Nigel Thrift (1996b, 1997b, 1999a, 2000) suggests 'non-representational theory', as the theory of practices (not representations), which is concerned with not only how the hybrid, relational and contingent networks between humans and nonhumans are formed and deployed, but also how their practices, performances, desires and emotions in everyday life create and generate the world.

> "Such 'theory' emphasises the flow of practice in everyday life as embodied, as caught up with and committed to the creation of affect, as contextual, and as inevitably technologised through language and objects. In other worlds, nonrepresentational theory sees everyday life as chiefly concerned with the on-going creation of effects through encounters and the kind of linguistic interplay that comes

from this creation, rather than with consciously planned codings and symbols. Clearly, then, a nonrepresentational outlook depends upon understanding and working with the everyday as a set of skills which are highly performative" (Thrift and Dewsbury, 2000: 415).

Among various technologies producing such 'hybrid geographies' or 'non-representational' geographies, my interest in the research is in new media technologies. The last decades have witnessed the rapid development of new media technologies. They have refigured spatio-temporal contours and changed ontological and ecological boundaries both at macro- and micro-levels. At the macro-level of global space, the global space of technological and cultural flows, mediated by electronic networks, have destabilised and deconstructed existing national spaces (and local places) through the processes of 'deterritorialisation' or 'disjunctures' (Appadurai, 1990; Tomlinson, 1999; cf. Thompson, 1995; Dodgshon, 1999), producing 'global complexity' (Urry, 2003) of connections and disconnections in the 'cultural circuit of capitalism' (Thrift 1999c: 42). For example, Appadurai (1999) suggests five dimensions of global cultural landscapes involving the spatial processes of deterritorialisation and disjunctures: (a) ethnoscapes; (b) mediascapes; (c) technoscapes; (d) finanscapes; and (e) ideoscapes. Such deterritorialising processes by new media technologies produce not only such global 'technoscapes' and 'mediascapes', but also have effects on local places, urban locales and human bodies at a micro-level, changing how we live, feel, think about ourselves and others and interact with each other in our everyday lives.

It has been strongly stressed that new media technologies induce the 'crisis of boundaries' (Shields, 1996: 7) between various binary territories such as global/local, actual/virtual, human/machine and other dichotomously perceived and categorised spaces, and the 'crisis of identities' in bodies wired up to electronic machines and in places penetrated by electronic networks. As Crang et al. (1999b: 1) put it, "these technologies are seen as facilitating, if not producing, a qualitatively different human experience of dwelling in the world; new articulations of near and far, present and absent, body and technology, self and environment". As Braun (2004: 1354) states, "technoculture has ushered in an age in which boundaries are blurred, beings are hybrid, and the humans and nonhuman are stitched together". The primary background of this research lies in such a crisis of boundaries caused by new media technologies. Recently, some researchers (including geographers) began to see boundaries in a new way. It seems that until now, in-between spaces have been seen as frozen or inactive zones as marginal or peripheral spaces which consist in between core zones. However, in a new perspective, in-between spaces began to be perceived as dynamic and fluid 'becomings' (not static or motionless 'beings') in that they change constantly through constant 'dis/appearances' (not maintenance) (see Woods, 1998). Thrift (1996b: 284-5) suggests the landscapes of 'boundaries' as one of six tropic elements – (a) flow, (b) networks, (c) power, (d) boundaries, (e) absence and (f) time – of a mobile topology in technology-induced modern life. Concerning the boundaries, Thrift (1996b: 285) explains that "the modern world is increasingly seen as decentralised and fragmented, whether the subject is states, capital, bodies, machines – or subjects. Space therefore takes on critical importance as both a territorialised battlefield and a zone of mixing, blending, blurring, hybridisations – both striated and smooth". New media technologies can be seen as important impetus inducing such boundary-blurring processes in cities and producing hybrid or fractal spaces between different territories which have been often explained in terms of the 'third' spaces (Bhabha, 1994; Soja, 1996) or 'liminal' spaces (van Gennnep, 1960; Turner, 1982; Shields, 1991; Zukin, 1991). That is, while new media technologies penetrate our existing physical cities, places and bodies and produce new kinds of techno/social/cultural spaces and landscapes, what are called 'virtual geographies' (Wark, 1994; Batty, 1997; Crang et al., 1999a) or 'cybergeographies' (Dodge, 2001; Holloway and Vallentine, 2003), the boundaries between actual and virtual spaces and between human and machine spaces are increasingly blurred, and the hybrid spaces between them are gradually formed in our everyday lives and cities.

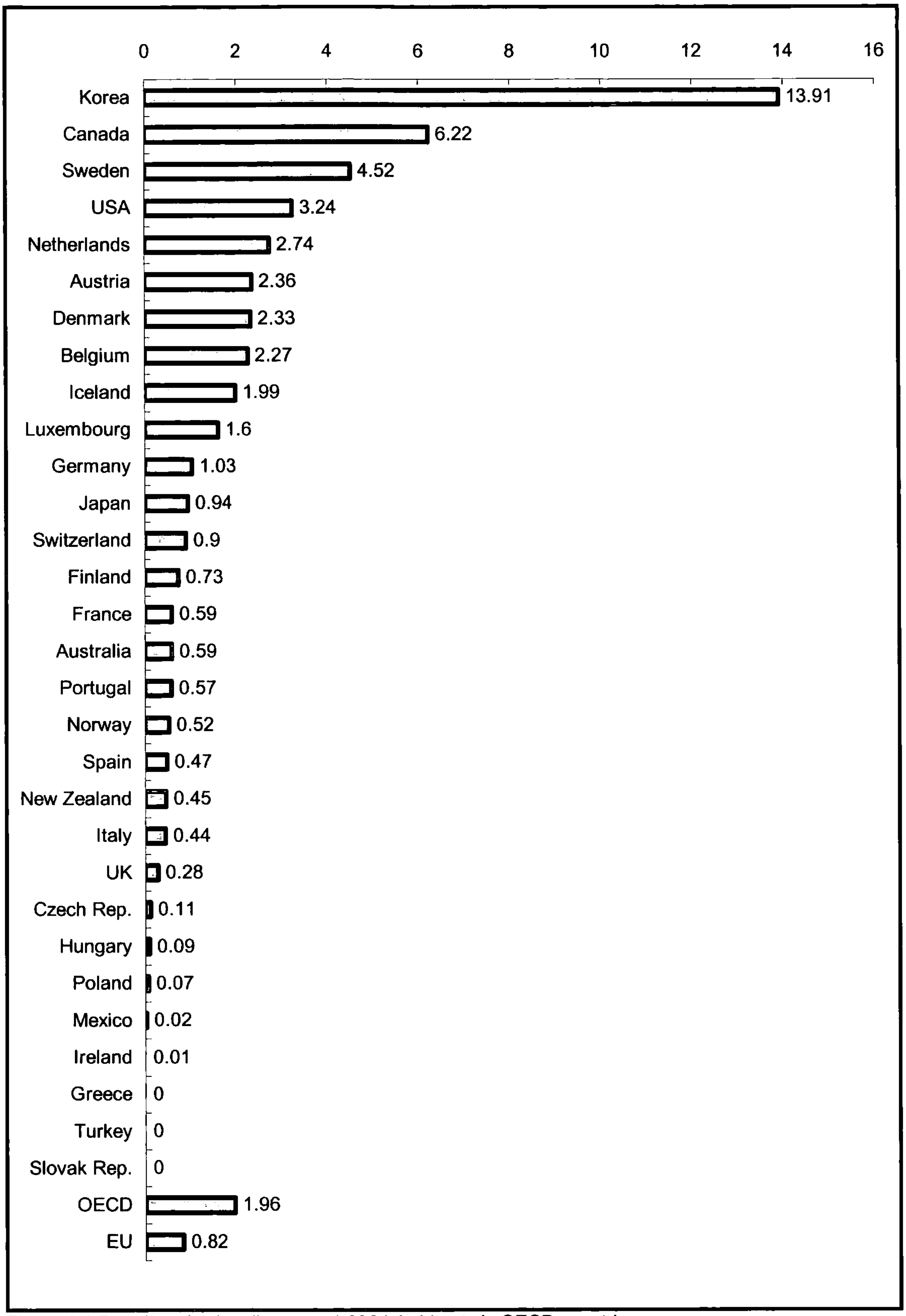

Figure 1-1 Broadband subscribers per 1,000 inhabitants in OECD countries

Source: OECD (2001) (as of June 2001)

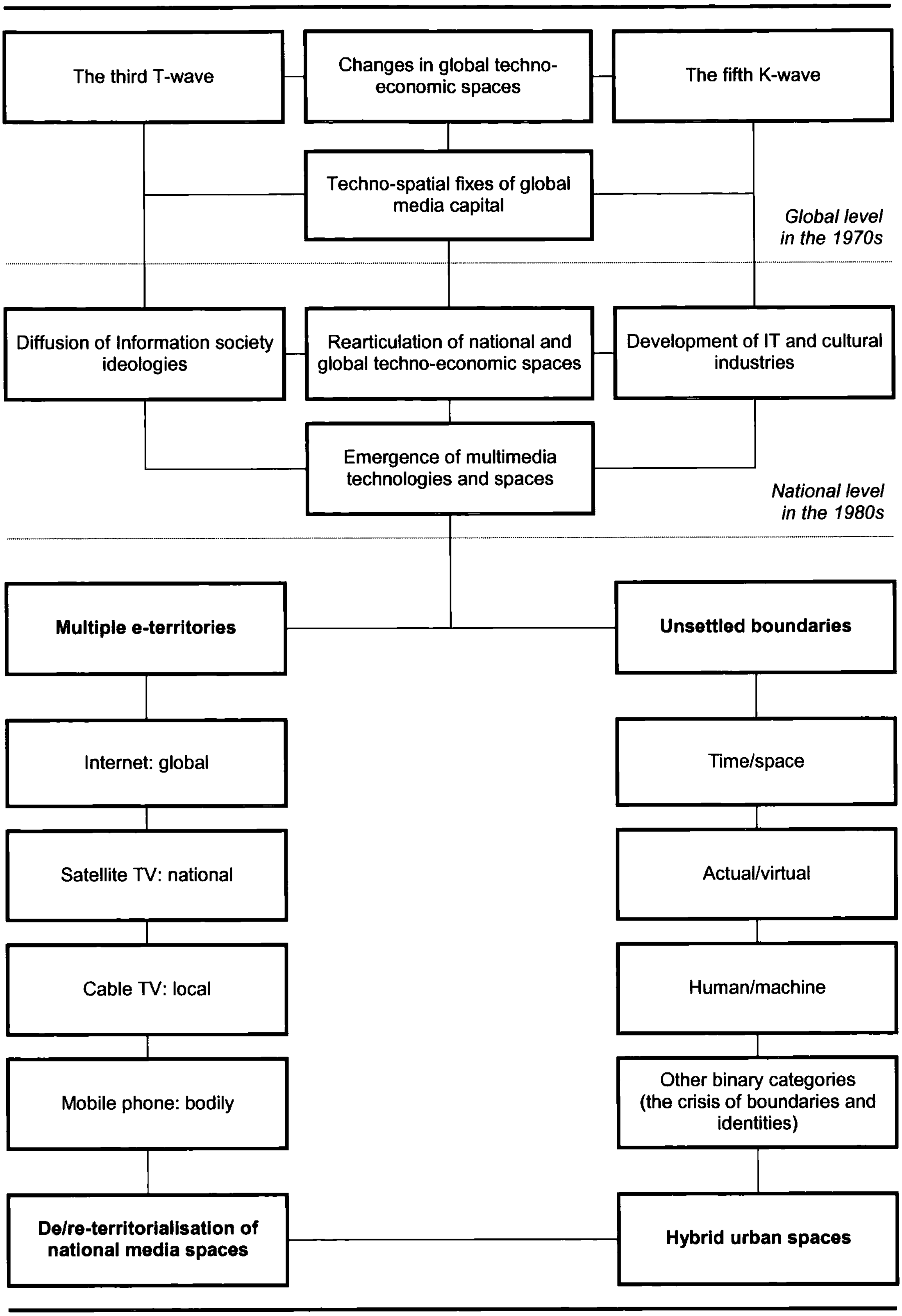

Figure 1-2 The development of new media spaces in South Korea

Note: The third T-wave refers to Toffler's third wave, and the fifth K-wave to Kondratieff's fifth long-wave

It is South Korea (hereinafter Korea) where I want to look into in order to make sense of how new media technologies produce the hybrid city. There are two main reasons why I look at Korea. The first is because electronic spaces and landscapes in non-Western countries and cities have been overlooked in most of the existing work, which has focused mainly on Western countries and cities. However, given that Asian countries and cities are emerging as new hubs in the global spaces of flows as a result of the powerful policies of their governments, it may be worth exploring how new media technologies, cultures and spaces are constructed in Asian countries or cities. The second is because Korea is a country that is one of the most 'wired' to electronic networks in the world. For example, in the case of the Internet, it is reported that Korea is the highest in the world in the degree to which the Internet via broadband penetrates people's households and in the degree to which people spend time on the Web (Figure 1-1). It may be said that Korea is one of the countries where new media technologies are most dynamically used and deeply embedded in people's everyday lives. That is, Korea is a good subject of study when are examining how the hybrid city is constructed through new media technologies and people's mundane practices in everyday life. Korea herself has always been, as it were, a kind of liminal space which lies in between two kinds of natural, political and economic spaces: continent/ocean; capitalism/communism; and capitalist core/periphery. Now, we are witnessing a new cycle in the formation of liminal or hybrid space in Korea alongside the development of new media technologies. Many cities and urban locales are being increasingly connected to electronic networks such as the Internet, satellite TV and cable TV, and many young people combined with electronic machines such as mobile phones are living a kind of cyborg life in the cities.

It seems to be helpful to briefly look at the processes of the emergence and development of new media technologies and spaces (Figure 1-2; see Chapter 6 for more details). Along with the fifth long-wave cycle of capitalism in the 1970s, involving changes in global techno-economic spaces, global media spaces began to expand across global space through the techno-spatial fixes of the media capital of Western counties, especially the USA. In this situation, the Korean government of the 1980s attempted to foster new information technologies and industries in order to rearticulate national techno-economic spaces with changing global techno-economic spaces through various economic and cultural policies, especially affected by the utopian discourse of Toffler's third wave. On these technological and ideological bases in the 1980s, new media technologies such the Internet, satellite TV, cable TV, mobile phones and so on have been dramatically developed and rapidly used in Korea since the 1990s, especially after the economic crisis in 1997. Such technologies have produced new media spaces and constructed technocultural spaces in cities, blurring the boundaries between various binary categories such as global/local, actual/virtual, human/machine and so forth. The more concrete questions and objectives of this research I want to address in this thesis are as follows:

- What time-space networks are produced in cities by new media technologies? I will address this question though observing various time-space landscapes in cities produced by the Internet (and Internet cafés), cable TV (combined with satellite networks) and mobile phones. In doing so, I will look at how new media technologies produce different, multiple, relational, contingent and fluid time-space networks in socio-cultural landscapes as well as technological landscapes in cities.

- How is the city fabricated through global-local networks which embed the global into the local on the one hand, and disembed the local towards the global on the other hand? In order to address this question, I will focus mainly on the Internet and cable TV, challenging an image of the Internet as a global media and an image of cable TV as a local media. In addition, what are the meanings of national boundaries, territories and identities in these processes?

- How can actual spaces be rendered porous and permeable by virtual spaces in actual-virtual circuits? Furthermore, does this mean that all that is solid in actual spaces melts into virtual spaces in the process that actual spaces are articulated with virtual spaces? Otherwise, are virtual spaces still in the shadow of actual spaces? I will address these questions through investigating the tensional or contesting relations between centripetal and centrifugal vectors in new media spaces.

- How can human bodies, identities and boundaries be changed by human-machine hybrids? In particular, in this process, can we expect McLuhan's (1996) thesis of the 'extensions of man' and Haraway's (1991) manifesto of the 'post-gender world' (cf. Balsamo, 1997) both of which argue that human-machine networks can lead to the demise of hierarchical or patriarchal relations? In addition, what gendered landscapes can appear in new media spaces?

- What are the properties of technocultural spaces in the hybrid city composed of such time-space networks, global-local networks, actual-virtual circuits, centripetal-centrifugal vectors and human-machine hybrids? I will approach this question with some interrelated conceptual tools such as paradox (Internet cafés), fragmentation (the Internet), multiplicity (cable TV) and uncertainty (mobile phones) through which I will examine the geographies of technocultural spaces in the hybrid city.

1-2 Research design and outline

The research scheme as a methodological frame is outlined in Figure 1-3 which suggests three different kinds of spatial dimensions in new media spaces: (a) multiple e-territories; (b) unsettled boundaries; and (c) hybrid spaces. First, I suggest how the multiple e-territories of new media spaces with (imaged) distinctive scales and boundaries have been produced. For instance, the Internet can be seen as global electronic territories, satellite TV as national ones, cable TV as local ones and mobile phones as bodily ones. In a sense, these e-territories can be considered the contours of new media spaces. However, it should be noted that the e-territories can be seen as conceived imagined and ideological images, formed mainly by the government or IT companies and combined with economic, cultural or ideological discourses such as globalisation, nationalism, localisation, techno-utopianism and so on. E-territories as such images have often been described as absolute or fixed. However, we need to recognise that the boundaries between e-territories are penetrated and intersected by other technological, economic, social or cultural networks and their territories are overlapped and interconnected with one another, forming complex networks like spider webs.

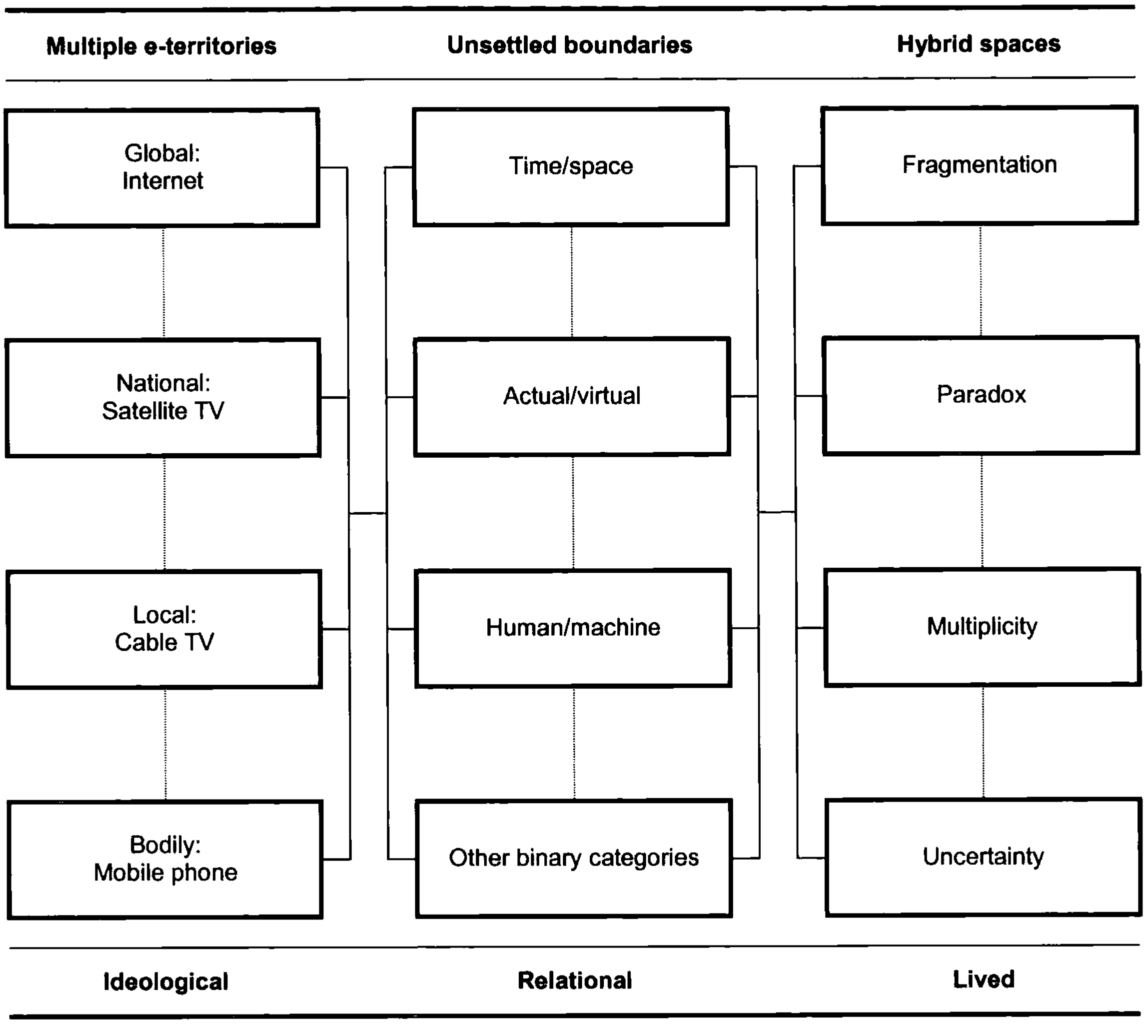

Figure 1-3 Research scheme as a methodological frame

Second, I explain how the ontological or ecological boundaries between binary categories or territories are oscillated, unsettled and blurred in new media spaces. I focus on three boundary-blurring processes between time and space, actual and virtual spaces and human and machine spaces. That is, my concern is with the production of multiple 'time-space' networks, the urban matrix of 'actual-virtual' circuits, and the post-human geography of 'human-machine' hybrids. Of course, boundaries-blurring processes also take place between other binary categories such as social/technological, global/local, linear/cyclical, centripetal/centrifugal, public/private, absent/present, close/remote, outside/inside and so on. These boundary-blurring processes make our everyday lives hybrid, fluid, paradoxical, ambivalent, contingent, dynamic, ephemeral, volatile and uncertain.

Third and finally, I examine the hybrid spaces of new media spaces, which are lived, practiced and experienced as material or mediated spaces, by different spatial concepts with which I look at four technocultural landscapes: Internet café landscapes of 'paradox'; Internet landscapes of 'fragmentation'; CATV landscapes of 'multiplicity'; and mobile landscapes of 'uncertainty'. However, it should be noted that these multiple lived in spaces, expressed as different spatial concepts, collide in any given technocultural landscape. Through exploring the four technocultural landscapes, I explain how new media technologies and people's practices in their everyday lives blur the ontological or ecological boundaries of different binary categories or territories in the city which as a result, can be characterised by the technocultural landscapes of paradox, fragmentation, multiplicity and uncertainty.

Based on the research scheme as a methodological frame, this thesis is composed of three theoretical research chapters (Chapters 2, 3 and 4) reviewing how new media technologies blur the boundaries between various binary categories such as time/space, actual/virtual and human/machine, two macro-level research chapters (Chapters 6 and 7) focusing on how new media spaces are constructed in vertical and horizontal dimensions at a national level, and four micro-level research chapters (Chapter 8, 9, 10 and 11) looking at how new media technologies such as the Internet (and Internet cafés), cable TV (combined with satellite networks) and mobile phones produce technocultural spaces in cities. Many parts of the micro-level research are related to how new time-space networks, actual-virtual circuits and human-machine hybrids, discussed in the theoretical research, are produced in cities. The outline of each chapter is as follows.

In Chapter 2, I look at how electronic media technologies involve and produce different and multiple time-space networks. In doing so, I suggest two kinds of electronic media spaces: (a) geometrical media spaces and (b) geographical media spaces. First, I review four perspectives of geometrical media spaces: van Dijk's (1999) dual structure of networks as scale extension and reduction; Bruno Latour's (1993) actor-networks as fluid and hybrid networks, Paul Virilio's (1997) dromospherical time as global real-time vectors; and Manuel Castells' (1996) timeless time as non-sequential flows. Then, drawing on Latour's actor-network theory, I argue that different and multiple time-spaces are produced within networks, criticising discourses on the disappearance of time-space dimensions by technological times. In this sense, I explain how electronic media technologies and networks produce divided, different, multiple and relational time-space networks in geographical media spaces.

In Chapter 3, I explain how actual spaces are articulated with virtual spaces. Here, I think of the city as the urban matrix of actual-virtual circuits, and explain two ways in which actual and virtual spaces are articulated with each other at the urban matrix. (a) One is vertical articulations referring to the reciprocal and relational connections of global electronic spaces and local physical places. (b) The other is horizontal articulations relating to the technological and social constructions of virtual spaces/places as geographical metaphors for, or as geographical alternatives to, actual spaces/places. Here, I underline that the articulations of actual and virtual spaces in the city as the urban matrix of actual-virtual circuits need to be seen in parallel with the tensional relations between centripetal and centrifugal vectors.

In Chapter 4, I illustrate how electronic machines, screens and networks change human bodies, identities and boundaries. I look at two types of 'post-humans', composed of chips, circuits, and silicones, appearing in a new kind of technological environment called 'third nature', composed of bits and nets. (a) The first is avatars on virtual bodies/identities on the screen. Here I explain four properties of their bodies and identities which appear in virtual spaces: multiplicity and fluidity; flexibility and reflexivity; fragmentation and ephemerality; and dis/embodiment. (b) The second is cyborgs as human-machine hybrids. Here I explain them in terms of two spatial processes: the implosion of humans and machines in terms of the blurring of human-machine boundaries through human-machine networks and the explosion of the human body in terms of the dilating of human boundaries through human-machines networks.

After discussing the methodological background of empirical research in Chapter 5, I turn to the two macro-level research chapters which explain the formation of new media space at a national level, as an analytic unit, in different temporal-spatial dimensions. In Chapter 6, I explain the transformation of national media spaces in a temporally diachronic and spatially vertical dimension through three stages: first, (a) 'mass media spaces' integrated and territoralised at a national level in the 1960s-70s, then (b) 'transitional media spaces' in the 1980s, and finally (c) 'new media spaces' multiple and deterritorialised at global, national and local levels in the 1990s. Here, this transformation of national media spaces in Korea can be seen in terms of the techno-spatial fixes of capitalism, not least the scalar fixes of techno-economic spaces in Korean capitalism in the perspective of 'territorial scale' approaches (Smith, 1992; Jonas, 1994; Swyngedouw, 1997a; Collinge, 1999; Brenner, 2000; Cox, 2000; Jessop, 2000; Jones and MacLeod, 2004; Paasi, 2004). This is because this process can be seen in terms of the deterritorialisation of national media spaces from the single layer of national space into the multiple layers of local, national and global spaces; and the rearticulation of national and global techno-economic spaces.

In Chapter 7, I explain the organisation of national media spaces at a temporally synchronic and spatially horizontal dimension, discussing the formation of two digital landscapes. (a) The first is about how electronic spaces in terms of electronic networks/speeds and electronic domains/territories have been centralised mainly in the capital city/region as the centre of new media spaces. (b) The second is about how the capital city Seoul as the centre of the electronic spaces has attempted to reproduce its centrality in new media spaces through the technological construction of digital urban space/place in order to spread urban networks into global space and the ideological creation of digital urban image/identity in order to inscribe digital urban images into local place. This urban strategy can be explained in terms of the network politics of dis/connections in the perspective of 'relational network' approaches (Amin and Graham, 1997; 1999; Graham and Healey, 1999; Healey, 2000; Graham and Marvin, 2001; Amin, 2002).

From Chapter 8 to Chapter 11, which are all micro-level research chapters, I focus on how new media technologies and people's everyday practices produce technocultural spaces in cities as nodes in national media spaces. In Chapter 8, I examine how the urban electronic space of Internet cafés (widely called PC Bangs in Korea) construct 'paradoxical' or 'contradictory' landscapes, looking at three kinds of electronic landscapes: (a) 'spatio-temporal'; (b) 'socio-cultural'; and (c) 'human-machine' landscapes. I explain various electronic spaces observed in the three landscapes: public electronic spaces, ubiquitous virtual spaces, hypertext cities, rhizome cities, non-stop cities, urban consumption spaces, non-places, cyborg cities and so on. Comparing their urban electronic space with the national electronic space of the KII in terms of Deleuze and Guatarri's (1987) 'rhizomatic/arboreal' and 'smooth/striated' spaces, I read their techno-architectural landscapes in terms of Wood's (1992) 'freespaces', and suggest the concept of 'the city as hypertext' (not as text).

In Chapter 9, I look at how what have been regarded to be integrated and solid come to be fragmented and fluid by the global-local networks of the Internet, especially being concerned with three 'fragmented' or 'fluid' landscapes of the city. (a) The first is about how the boundaries and images of the home, which has been thought of as the most fundamental social-spatial unit, can be penetrated and reshaped by the Internet. (b) The second is about how the time-space fabric of urban and social spaces can be flawed and fractured through on-line interactions. (c) The last is about how bodies and identities can be multiple and fluid in virtual spaces on the screen, and how these processes bring about symbolic conflicts in the landscapes of symbolic/linguistic identities in virtual spaces.

In Chapter 10, I investigate the deterritorialising or delocalising impacts of the 'different' and 'multiple' networks of cable TV on local places. I divide cable TV networks into four kinds, each being spatially categorised into local, national and global levels: (a) 'spatio-temporal' networks through institutional systems and technological networks; (b) 'organisational-spatial' networks through transactional and organisational relations; (c) 'techno-spatial' networks through channel systems; and (d) 'cultural-spatial' networks through programme flows. Here, I argue that cable TV makes local places deterritorialised, delocalised and decontextualised through its multiple networks which are centripetal, centralised and hierarchical rather than centrifugal, decentralised and heterarchical.

In Chapter 11, I illustrate how the mobile networks in the micro-network society produce the landscapes of 'uncertainty' or 'paradox' in everyday life. I analyse three kinds of mobile phone networks: (a) 'techno-social' networks as human-machine hybrids; (b) 'socio-spatial' networks of individualisation and decentralisation; and (c) 'socio-temporal' networks of flexibility and uncertainty. Here, I proclaim that mobile phones make bodies-with-mobiles act as nodes themselves in mobile networks. However, they exist in highly place-based networks, and mobile phone users have ambivalent desires: on the one hand, they want to be connected to mobile networks as social networks; and on the other hand, they want to be disconnected from mobile networks as control networks. I argue that mobile networks fabricate the city through spatially decentralised and temporally flexible networks involving urban landscapes that are paradoxical and uncertain.

Chapter 2

Electronic Media Technologies and Multiple Time-Space Networks

One of the main concerns of this thesis is with how new media technologies produce technologically-induced and socially-constructed time-space landscapes. In this chapter, I theoretically review how new media technologies involve and produce time-space networks in geometrical and geographical spaces. Here, I examine how electronic media technologies blur the boundaries within/between times and spaces and fabricate 'multiple time-space networks' in terms of time-space dimensions and contours. In doing so, I explain two kinds of 'electronic media spaces': 'geometrical media spaces' and 'geographical media spaces'. First, I illustrate how electronic media technologies involve 'multiple time-space dimensions' in 'geometrical media spaces' in four perspectives: van Dijk's dual structure of networks as scale extension and reduction; Latour's actor-networks as fluid and hybrid networks, Virilio's dromospherical time as global real-time vectors and Castells' timeless time as non-sequential-time flows. I criticise discourses on the demise of geographical spaces by 'technological times' such as 'real time' and 'non-sequential-time', contending that such discourses stress only the 'disappearance of time-space dimensions' in 'geometrical media spaces', but overlook the 'divides of time-space contours' in 'geographical media spaces'. For this, I look at how electronic media technologies produce 'multiple time-space contours' in 'geographical media spaces'.

2-1 Space, time and technology

Transportation and communication technologies, so-called 'space-adjusting technologies' (Abler, 1975a; Janelle, 1991) which have been developed through two critical moments of so-called 'communications revolutions', have changed the time-space structures of social systems and interactions, facilitating more 'time-space convergence' (Janelle, 1968, 1969, 1973, 1991, Abler, 1975a), 'time-space distanciation' (Giddens, 1990) and 'time-space compression' (Harvey 1989). According to van Dijk (1999), the first communications revolution occurred with a tremendous advance in analogue and mechanical technologies in the late ninetieth and early twentieth centuries (see Beniger, 1986), and the second communications revolution has occurred with the drastic development of digital and electronic technologies since the late twentieth century (see Williams, 1982). In order to understand contemporary changes in time-space in the second communications revolutions, it would be helpful to review the general effects of technologies on time-space in the first communications revolutions on societies' time-space systems and interactions and people's time-space experience and consciousness, although such time-space effects and changes did not occur evenly and homogeneously geographically and socially (see Thrift, 1990; Stein, 2001).

It has been argued that the development of modern media technologies in the first communication revolution created relatively homogeneous, but still uneven, space mainly at a national level through the annihilation of time-space barriers. As Marvin (1988: 191) states, "the most admired feats of the telephone, cinema, electric light, phonograph, and wireless were their wonderful abilities to extend messages effortlessly and instantaneously across time and space". The development of telecommunication technologies such as the telegraph or the telephone enabled the instantaneous diffusion of information without any loss of content across space and without the physical movement of people or materials from a point to another. "With the development of the wireless telegraph, the sending and receiving of information became almost simultaneous. ... Equally important was the development of the telephone. It too allowed for virtually instantaneous communication across vast distances" (Adam, 1995: 112). This means that space became relatively homogeneous space. The telegraphy critically contributed this process, diminishing spatial differences and uncertainties, especially commodity markets, through the separation of communication and transportation: "the effect of the telegraph is a simple one: it evens out markets in space. The telegraph puts everyone in the same place for purpose of trade; it makes geography irrelevant" (Carey, 1989: 217). Thompson (1995: 32) calls this process 'the uncoupling of space and time' in the sense that 'spatial distanciation no longer required temporal distanciation'

In addition, just as the development of modern media technologies such as the telegraph or the telephone brought about homogenous space, so the expansion of the technologies and systems of mechanical clock time resulted in homogenous time. This time-homogenising process bound locally separated villages together in national space through the establishment of standard time (zones). For example, "the introduction of the standardized railway timetable, based on Greenwich Mean Time, gradually led to the adoption of GMT as the uniform standard of time throughout Britain. The task of standardizing time reckoning on a larger territorial scale gave rise to new problems which were resolved through the introduction of standard time zones" (Thompson, 1995: 33; see also Zerubaval, 1982). This means not only that different local spaces are bound together at a national level, but also that space is divided and organised into quantitatively temporalised and homogenised space as the examples below.

> "Today, the clock now rules the industrial universe. ... The transformation of work, the mechanical pacing of time, is expressed in industrial life by the factory. But the transformation of time did not begin with the factory, but with a surprisingly, more obvious source – the railroad, and the exact coordination of time which railroading demanded. ... But the very speed of trains and the creation of national links also posed the very new problem of matching solar time with new locomotion. ... It became necessary to have standardized time zones which would allow for a consistency of time within the zone" (Bell, 1991: 63).

> "Second Wave civilization, because of its much more elaborate division of labour, demanded many more specialized types of space. ...... This remarkable coordination of specialized spaces – necessary to get the right people to the right places at the right movement – was the exact spatial analogue of temporal synchronization. It was, in

effect, synchronization in space. For both time and space had to be more carefully structural if industrial societies were to function" (Toffler, 1980: 118-9).

This time-space organisation can be understood in terms of 'territorial organization as a force of production' (Swyngedouw, 1992b). People had to get together at given times and spaces, and materials had to be transported and arrive in time across space. The effective and precise collection and distribution of people and materials within/between cities and the efficient and successful management and maintenance of the divisions of labour across time-space were possible by not only transportation and communication technologies but also mechanical clock technologies. The diffusion of clock time and the expansion of railroads produced 'timetables' as (quantitatively) 'spatialised time' and 'standard time (zones)' as (quantitatively) 'temporalised space' to regulate and control the flows of people and materials, while linking, delineating, elaborating, standardising, synchronising and structuring time-spaces in industrial societies. In particular, "the development and diffusion of clock technology between 1300 and 1700 had significant economic and social consequences, not least for the disciplined work rhythms of capitalist production" (Ferguson, 1990: 154), because "specialisation set requirements for extensive time-space coordination at both intra- and inter-organisational levels" (Hassard, 1990: 12). Indeed, "the clock, not the steam engine, is the key-machine of the modern industrial age" (Mumford, 1934: 14) in that "clock-time is central to the organization of modern societies and of the their constitutive social activities" (Urry, 1996: 371) and "the creation of clock time is the foundation upon which other key temporal strategies of industrialization are built" (Adam, 2003: 65).[1] This time-space homogenising process by the technologies and systems of mechanical clock time was expanded further towards a global level and critically facilitated the initial process of 'globalisation'. As Adam (1995: 113) states, "some (moves towards global time) are based on the much more conventional nineteenth century principle of rationalization. They include the very important developments of standard time and world time, the rationalization of clock and calendar

[1] Barbara Adam (2003) discusses industrial modernity with reference to its social relations, structures and institutions of time, making explicit its temporal underpinnings with respect to five Cs: the creation of time to human design (C1), the commodification of time (C2), the compression of time (C3), the control of time (C4) and the colonization of time (C5). Here, at the heart of the creation of time to human design is clock time.

time across the globe"[2] With the emergence of such a homogeneous, quantitative and abstract time-space, the modern temporal concept of 'linear time' appeared, in which time is conceived to be changeable and progressive. Compared with 'cyclical time' in pre-industrial societies (both sedentary or nomadic), linear time is associated with Darwinist evolutionism and Hegelian historicism[3] (see Hassard 1990: 6-13; Adam 1990: 133-138, 1995: 29-31). "It is during the evolution of industrial capitalism that the hegemony of a linear time perspective is cemented. For the industrial age, progress is the key" (Hassard, 1990: 12)

Digital and electronic technologies, which have been developed with the second communications revolution since the late twentieth century, have changed time-space structures in much more radical ways than analogue and mechanical technologies in the first communications revolution. On the one hand, new technologies accelerate the homogenisation, integration and synchronisation of time-spaces. On the other hand they produce more complex and multiple time-spaces at a local, national or global level. The city is no longer more dependent on an integrated and unitary time-space, but rather it comes to have fragmented and multiple time-spaces. For while some parts are accelerated and synchronised by real-time global electronic networks, others still remain locked in and restricted at a local level by the tyranny of time and space barriers. After all, "as a unity of place without any unity of time, the city has disappeared into the heterogeneity of that regime comprised of the temporality of advanced technologies" (Virilio, 1997b: 383).

New kinds of 'technological times' ('real-time vectors' and 'non-sequential-time flows') began to shatter the temporal concept of 'linear time', supported by clock time

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[2] "The development of new media of communication and new means of transport also affected the ways in which individuals experienced the spatial and temporal characteristics of social life. ... This interest found expression in the art and literature of the late nineteenth and early twentieth centuries, from Proust and Baudelaire to James Joyce, from cubism and futurism to surrealism" (Thompson, 1995: 33; see also Kern, 1983 and Berman, 1983)

[3] Historicism based on linear time see societies (both sedentary and nomadic) with cyclical time as societies without what is called the general 'laws of historical development' (Williams, 1971: 147). This can be also found in Toynbee's historical point of view. "In spite of these occasional eruptions out of the Steppe and incursions into the fields of historical events, Nomadism is essentially a society without a history" (Toynbee, 1935: 15-16).

and based on 'temporal duration' and 'spatial extension', breaking down the sequential and successive order of things (Adam, 1995; Virilio, 1997a; Bauman, 2000b). "Innovations in communication changed the relationship between time and movement across space: succession and duration were replaced by seeming simultaneity and instantaneity. The present was extended spatially to encircle the globe; it became a 'global present'" (Adam, 1995: 112 and 2003: 68). Virilio (1997a: 51) sees this process as the demise of geographical space (extension) and historical time (duration) by the real-time light (interface) of telecommunication technologies, underlining the coming of the 'third interval of light' – "an interval of the light type (neutral sign), the third and ultimate interval (interface), for instantaneous control of the microphysical environment thanks to the new tools of telecommunications" – after the 'interval of space' – "an interval of the space type (negative sign) for the geometrical development and control of the geophysical environment" – and the 'interval of time' – "an interval of the time type (positive sign) for control of the physical environment and the invention of communication tools". As a result, "duration was compressed to zero" (Adam, 2003: 68), and "linear, irreversible, measurable, predictable time is being shattered in the network society" (Castells, 1996: 433).

In this chapter, I examine how electronic media technologies involve and produce 'multiple time-space networks' in terms of time-space dimensions and contours. As Law (2002: 92) states, "the making of objects has spatial implications and spaces are not self-evident and singular, but there are multiple forms of spatiality" (see also Law and Hetherington, 2000; Hinchliffe, 1996). In this sense, I assume 'multiple media spaces' and see them in two aspects: 'geometrical media spaces' and 'geographical media spaces'. While being concerned with the 'scale politics of communication', Adams (1996: 421) distinguishes between "the ways people construct ideas and ideologies (content) about scale" and "the ways people construct politically significant communication links (contexts) over great and small distances". Then, Adams (1996: 421) says that the latter ways have two spatial aspects: 'geography' (a mappable arrangement of connected locations) and 'geometry' (a functional arrangement embodying hierarchies and directionalities of connection). First, I explain how electronic media technologies involve time-space dimensions in 'geometrical media spaces' in four perspectives: van Dijk's dual structure of networks as scale extension and reduction, Latour's actor-networks as fluid and hybrid networks, Virilio's dromospherical time as global media vectors and Castells' timeless time as non-sequential flows. Then, I review discourses on the demise of geographical spaces by technological times such as real time and non-sequential time, and stress that electronic media technologies produce and entail different and multiple time-space networks rather than being located within an absolute and fixed time-space frame. I look at how electronic media technologies produce time-space contours in 'geographical media spaces' in terms of spatial digital divides at global, national and local levels.

2-2 Geometrical media spaces

2-2-1 Jan van Dijk's dual structure of networks: scale extension/reduction

Electronic media spaces can be perceived as different kinds of 'electronic media territories'. As Adams (1996: 422) notes, "the rise of mechanical printing in the 16th century, the development of the telegraph in the 19th century and the diffusion of radio and television in the 20th century have strengthened certain territorial processes". Recently, electronic media technologies have been rapidly refiguring existing territorial boundaries. Of course, not all electronic media technologies contribute to global electronic media territories. Some are extending electronic media territories towards a global level, other are shrinking them towards a local level. In this sense, some media researchers have explained how electronic media territories entail their distinctive, but interrelated, territorial scales, producing complex and multiple global-local networks. Here, I suggest three typical models: van Dijk's social network model, Keane's political network model and Lull's cultural network model.

van Dijk (1999) suggests the 'dual structure of networks': the 'scale extension' of networks towards macro-scales for on-line communications bridging time and space and the 'scale reduction' of networks towards micro-scales for off-line communications fixed in time and space. As a result, "a dual structure results in centralization and decentralization, central control and local autonomy, unity and fragmentation, socialization and individualization" (van Dijk, 1999: 221). For example, van Dijk

(1999: 24-26) argues that the network society is composed of 'organic communities' based face-to-face communications and 'virtual communities' based on on-line mediated communications. Here, the organic community are defined as a community "tied to a particular time, place and physical reality" (van Dijk, 1999: 249) and the virtual community are defined as a community "not tied to a particular place and time and not directly to physical reality" (p.250). This means the coexistence of 'social networks' and 'media networks' (van Dijk, 1999: 24). Here, the social networks can be understood as the 'space of places', and the media networks as the 'space of flows' in Castells' terms. It is the very dual structure of networks which causes van Dijk himself to differentiate his 'network society' from Castells' 'network society' in which the space of places comes to be substituted with the space of flows (see Castells 1989, 1996).

Although the dual structure of networks can be understood in the sense of the simultaneous process of scale extension through (on-line) media networks and scale reduction through (off-line) social networks, we do not need to confine the scale reduction only to (off-line) social networks. Rather, we can find the dual structure or process of networks in (on-line) media networks. In this sense, electronic media territories can be differentiated into three basic scalar levels through scale-up and scale-down processes: local, national and global levels. For example, Keane (2000) suggests a model of 'political networks' (public spheres) based on local, national and global spatial scales. That is, Keane (2000) divides the public sphere into three kinds according to spatial scales. (a) 'Micro-public spheres': for instance, local social movements "utilize a variety of means of communication (telephone, faxes, photocopiers, camcorders, videos, personal computers) to question and transform the dominant codes of everyday life" (p. 78). (b) 'Meso-public spheres': meso-public sphere are "mainly co-extensive with the national state", and "mediated by large circulation newspapers such as the *New York Times*" and by "electronic media such as BBC radio and television" (p. 79). There are also (c) 'macro-public spheres': macro-public spheres, made possible by satellite networks or the Internet at a global level, are "the (unintended) consequence of the international concentration of mass media forms previously owned and operated at the national state level" (p.80).

Although Keane's triple model of political networks is useful in explaining the spatial territories of public spheres, it is too static and simple to be applied to other kinds of networks which involve the more complex and multiple structures of media territories. For example, Lull (2000) suggests a model of 'cultural networks' composed of six multiple fundamental spheres: (a) everyday life; (b) regional cultures; (c) national cultures; (d) civilization; (e) international sources; and (f) universal value. Lull (2000: 268) calls this mode of cultural networks the 'superculture' which "transcends traditional categories to reflect two principle current cultural trends: globalization and personalization". One of the most important characteristics of the superculture is that fixed cultural boundaries are blurred through multiple cultural networks. That is, "the superculture necessarily is a janus-faced, transient space between here and there, between society and self, and the material and the symbolic because culture today floats tentatively between the local and the global, between the collective and the individual, and between unmediated and mediated forms of experience" (Lull, 2000: 268). In this process, people's personal cultural experiences come to be increasingly non-local and hybrid. "As persons expand their range of cultural operation, their experiences become less local and less strictly communal. They construct their supercultures when they assemble cultural syntheses by drawing from resources emanating from the various culture spheres" (Lull, 2000: 268).

These models can be called 'concentric circle models' in that they explain electronic media spaces as overlapped and nested 'two-dimensional spaces' (surfaces) with different scales. These models can provide insights into how different electronic media spaces construct their own boundaries, territories and identities in horizontal (between same-scale units) and vertical (between different-scale unites) dimensions. In particular, they imply that there are relativities or differences between the media territories of micro-scale and those of macro-scale. While the media territories of micro-scale involve specific values, the media territories of macro-scale form general values. Furthermore, they can explain how different media territories are connected to each other through global-local networks or 'glocalisation' involving "the contested restructuring of the institutional level from the national scale both upward to supranational and/or global scales and downward to the scale of the individual body, the local, the urban, or regional configurations" (Swyngedouw, 1997a: 157).

2-2-2 Bruno Latour's actor-networks: fluid and hybrid networks

We need to recognise that seeing 'electronic media spaces' as 'electronic media territories' in terms of a concentric circle model has some problems. Above all, such concentric circle models tend to see each layer of electronic media territories as an almost homogeneous, always fixed and already given space, as the term 'structure' (the 'dual structure of networks' or the 'superstructure') suggests. However, as Latour (1991: 119) puts it, "the socio-technical world does not have a fixed, unchanging scale. ... Trying to endow actors with a fixed dimension as well as a fixed form is not only dangerous, but simply unnecessary". In addition, such concentric circle models premise the binary, linear and hierarchical spatial relations of different electronic media territories in terms of micro-macro, global-local and inside-outside spaces. However, we can observe that electronic media technologies are now relentlessly and ceaselessly breaking down such spatial relations, producing disordered, multiple and multiscalar time-spaces (see Graham and Marvin, 2001: 411; Graham, 2002b: 73; Sassen, 1999a: 119, 2001: 415; Virilio, 1997a: 18; Luke 1995b: 30). Thus, we need to see 'electronic media spaces' as 'electronic media networks' – instead of 'electronic media territories' – in the perspective of Latour's actor-network theory. As "an expanded view of networks that starts to capture the distanciation of relations and the abstraction of communication through technological intermediaries in conditions of time-space compression" (Bridge, 1997: 620), actor-networks theory "helps to capture the complex and multiple relational worlds supported by information technologies" (Graham, 1998: 180). That is, while concentric circle models see electronic media spaces as electronic media territories with two-dimensional, linear, fixed and homogenous spaces (surfaces), actor-network theory views them as electronic media networks with one-dimensional, non-linear, changeable and heterogeneous spaces (lines). We can see some characteristics of electronic media spaces in the perspective of actor-network theory.[4]

[4] We need to recognise some weaknesses of ANT approach. Above all, actor-network theory tends to see geographical actors and spaces as indifferent and homogeneous (Simonsen, 2004: 1335, Passi, 2004: 541). In addition, we cannot neglect its 'inherent elitism' in that "its methodological roots lie in the analysis of scientific endeavour to which most people are marginal" (Bridge, 1997: 622) and in that "there are certain relational or network configurations which become standardised, and agents who do not happen to fit the pattern are disadvantaged – and their 'voices' are marginalised" (Hetherington and Law, 2000: 128).

First, electronic media spaces are 'one-dimensional spaces' (lines). "Technological networks, as the name suggests, are networks thrown over spaces, and they retain only a few scattered elements of those spaces. They are connected lines, not surfaces" (Latour, 1993: 118). In these one-dimensional media networks, it is reasonable to say that "rather than one network being 'bigger' than another it is simply longer or more intensely connected" (Graham and Marvin, 2001: 189). This epistemological change is a kind of paradigm shift in the way we perceive not only media networks but also all kinds of networks. As Latour (1999: 19) states, "to have transformed the social from what was a surface, a territory, a province of reality, into a circulation, is what I think has been the most useful contribution of ANT". In a sense, to see electronic media spaces not as two-dimensional spaces (surfaces) but as one-dimensional spaces (lines) implies that electronic media networks can be regarded as electronic media 'vectors' with lengths and directions. As Wark (1994: 11) puts it, "any particular media technology can be thought of as a vector. Media vectors have fixed properties, like the length of a line in the geometric concepts of vector".

Thus, and second, electronic media spaces are 'non-dualist' or 'non-linear' spaces. Actor-network theory refuses the binary, linear and hierarchical spatial relations between the macro/global/outside and the micro/local/inside (Latour, 1999; Law, 1992; Murdoch 1997a, 1997b). For example, "the Net is neither local nor global. It is local at all points since you always find terminals and modems. And yet it is global since it connects Sheffield and Sydney" (Bingham, 1999: 255). Thus, "the words global and local offer points of view on networks that are by nature neither local nor global, but are more or less long or more or less connected (Latour, 1987: 122). It seems to be more reasonable to say that "the global is already included in the local" (Law and Mol, 2002: 619), for "even a longer network remains local at all points" (Latour, 1993: 117). That is, "a network must always remain continuously local, as it inevitably touches down in particular places" (Graham and Marvin, 2001: 189). To speak more extremely, electronic media networks involve not 'global-local' but rather 'local-local' networks. If there are the boundaries of networks, which draw a distinction between outside and inside, they are based on not (far/near) physical distances but (connected/disconnected) relational networks.

Third, electronic media spaces are 'fluid spaces'. Actor-networks are assembled materials or circulations or so-called 'immutable mobiles'[5] (Latour 1987; see also Bingham. 1996) as objects both with 'immutability' in 'network space' and with 'mobility' in 'Euclidean space' (Law and Mol, 2001: 612; Law, 2002: 96). For them to move and exercise their power across Euclidean space, especially through 'long distance control' or 'remote control' (Law, 1986; Bingham, 1996, Murdoch, 1998), their networks must not be broken up in network space. That is, "their power might act-at-a-distance in geographical terms, but its efficacy is a function of the coherence of the network and of its intermediaries which enable representations and calculations to be carried from distant places (and different time scales) to a local context" (Bridge, 1997: 620). However, it does not mean that actor-networks are absolutely fixed or immutable. They tend to not only maintain, but also change their configurations through the 'translation' of networks. That is, "these networks are rarely stable for long and are continually bringing in new elements and changing the relationships between actors" (Wise, 1997: 32). As Thrift (1999c: 40) states, "these actor-networks, whose purpose is to generate and transmit knowledge, have translated the metaphors of complexity to their purposes, and then circulated them in these mutated forms". In this sense, van Loon (2000) poses Latour's actor-networks between Castells' networks and Deleuze's assemblages.[6]

> "Somewhere between the political-economic notion of 'network' and the differentialist notion of 'assemblage', we can find 'actor networks. Actor networks are more dynamic than network structures, but less elusive than assemblages. They

[5] "The immutable mobile is a network of elements that holds its shape as it moves. Indeed like a ship. Or, one might add, in cybernetic mode, like the electronic symbols, the bits and bytes of contemporary communication. So in this kind of account the vessel or the electronic symbol is a network that holds its shape and moves through Euclidean space. But we could add, so too is navigator-chart-instrument-table network (or the electronic network)" (Law and Hetherington, 2000).

[6] Likewise, actor-networks (theory) can also be contrasted with those of social systems (theory). Drawing Deleuze and Guattari's (1987) concepts of smooth space and striated space, Lee and Brown (1994) contrast 'actor-networks' spaces and 'social systems' spaces. The former could be compared to smooth space in that they "deviate form delimiting arborial structures in a Euclidean or striated space", and the latter to striated space in that they are "measured, hierarchical, and calculated" (in Hinchliffe, 1996: 675).

> are ensembles of humans, animals, technologies and gods, aimed at the stabilization of particular environments, through the fixation of specific objects as 'immutable mobiles' which enable particular frameworks of encoding and decoding to be kept at specific 'nodes'. The main motivation of these actors is survival, if not expansion, and on this count, ANT is closer to political economy than differentialism (for which the main driving forces are becoming and disappearance). However, actor networks are (temporary) accomplishments that remain vulnerable to disintegration, dysfunctionality and disorder; they exist on the basis of arbitrary closures. In this sense, they are more like assemblages, as the strategies deployed by its various members are not controlled by some invisible structural force (such as capitalism)" (van Loon, 2000: 110).

As such, actor-networks are not absolute, static and fixed, but rather contingent, dynamic and fluid, changing constantly their configurations through alternative networks or strategic translations through which they make themselves more sustainable, survivable or powerful. That is, actor-networks tend to be open-ended. Latour (1999: 19) describes space in between networks as 'empty space' open for change. Law calls such a replaceable and changeable network space 'fluid space' in which "objects hold themselves constant in a process in which new relations come into being because they are reconfigurations of existing elements, or because they include new elements" (Law, 2000: 99; see also Law and Mol, 2001; Mol and Law, 1994). In this fluid network space, time-spaces are not fixed frames, but dynamic according to changing networks. "Spaces and times are outcomes of the combination and recombination of a full world" (Bingham and Thrift, 2000, 289). In this sense, new electronic networks produce different time-spaces in the world.

Finally, electronic media spaces are 'hybrid spaces'. As Bingham and Thrift (2000: 299) put it, "it (actor-network theory) has produced a sense of a world of partial connection in which all kinds of constantly shifting spaces can co-exist, overlap and hybridise, move together, move apart". It entails the geographies of 'material semiotics' in which "humans, other organisms, artefacts, and technologies are all players" (Haraway, 2003: 77) and which "is concerned with how all sorts of bits and pieces – bodies, machines, and buildings, as well as texts – are associated together in attempts to build order" (Bingham, 1996: 643). In this sense, Latour's (1991) concept of actor-networks is similar to the concepts of Deleuze and Guattari's (1983, 1987) 'rhizome' or 'assemblage' or Haraway's (1991, 1992) 'cyborg' or 'articulation'. They all deny modernist binary boundaries and call for becomings, dis/appearances or dis-equilibrium. "One of the most attractive feature of ANT is that there are implicit but unmistakable traces of Deleuzoguattarian inspiration, particularly in the writings of Bruno Latour" (van Loon, 2000: 110), and in this sense, actor-network theory is often described by Latour, with a nod to Deleuze, as 'actant-rhizome theory' (May and Thrift, 2001: 27). In addition, drawing on Haraway's (1992) 'articulation' as a means of "thinking about bringing things together without reducing those 'things' to speechless objects or docile constituencies", Hinchliffe (1996: 677) says that "these articulations are the stuff of geography, linking together without presupposing too much about the characteristics of those actors and actants (and without romanticising them)". After all, actor-network theory can help us to understand how electronic media networks produce 'hybrid geographies' or 'cyborg geographies'.

2-2-3 Paul Virilio' dromospherical time: global real-time vectors

Electronic media technologies have produced new kinds of times, called 'technological times'. We can think of two kinds of technological times: Virilio's 'dromospherical time' and Castells' 'timeless time'. Dromospherical time can be seen as global 'real-time vectors', and timeless time can be viewed as global 'non-sequential-time flows'. The modern temporal conception of linear time based on temporal duration and spatial extension come to be shattered by both real-time vectors and non-sequential-time flows. For Virilio and Castells, such technological times have destructive and disrupting effects on historical and lived places through the relentless and indifferent bombardment of global real-time vectors and the a-historical and anarchic domination of global timeless time flows. Although these explanations have been exaggerated[7], they

[7] For critiques of Virilio's, Castells' or Harvey's explanations of the homogenising effects of technological times and spaces on geographical spaces, see Thrift (1995, 1997a), Graham (1997a, 1997b) and Massey (1991, 1993). Especially, "the sense of dislocation expressed by Harvey, Jameson, Giddens, and Castells has been seen as the disorientation of male Western academics who desire a totalising perspective of change (the view from the mountain top)" (Bridge, 1997: 612).

are important in understanding how electronic media technologies have transformed the time-space dimensions of our lives and societies. Recently, many thinkers have begun to pay more attention to Virilio's brilliant and distinctive work of speed, vision, war and architecture machines, especially concerned with the transformation of time-space by such machines (Wark, 1998; Der Derian, 1998a; Armitage, 2000a; Luke and O'Tuathail, 2000; Baldwin, 2002; Cooper, 2002; Cook, 2003; Adam, 2003; Bartram, 2004). Deleuze's nomodology was also affected by Virilio's dromology. "Time is the crucial category for Virilio. ... One of Virilio's central concerns is how time is reconstituted, through technology, into what he calls 'speed'" (Cooper, 2002: 120). That is, Virilio' concern is with how existing concrete time-space modes are reconstructed into new abstract time-space modes, especially towards a zero-dimensional time-space mode, through real-time networks, and how our bodies, cities and societies are deconstructed by the politics of speed or 'the politics of real time' (Cook, 2003).

Here, I explain how time-space dimensions disappear into 'zero-dimensional spaces' (points) through Virilio's technological time, real time. "The word real-time implies that the response comes back very quickly – usually within two seconds or so if the response is to a man, and sometimes in a fraction of a second if it is to a machine" (Martin and Norman, 1970: 4). For Virilio, real-time networks move at the speed of light at a global level, and the globe itself is tightly wired with the global real-time networks. Virilio (1986; 1997a) calls global real time 'dromospherical time'.

> "The cyclical time of the world's origins and the linear time (the sagittal time of time's arrow) of a chronological history world then be superseded by a spherical time, the 'dromospherical' time of light overtaking in the near future the old circle of bygone centuries. Only, what this cleverly skirts round, thereby promoting some 'global' time, is quite simply the 'local' time of a history acted out on the surface of a planet within the very particular alternation of terrestrial night and day, under the influence of the specific gravity of one star among many" (Virilio, 1997a: 124).

"For Virilio, technological time ... empties out the ontological category of space. ...... While space still exists, the meaning of space as a category that can frame our mode of engagement with the world, 'disappears'" (Cooper, 2002: 122). That is, global real-time networks result in 'zero-dimensional spaces' (points) into which both geography and history disappear. "Not only inside and outside disappear, the expanse of the political territory, but also the before and after of its duration, of its history; all that remains is a real instant over which, in the end, no one has any control" (Virilio, 1997a: 18). Zygmunt Bauman also argues this point: 'no time-distance separating the end from the beginning' and 'only moments: points without dimensions' (Bauman: 2000b: 178) and calls this process the 'devaluation of space' (Bauman and May, 2001: 111). After all, global real-time networks desert bodies, cities and societies into homogeneous points without temporal and spatial dimensions and any qualitative differences.

Global real-time networks alter the meaning of the city. "The urban no longer has a form with the exception ... of this 'form-image' without dimension, this point, the punctum that is everywhere such that the measurable expanse is nowhere" (Virilio, 1998b: 59-60). That is, "once a centre of social and mercantile exchange, the city as a meaningful site has been undermined by technologies that allow subjective actions to be carried out of their specific location" (Cooper, 2002: 122). While pre-modern cities are dependent on natural-cyclical time or mechanical-linear time, global cities are operated through global real-time networks penetrating urban boundaries and accelerating urban temporalities. In this sense, the global city can be called an 'overexposed city' (Virilio, 1997b) or 'real-time city' (Graham, 1997b; Townsend, 2000) in which "new communications technologies finally overcame what are now thought of as 'time constraints' and 'temporal barriers'" (Robins and Webster, 1999: 257). Wark (1994) represents such global real-time networks as global 'media vectors' of which flows are managed, interpreted, mediated and radiated in global real-time cities and then are transmitted to all local terminals across global space, producing 'virtual geography' which "doubles, troubles, and gradually permeates our experience of the space we experience firsthand" (p.vii). Wark (1994) explains such global media vectors as giving us lives and cities without terrestrial and territorial roots: "vector has no necessary position: it can link almost any points together (p.11). Thus, "we no longer have roots, we have aerials" (Wark, 1994: x) and "we no longer have origins, we have terminals" (p.xiv). This landscape is similar to Virilio's (1998c: 118) 'polar inertia': the "polar inertia ... is less original than terminal". Wark's media vectors and Virilio's polar inertia can be seen as the geometric elements of Castells' space of flows. As Castells (1985, 1989, 1994, 1996) claims the substitution of the space of places with space of flows, so Virilio (1995, 1997a, 1997b, 2000) argues the replacement of present local time-space (or here and now) with absent global time-space:

> "Meeting at a distance, in other words, being telepresent, here and elsewhere, at the same time, in this so-called 'real time' which is, however, nothing but a kind of real space-time, since the different events do indeed take place, even if that place is in the end the no-place of teletopical techniques (the man-machine interface, the nodes or packet-switching exchanges of teletransmission). ...... What then becomes critical is not so much as the three dimensions of space, but the fourth dimension of time – more precisely, the dimension of the present since ... 'real time' is not the opposite of 'delayed time', as electronics engineers claim, but only of the 'present'" (Virilio, 1997a: 10).

Bauman (2001: 38) calls this deterritorialisation the 'devaluation of place'. Such 'real-time spaces' undermine a sense of place and authenticity, based on Heideggerian phenomenological existentialism (being-in-the-world), through a shift from dwelling and being in 'actual time-spaces' to leaving and becoming into 'virtual time-spaces' (see Lévy, 1998: 28-29). An ironical point is that this process makes human bodies immobile and frozen at/as the ground zero of real-time vectors through 'polar inertia': "the global village, Marshall McLuhan hoped for does not exist; there is only a center of inertia that freezes that present world within each of its inhabitants" (Virilio, 2000: 51). In addition, 'real-time spaces' circulating around such polar inertia can be thought of as not 'real time-spaces' but 'virtual time-spaces'. In other words, global real-time spaces are 'virtual' in that "deterritorialization, the escape from the 'here' and 'now' and 'that,' would be encountered as one of the royal roads to virtualization" (Lévy, 1998: 30), and 'hyperreal' in that "the virtual is more, not less, (real) than the real" (Doel and Clarke, 1999: 270). However, we need to be aware of different images of virtual time-spaces. That is, Lévy's 'virtual time-spaces' as 'deterritorialised time-spaces' can be seen as creative and desirable, and Baudrillard's 'virtual time-spaces' as 'simulated time-spaces' are generally seen as nihilistic and deceitful, and Virilio's 'virtual time-spaces' as 'real-time spaces' seem to be more or less apocalyptic and destructive.

2-2-4 Manuel Castells' timeless time: non-sequential-time flows

At the heart of Castells' academic ambition are the 'network society' and 'informational city' in the 'information age' (Castells, 1989, 1996, for critiques of Castells's thesis, see Webster, 1995, 1997). While being concerned with the structural transformation of social space and time by technologies in the networks society, Castells (1996, 1997a, 2000b) suggests the 'space of flows' as a social form of space and 'timeless time' as a social form of time. In order to understand the relation between timeless time and the space of flows, we need to briefly see the space of flows before explaining timeless time. "The space of flows refers to the technological and organizational possibility of organizing the simultaneity of social practices without geographical contiguity" (Castells, 2000b: 14). The space of flows is opposed to the space of places. "The meaning and function of the space of flows depend on the flows processed within the networks, by contrast with the space of places, in which meaning, function, and locality are closely interrelated" (Castells, 2000b: 14). Between the space of flows and the space of places are tensional relations, and "we increasingly observe a space of flows substituting a space of places" (Castells, 1985: 14, 1989, 1994, 1996). However, this does not mean that the space of flows is purely a-territorial. "Electronic networks link up the specific places, and it is this hybrid space that is the space of flows" (Castells, 2002: 554). Global cities are one of the examples. According to Castells (1996: 412-5), such spaces provide at least three layers of material supports that constitute the space of flows. "The first layer, the first material support of the space of flows, is actually constituted by a circuit of electronic impulses". "The second layer of the space of flows is constituted by its nodes and hubs". "The third important layer of the spaces of flows refers to the spatial organization of the dominant, managerial elites".

For Castells, "the new informational mode of development and its culture of real virtuality have radical implications for the social organization of time" (Bromley, 1999: 11). At the centre of Castells' thesis of time in the network society is 'timeless time' as a new kind of 'technological time' or 'virtual time'. "Timeless time is defined by the use of new information/communication technologies in a relentless effort to annihilate time" (Castells, 2000b: 13). Timeless time has two kinds of forms. On the one hand, "time is compressed (as in split second global financial transactions, or in the attempt to fight 'instant war')", and on the other hand, "time is de-sequenced, including past, present, and future occurring in a random sequence (as in the electronic hypertext or in the blurring of life-cycle patterns, both in work and parenting)" (Castells, 2000b: 13-14). The first form refers to synchronous 'real time', and the second one means asynchronous 'non-sequential time'. "In contrast to the rhythm of biological time of most of human existence, and to the clock time characterizing the industrial age, a new form of time characterizes the dominant logic of the network society: timeless time" (Castells, 1997a: 12). This means that technological timeless time frustrates both biological cyclical time and mechanical linear time. 'Timeless time' results from the 'space of flows': "flows induce timeless time, places are time-bounded" (Castells, 1996: 465). Timeless time is to cyclical or linear time as the space of flows is to the space of places. As the space of flows has destructive effects on the space of places, so timeless time has disrupting effects on natural, biological, historical and mechanical time.

When we think of 'timeless-time' flows in the network society, we need to pay more attention to 'non-sequential-time' flows than 'real-time' flows in order to make sense of Castells' particular insight into the transformation of time-space dimensions in the network society, distinctive from others. In fact, Castells also tends to focus more on non-sequential time than real time when he explains timeless times in the network society. Non-sequential-time flows are called 'temporal collages' (Castells, 1996: 462; for critiques of temporal collages, see Hine, 2000) in that time comes to be far from the sequential and successive order of things, constructing the incoherent and structureless temporality of things and creating fragmented and disordered images of things. That is, "the distinction between live events and arbitrarily time-shifted replays becomes difficult or impossible to draw (as it often is now on the television news); anything can happen at any moment" (Mitchell, 1995: 16). Castells explain that non-sequential time entails at the same time 'eternal' and 'ephemeral' cultures. "It is eternal because it reaches back and forth to the whole sequence of cultural expressions. It is ephemeral because each arrangement, each specific sequencing, depends on the context and purpose under which any given cultural construct is solicited". Non-sequential-time flows can also be called 'hypertextual-time' flows in that hypertext in the Internet can be seen as a typical example of eternal and ephemeral temporal collages.

Such non-sequential-time flows are complex, multiple, discontinuous, dislocated, undirected and undetermined, denying chronological timetables such as television/radio, bus/train, or class/work timetables based on 'spatialised time' in Bergson's perspective which is actual, spatial, static, quantitative, divisible and extensive (Deleuze, 1988; see also Crang 2005). "Time is a constant melding of past, present and future, a 'mode of stretching' which produces a kind of simultaneity in difference" (May and Thrift, 2001: 23). For example, we can select certain programmes at any time without strict time schedules, and watch certain programmes time and time again on the Internet or satellite TV whenever we want. "This supports the shift from the highly structured time patterns of the modernist city – with its standard business, leisure, sleep and commuting periods – towards more fluid, asynchronous urban lifestyles" (Graham and Marvin, 1996: 67). Furthermore, Castells' non-sequential-time flows can be seen to produce technologically-induced 'virtual time-spaces' in a different way from Virilio's real-time vectors. As Lévy (1998: 33) claims, "with respect to this mediation on the escape from 'there,' we should bear in mind that virtualization does not simply accelerate already known process or suspend, or even annihilate, time and space, as Paul Virilio has claimed. Based on expenditure and risk, it creates qualitatively new velocities, mutant space-time systems". As de Landa (1998) states, "differences in intensity are what gives rise to forms and their boundaries in extensity". Electronic media technologies make time-spaces not only accelerated and compressed towards 'non-dimensional' points, but also produce 'multi-dimensional' spaces in the points, for the technologies make multiple 'virtual time-spaces' folded and unfolded in the points.

Until now, I have explained how electronic media technologies involve time-space dimensions in 'geometrical media spaces': from the two-dimensional spaces (surfaces) of concentric circles, through the one-dimensional spaces (lines) of actor-networks to the zero-dimensional spaces (points) of dromospherical time and finally to the multi-dimensional spaces (hypertexts) of timeless time. What I want to argue here is not which model is adequate or not, but that geometrically different and multiple time-space dimensions coexist and overlap with each other in electronic media spaces, like Kandinsky's abstract paintings composed of various geometrical elements such as surfaces, lines, points and emptiness. As Simonsen (2004: 1336) states, "the kind of geometry put forward in the new metaphorization is very different from the one known from spatial analysis. It is much more unstable, messy, nonlinear, and open-ended in the way in which it is researching for the potential for emergent order in complex and unpredictable systems". However, in order to understand how electronic media spaces involve divided, different and multiple time-spaces in terrestrial, territorial and social spaces, we need to look at how electronic media technologies produce 'multiple time-space contours' in 'geographical media spaces'.

2-3 Geographical media spaces

> Communication's never been as easy as today
> and it would make me happy when you've gone so far away
> if you'd send me an e-mail that says I love you,
> Send me an e-mail that says I love you,
> Now time and distance melt away,
> No digital delay,
> …………
>
> Pet Shop Boys' *E-mail* (2002)

2-3-1 The demise of geographical spaces by technological times

It has been said that transportation and communication technologies have produced a 'shrinking world' (Janelle, 1973, 1991; Abler et al., 1975; Kirsch, 1995, cf. Allen and Hammett, 1995). Electronic media technologies seem to reduce social and psychological distances as well as temporal and spatial distances. There have been many discourses on the demise of geographical spaces by technological times like Marx's argument of the annihilation of space by time (Harvey, 1989), McLuhan's thesis of the extension of men in the global village (McLuhan, 1994) and so on. In order to understand this process, we need to think of the 'time-space modes of communications'. Communications take place in time-space coordinates or contexts. Some take place in the same time-space coordinates and others in different time-space coordinates. They can be categorised into two temporal modes: synchronous and asynchronous communications (Mitchell, 1999a, 1999b; Janelle, 1995; Castells, 1996; Graham and Marvin, 1996; Dodge and Kitchin, 2001a; Gotved, 2002), and into two spatial modes: off-line and on-line communications, as 'local' and 'remote' interactions (Mitchell, 1999a), 'present' and 'telepresent' interactions (Mitchell, 1999b) or interactions with and without 'spatial coincidence' (Janelle, 1995). Through their combinations, we can divide communications into four modes. For example, (a) face-to-face meetings are synchronous and off-line; (b) communications on the telephone are synchronous and on-line; (c) notes on a desk are asynchronous and off-line; and (d) e-mails are asynchronous and on-line. Combining Giddens' (1990) concepts of face-to-face and remote interactions and Janelle's (1995) concepts of temporal and spatial coincidences, Harvey and Macnab (2000) distinguish between three kinds of social interactions: first, 'face-to-face contact' (the case (a) above); second, 'mediated face-to-face contact' (real-time distanciation) (the case (b) above); and 'mediated distanciation' (delayed distanciation) (the cases (c) and (d) above). Furthermore, Dodge and Kitchin (2001a) combine two (synchronous and asynchronous) temporal modes with two (one-to-one and one-to-many) spatial modes in on-line spaces. Here, one-to-one and one-to-many communications can be seen as communications in a 'shared spot' and 'no shared spot' respectively (Gotved, 2002). Dodge and Kitchin (2001a: 130) categorise on-line social spaces into four kinds. (a) Synchronous and one-to-one: talk and instant messaging, private chat rooms, etc. (b) Synchronous and one-to-many: chat rooms, IRC [Internet Relay Chat], MUDs [Multiple User Domains], networked games, etc. (c) Asynchronous and one-to-one: Email, etc. Finally, (d) asynchronous and one-to-many: mailing lists and listserv, Usenet, bulletin boards, etc.

In our everyday lives, the most basic time-space mode of communications may be face-to-face communications based on spatial and temporal coincidences. However, such a mode of communication demands higher costs than any other mode to overcome temporal and spatial constraints. That is, "it is also by far the most expensive option, both in direct cost and opportunity cost; it requires travel, and it consumes real estate, often in expensive, central location" (Mitchell, 1999a: 137). Communications through technological times such as real time (or synchronous) and non-sequential time (or asynchronous) enable the diminishment of such spatial and temporal constraints and costs. On the one hand, real time communications reduce spatial (and temporal) constraints in that they make it possible for one to communicate with others instantly and without spatial constraints. On the other hand, non-sequential time communications decrease temporal (and spatial) constraints in that they make it possible for one to communicate with others flexibly without temporal constraints. In addition, real-time communications allow an event occurring in point A to take place instantaneously and simultaneously in points B, C and so on. Likewise, non-sequential-time communications allow an event, which has once occurred in point A, to take place repeatedly and reversibly in points A, B and C. That is, such technological times interrupt the duration and extension of time-space, regarded as time-space barriers. These processes result in discourses on the demise of geographical spaces by technological times.

Since Toffler (1970: 90) proclaimed 'the demise of geography', there have been many anti-spatial arguments (O'Brien, 1991; Ohmae, 1990, 1995; Negroponte; 1995; Mitchell, 1995; Cairncross, 1998, 2001; Gates; 1999). However, just as O'Brien's (1991) declaration of the 'end of geography' has been criticised by financial geographers (see Leyshon, 1995, 1996; Swyngedouw, 1996; Martin, 1999; Agnes, 2000), so too Cairncross' (1998) assertion of the 'death of distance' is being condemned by many geographers and urban researchers. Anti-spatial discourses such as the 'demise of geography', the 'end of geography', the 'death of distance' or the 'death of cities' have been denied for the following geographical reasons. First, the emergence of the spatially uneven growths or socio-spatial digital divides of electronic networks such as Internet backbone networks, electronic territories such as Internet domains (or IP) or Internet users in terms of informational geography (Moss and Townsend, 1997a, 1997b; 1998, 2000a, 2000b; Townsend, 2001a, 2001b; Warf, 2001; Batty and Barr, 1994; Batty and Miller, 2000; Dodge, 1999a; Dodge and Shiode, 2000; Dodge and Kitchin, 2001a, 2001b; Graham, 2001b, 2002a). Second, the formation of the place-specific agglomerations and clusters or selective locations of dot com, IT-related companies and other information-intensive industries or knowledge-based economic activities in terms of economic geography (Zook, 2000, 2001, 2002a, 2002b, 2003; Dodge, 1999b; Leyshon, 2001; Pratt, 2000; Cooke, 2002; Morgan, 2004; Scott, 1997, 1999, 2000; Leamer and Storper, 2001; Storper and Venables, 2004). Third, the importance of local im/material conditions such as social networks, cultural milieus, institutional environments, technological infrastructures and so on in which space of flows are embedded in terms of urban geography (Thrift, 1995, 1996a, 1996b; Sassen, 1997, 1998, 1999a, 1999b; Graham, 1997a, 1997b, 1998; Amin, 2002; Amin and Graham, 1997, 1999; Hall, 1999). Fourth, the significance of local places or territories on which virtual communities or computer-mediated communications are based on in terms of social geography (Wellman, 2001a, 2001b; Wellman and Gulia, 1999; Hampton and Wellman, 1999, 2002; Hampton, 2002, 2003; Valentine, Holloway and Bingham, 2000; Valentine and Holloway, 2001b; Valentine and Holloway, 2002; Hanson, 2000). Finally, the effects of time-space availability or constraints in on-line interactions in terms of time-geography: e.g. the need for certain locales in accessing the Internet or the need for temporal coincidences in real-time on-line interactions, especially between people living in different time zones (Harvey and Macnab, 2000; Kwan, 2001, 2002). Generally, most of such perspectives argue that the space of flows is connected reciprocally and relationally with the space of places. The global space of flows can be thought of as a hyperspace in which the 'flows of bits' in electronic spaces are free from the terrestrial gravity and territorial boundaries that determine and dominate the 'flows of atoms' in physical spaces. However, we need to recognise that electronic spaces are not a state of weightlessness or nongravitation. Rather, "information is earth-bound; it has gravity!" (Luithlen, 1995: 65). It is because even the flows of bits are still based on 'relative deterritorialization' (Doel, 1999: 16) in which territorial conditions and constraints have effects on the directions and speeds of the flows and bits.

2-3-2 Time-spaces within networks

In order to understand not only how electronic media technologies lead to the end of historical time (duration) and geographical space (extension) through technological times (the 'third interval' in terms of Virilio), but also how they produce divided, different and multiple time-spaces (I want to call them a 'fourth interval' referring to 'spatial digital divides'), we need to rethink the relations between networks and time-spaces. In many cases, we have assumed an absolute and fixed time-space frame in which the locations and relations of subjects or objects are decided according to absolute and physical time-space coordinates (like Cartesian space or Euclidean geometry). For example, cities can be thought of as local spaces within/between which people interact with each other, producing optimal intra-urban (e.g. Burgess's concentric zone model) and inter-urban (e.g. Christaller's central place theory) spatial structures for such interactions, both of which are determined by the friction of distance or the principle of accessibility. Here, time and space are seen as barriers of a kind, delaying and decaying the interactions and movements of people, materials and innovations, as in Hägerstand's spatial diffusion theory. In addition, they are viewed as containers in which subjects and objects are located and their interactions and events take places, as Hägerstand's time-geography explains.[8]

However, "space-time no longer corresponds to Euclidean space" (Simonsen, 2004: 1336), for electronic media technologies make distance, connectivity and space out of joint. Especially, seeing time and space as absolute and fixed has some problems in understanding how such technologies can transform existing time-space frames and produce new time-space contours. As Graham (1997a) puts it,

> "Such absolute conceptual treatments of time and space made it difficult, if not impossible, to appreciate fully the importance of advanced communications, not only as technologies which can overcome space and time constraints, but also as technological networks within which new forms of human interaction, control, and organisation can actually be constructed in real time" (Graham, 1997a: 112).

To understand adequately how electronic media technologies produce different times and spaces, rather than being located within an absolute and fixed time-space frame, we need to rethink the relations of networks and time-spaces, especially in the perspective of 'actor-network theory' which provides some insights into the following problem:

> "Most of the difficulties we have in understanding science and technologies proceeds from our belief that space and time exist independently as an unshakable frame of

[8] Hägerstand (1975) explores eight basic conditions which limit the possible organisation of human life and society. These are (a) the individuality of human beings; (b) the limited length of each human life; (c) the limited ability of the human being to take part in more than one task at a time; (d) the fact that every task has a duration; (e) the fact that movement between points in space consume time; (f) the limited packing capacity of space; (g) the limited size of terrestrial space; and (o) the fact that every situation is rooted in past situations.

> reference inside which events and place would occur. This belief makes it impossible to understand how different spaces and different times may be produced inside the networks built to mobilise, cumulate and recombine the world (Latour, 1987: 228, in Graham, 1997a: 112).

Drawing on actor-network theory, we can reconceptualise the relations of networks and time-spaces in some interrelated aspects. First, time and space can be seen as 'relative' or 'relational', not absolute and fixed, and thus to be produced differently, sustained contingently and changed dynamically according to the ways in which technological systems and networks are combined and recombined with social systems and networks or human bodies and practices. As Harvey (1996: 53) puts it, "space and time are neither absolute nor external to processes but are contingent and contained with them. There are multiple spaces and times (and space-times) implicated in different physical, biological, and social processes". To borrow Lefebvre's (1991: 26) terms, "(social) space is a (social) product". That is, time-space is no longer an absolute or fixed frame in which subjects or objects are located, but relative and specific according to the locations of subjects or objects (like Einstein's time-spaces of relativity or Proust's and Joyce's time-spaces of memory) and relational and contingent according to the connections of subjects or objects (like Leibniz's and Whitehead's time-spaces of relation or Bakhtin's time-spaces of dialogue). New media technologies make the time-spaces of bodies or cities relative or relational. For example, when people use their mobile phones, they comes to have relative or relational time-spaces in that they are connected to someone who is absent through electronic networks on the one hand, and disconnected to others who are present in physical spaces.[9]

Second, time and space are not separated from but combined with each other. Different times means different spaces and vice versa, and dynamic processes or changes are meant by not only time, but space as well (see Massey, 1992, 1994; May and Thrift, 2001; Crang, 2001, 2005). That is, "time is not in itself a prime determinant of change" and "the event cannot be split into spatial and temporal components" (May and Thrift, 2001: 28). In new technological environments, "there is little sense to be had

[9] See Chapter 11 in which I argue how the mobile phone makes the relations between bodies and spaces relative and relational.

from making distinctions between time and space – there is only time-space" (Thrift, 1996b: 285), and "space and time are no longer separate, not even in an everyday sense: a spacetime vernacular has developed" (Novak, 1998: 21). More importantly, "to create a useful idea of the combination time-space perhaps what we need is to apply the dynamism theory gives to time into space, rather than allow the stasis theory ascribes to space to frame time" (Crang, 2001: 207). That is, while space and time are combined with each other, not least while space is temporalised, space comes to be dynamic and fluid. How can we envision this through electronic media technologies? Eisenman (1999: 252) suggests a clue: "time may inhabit space in ways that have never before been conceptualized in architecture. For example, while the virtual space-time of the Internet is not possible in architecture, it exists as a conceptual possibility". For example, in terms of time-geography, the city is composed of two kinds of basic spatial elements: static and fixed stations (points) and dynamic and fluid paths (lines). However, while the points are connected to electronic networks, they no longer remain static or fixed, but rather become dynamic and fluid through 'virtual time-spaces'.

Third and finally, 'different' and 'multiple' time-spaces appear within/between certain scalar entities such as bodies, buildings, cities, regions, nations or the world. That is, multiple time-spaces can coexist in the same point, and the point can be at the same time located in different time-spaces. For example, while electronic media technologies with different speeds and scales of circuits are constructed and used in a city, different and multiple time-spaces appear in the city. Some live with hyper-spatial and speeded-up time-space, being connected to electronic networks circulating across the global. For them, "there is a set of so-called 'tunnel effects'. These are caused by the warping of time and space barriers by the advanced telecommunications and transport infrastructures" (Graham and Marvin, 1996: 60). On the other hand, others still live with time-space barriers, restricted at local places. Some parts of the city exist as round-the-clock on-line spaces (e.g. airports), some become repetitively on-line/off-line along a nine-to-five cycle (e.g. banks), and others remain as disconnected off-line spaces. Of course, this does not mean that the city is composed only of binary time-spaces such as on-line/off-line times or linear/cyclical times. Rather, the city itself can be seen as multiple 'chronotopes' in terms of Bakhtin which consist of manifold and heterogeneous time-spaces, not a monopolist or homogeneous time-space, with different speeds, diverse cycles and various rhythms. In this sense, "the city is a gearbox full of speeds" (Wark, 1998: 3, in Graham and Marvin, 2001: 204). That is, "the time of our cities can be multiple, elaborate and intriguing. The city of our times may be Byzantine" (Robins and Webster 1999: 258; see also Robins, 1997, 1999), and "the contemporary city is a variegated and multiplex entity – a juxtaposition of contradictions and diversities, the theatre of life itself" (Amin and Graham, 1997: 418). As Crang (2001: 189) argues, "we need to refigure the idea of the urban not as a singular abstract temporality but as the site where multiple temporalities collide". The city has 'time out of joint'. As Rajchman (1998: 136) puts it, "'time out of joint' is 'the time of the city and nothing else'. ... Perhaps it remains a time in our 'global cities,' where the distinction between artifice and nature tends to be blurred". In addition, in such different and multiple time-spaces of the city is also what Massey (1993, 1994) calls a 'power-geometry', and this can be seen in terms of 'spatial digital divides' as 'fourth intervals'.

2-3-3 Spatial digital divides

Although electronic media technologies give rise to the 'third interval' (Virilio, 1997), another kind of interval appears, the 'fourth interval' meaning 'spatial digital divides', producing the time-space contours of geographical media spaces in terrestrial, territorial and social spaces. Networks mean not only connections literally, but also disconnections paradoxically in that while they are connected or open to some people or places, they are also disconnected and closed to others. Spatial digital divides are a matter of spatial power relations. For it is "separating the technological haves and have-nots, dividing those with on-ramps onto the Information Highway from those forced to live in its shadows" (Kennard, 2001: 195). As a result, "the boundaries of cyberspace are mapped by differences between those using available technologies to produce and receive flows of communication, and the rest of the populations cut off from such means and thus rooted in more local forms of culture" (Winseck, 2002: 401).

There are different factors bringing about the digital divide. van Dijk (2000b: 176-8) suggests four tendencies supporting the increasing information inequality: (a) "social-cultural tendency: the combination of processes of differentiation and individualization in (post)modern society"; (b) "social-economic tendency: the rising material inequality and differences of incomes"; (c) "a political tendency: the policy of privatization and stimulation of the free market economy"; (d) "technological tendency: the continually diverging areas of application of ICT". In addition, Servon (2002: 8-11) states five factors keeping certain groups stuck in the 'information have-nots' category: (a) market forces; (b) unequal investment in infrastructure; (c) discrimination; (d) insufficient policy efforts; and (e) culture and content. Although the digital divide occurs through the interrelations of such various factors, here we have to think about two basic factors: the spatial unevenness of related infrastructures or services on the side of suppliers and the socio-economic inequality of users on the side of suppliers (of course, the two factors do not explain everything).

First, we need to think of the spatial unevenness of network infrastructures and information services. Where network infrastructures and information services tend to be constructed and provided mainly in (large) cities, and to be "built first in places that have the densest customer base and that offer economies of scale" (Christie and Hepworth, 2001: 237). Generally, the cost of establishing network infrastructures is generally very high. This is the reason why the infrastructures are constructed as public goods at an early stage by governments or why IT companies construct them mainly at large cities where they involve both low levels of construction cost and high levels of service demand. That is, "because of the high fixed costs entailed in constructing networks, networking providers focused on deploying technologies first to high-density urban areas where the costs of deployment were lower and could be shared across a wider and more lucrative customer base" (García, 2002: 50). This point means that digital networks and electronic spaces cannot be free from the physical or economic conditions of geographical spaces.

This tendency has been accelerated by the deregulation and liberalisation of information and communication sectors since the mid-1980s (Stolfi and Sussman, 2002) and by the privatisation and commercialisation of digital networks and electronic spaces, forming 'digital bazaars' (Golding, 1998: 142) or 'network marketplaces' (Graham and Marvin, 1996: 204). "The national planning of monopolistic telecommunications grids, characteristic of Keynesian and developmental states, was geared, at least to some extent, toward discursively and relationally binding national space economies (Graham, 2002b: 73). However, this national-territorial model is now giving way to the global process of market-driven competition, increasing "the distance between the technological 'haves' and 'have nots' among firms and among consumers" (Sassen, 1999b: 61-2) and forming the uneven patterns of network infrastructures and information services. For example, after privatisation and deregulation, "the British Mercury preferred to invest in the construction of its network in the Southeast and selected other major cities, and calling rates in the US were lowered for routes with high levels of demand, while other were increased" (Kellerman, 1993: 150).

Second, we also need to consider the socio-economic inequality of people. Due to their socio-economic inequality in terms ethnic groups, genders, generations, economic classes, educations, occupations, etc. not all people have equal access to network infrastructures and information services. Generally, whites, males, young people, the middle-classes, and the well-educated tend to have more access to and make more use of information technologies (see US Department of Commerce, 1995, 1998; 1999, 2000; Stratton, 1997; Aurigi and Graham, 1998, Everard, 1999; van Dijk, 2000b; Norris, 2001; Compaine, 2001; Servon, 2002). There have been disputes about which factor is more important in producing the digital divide. Negroponte (1995: 6) argues that the real cultural divide in the digital life is between generations rather than between the information-rich and the information-poor, the haves and the have-nots and the First and the Third worlds. That is, Negroponte sees the digital divide as temporary, not structural. Healy (1997: 66) claims that there are a few social constraints, but no economic constraints in cyberspace.

However, many researchers argue that the digital divide is a structural problem, especially based on economic conditions. For example, condemning Negroponte's explanation, Golding (1998: 141) argues that "the biggest differentiator is by income". Holderness (1998: 40) also argues that Internet connectivity corresponds to that of income and there is the depressing vicious cycle of increasing information and material poverty. There are empirical studies supporting such arguments. In the case of the USA, Walsh (2001: 279) claims that "although a combination of factors determines consumer likelihood to be online, income is the strongest predictor – across ethnic groups, online penetration rises as income rises". In the case of the UK, there is some evidence for the unequal access of people to information technologies or services as a result of their economic conditions (see Golding and Murdock, 1986; Harris, 2000). Furthermore, some conditions and tendencies appear in which economic factors come to be more important in the digital divide. For example, the product life cycles of information technologies or appliances are becoming ever shorter, making old modes obsolete and new models expensive beyond the economic capability of households (see Golding and Murdock, 1986; van Dijk, 2000b). In addition, while virtual spaces on the Internet become increasingly commercialised, people's economic conditions come to be more critical in determining who can enter and move in which virtual spaces.

Through the combination of the two basic elements, there appears to be spatial digital divides at three spatial levels: global, national and local. Here, it is important to recognise that divides at a given spatial level are closely and intricately interrelated with those at the other levels. First, and most starkly are global digital divides. The basic structure of the dis/connections of electronic networks at a global level can be called a 'North-South global divide' (Norris: 2001: 41). It involves four clusters of societies as a pattern of Internet adoption. (a) The smaller Nordic social democratic welfare states, especially Sweden, Norway, Iceland, and Finland. (b) Larger Anglo-American and English-speaking nations including the United States, Canada, Australia, and the United Kingdom. (c) Asian 'tiger' economies of Singapore, South Korea, and Taiwan, as well as Japan'. And (d) a few smaller European nations with above-average Internet use such as the Netherlands, Belgium, Switzerland, Slovenia, and Estonia (Norris, 2001: 45). Of course, it seems that these clusters can be found also in the case of mobile adoption. The pattern of international Internet connectivity is very similar to that of per capita income in global space (Holderness, 1998). This means that while many people of various socio-economic groups in developed countries can have access to global networks, only a few privileged elite in developing countries can do so (Haywood, 1998). That is, "Internet technology is new; global economic inequalities explaining technological diffusion are not" (Norris, 2001: 67). Although the Internet is rapidly growing in some Asian countries such as Singapore, Malaysia and Korea, to say nothing of Japan, which are attempting to be new hubs in the global space of flows, the space of the Internet is still concentrated in North America and West Europe. This signifies that "indeed given the US and European dominance, the 'World Wide Web' hardly lives up to its name. Inequalities in access to the Internet internationally reflect the long-standing bifurcation between the First and Third Worlds" (Warf, 2001: 6-7). The development of electronic networks such as the Internet at a global level seem to be path-dependent in that they follow the existing economic and social conditions of countries.

If the world can be divided into 'switched on' and 'switched off' regions (Winseck, 2002: 401), global cities as 'urban nodes in global networks' or 'neo-Marshallian nodes in global networks' (Amin and Graham, 1997: 413; Amin and Thrift, 1992, 1994: 15) are key hubs in the 'switched on' regions. Although Townsend (2001a) finds that "global cities do not dominate the global geography of the Internet", as Townsend also admits, they are still acting as crucial nodes in global electronic networks (see Sassen, 1991; Castells, 1996; Thrift, 1995; Graham, 2002b; Hall, 1997; Hamnett, 1995; Warf, 1995; Moss, 1987). This is "because they are suited best to handle transaction costs, given their strong economies of agglomeration" (García, 2002: 61). "While the emerging telecommunications networks could, in theory, allow global financial transactions to be conducted from anywhere, this has not been the case" (Horan, 2000: 94). In this process, 'global enclaves' (Horan, 2000: 94) have appeared, forming 'glocalised' flows in the space of flows (Crang, 1999). Sassen (1997, 1998, 1999a, 1999b) explains these new spatial contours between/within cities as the 'new geographies of centrality'. "We are seeing the formation of a trans-territorial 'center' constituted via telematics and intense economic transitions. The most powerful of these new geographies of centrality at the interurban level binds the national and international financial and business centres" (Sassen, 1997: 5). Thus, "global cities are hyperconcentrations of infrastructure and the attendant resources while vast areas in less developed regions are poorly served. But also within global cities we see a geography of centrality and one of marginality" (Sassen, 1999b: 60).

Second, we need to attend to local and urban digital divides. Following Sassen's thesis of 'new geographies of centrality', we must also think about the dis/connections of electronic networks at a local level, especially focusing on the global city. "New electronic communications technology is not, in any case, used equally everywhere in the city" (Thrift, 1996a: 1483). Such a process of spatial and territorial fragmentation is parallel with the process of social and economic polarisation (Wolf-Powers, 2001; Hall, 1999), forming the 'dual city' (Castells, 1989; 1994; 1999) where "the domination of the space of flow over the space of places induces intra-metropolitan dualism as a most important form of social/territorial exclusion" (Castells, 1997a: 14) or forming 'global connections' and 'local disconnections' at the same time (Graham 2001a: 406-7; Graham and Marvin, 2001: 313-327). After all, we can also read Charles Dickens's *A Tale of Two Cities* in the informational city. Some parts in the global city are occupied by global elites called a 'virtual class' (Kroker and Weinstein, 1994; Kroker, 1996; Barbrook and Cameron, 1996) and connected to global electronic networks. However, "such powerful connections are relationally combined with intense local disconnections, between the emerging metropolis' 'archipelagos of enclaves'" (Graham and Marvin, 2001: 209), forming completely different territories, called 'electronic ghettos', 'information ghettos', 'network ghettos' or 'off-line spaces' (Thrift, 1995: 31; Hall, 1998: 162; Graham and Marvin, 1996: 37; Moss and Townsend, 2000a: 179; Amin and Graham, 1997: 420; Aurigi and Graham, 1998: 65). As Hall (1999: 59) puts it, "the irony is that their people often live much closer to the central employment core than do the white-collar commuters, yet effectively they are disconnected from it". In the disconnected parts within cities, "such a 'poverty of connections' limits a person's or group's ability to extend their influence on time and space, often condemning them to local, place-based ties and relationships" (Graham, 2001b: 348). As Graham (2002a: 34) states, "the social and economic cores and peripheries of the global information age, rather than being continents apart, now often lie geographically adjacent to each other within individual cities".

However, electronic networks are not open only to global capital and elites in the city. For instance, electronic networks such as the Internet or the mobile phone can provide possibilities to form new social or political global-local networks for informal urban politics, local struggles and social movements through the 'scale politics of telecommunications' (Adams, 1996). For instance, Sassen (2001) sees the Internet as a political tool providing the possibility of 'alternative networks as counter-geographies of globalization': "through the Internet, local initiatives become part of a global network of activism without losing the focus on specific local struggles. It enables a new type of cross-border political activism, one centered in multiple localities yet intensely connected digitally"(p.416). In this sense, the Internet is expressed as a 'global public sphere' (Sassi, 2000; Keane, 2000) or a global civil society (Fredrick, 1993).

Finally, we must turn to national digital divides. [10] The dis/connections of electronic networks at a national level appear also in both developing and developed countries at a national level. Although electronic networks such as the Internet or satellite TV increasingly extend within national territories and penetrate their boundaries,[11] not all parts of the country are connected to the electronic networks , which tend to be constructed in and connected to (large) cities, forming spatial digital divides between urban and rural areas. In developed countries, the existence of global cities with their dominant positions in global electronic and economic spaces through global-local networks seems to play an important role in forming spatial digital divides within national territories. Many network infrastructures and information services are constructed and provided in global cities in Europe or America. For example, Hepworth and Robins (1988) explored the uneven patterns of access to knowledge and information through communication media between the north and the south of the UK. They argue that information inequality is not a temporary problem in a transitional period from industrial to information society, but a structural one in the process of the information revolution and that new technologies tend to exacerbate existing social and regional inequalities rather than ameliorate them. More recently, Christie and Hepworth (2001) also observed that the spatial divide of ICT-based economy is deepening between the London city-region and the rest of the UK. In the USA, "although the

[10] Many of the researchers who are concerned with spatial digital divides have focused on mainly Western counties and global cities which are composed of heterogeneous racial or cultural groups or sometimes on underdeveloped countries in Africa. In this thesis, I look at Korea, as a non-Western Asian country, having largely homogeneous racial and cultural composition, focusing on how electronic networks are differently constructed through the government's strong policies.

[11] It does not mean that the role of the state is always weakened. Rather the state can be an important actor in constructing and regulating electronic networks and territories (see Sassen 2000). The governments of Asian countries have played an important role in regulating the Internet, especially because of worry about cultural inflows from Western countries which could have undesirable and negative impacts on their traditional cultures (Kitchin, 1998b: 90; Haywood, 1998: 25; Moore, 1998: 159; Stratton, 1997: 273). In particular, the South Korean government have strongly prevented people from connecting to Websites in North Korea, and has attempted to control virtual spaces with regard to the use of real name/pseudonyms (see Chapter 8).

largest metropolitan areas are well served, many other areas (such as the rural South) have few connections" (Warf, 2001:13). In particular, large metropolitan areas such as Washington, DC, San Francisco/San Jose, Chicago, New York, Dallas, Atlanta and Los Angeles act as large Internet hubs (Townsend, 2001b; see also Warf, 2001; Moss and Townsend, 1998; 2000a, 2000b).

In developing countries, the investment of network infrastructures and information services tends to be restricted to only a few of cities due to economic and geographical constraints. They are used by very few people due to economic and educational limits. The digital divide between urban and rural areas is more serious in developing countries than developed countries. Janelle (1991: 69) calls rural areas in developing countries 'nonshrinking societies' excluded from 'time-space convergence': "time-space convergence is not universally applicable to everyone. Nonshrinking societies are characteristic especially of rural parts in the developing world". Haywood (1998: 24-25) depicts this landscape appropriately: "in poor countries the 'superhighway' is more often than not a long and tortuous dirt-track miles from a made-up road which itself is miles from the nearest medical centre or school". Concerning the information divide between urban and rural areas in Africa, Holderness (1998) argues the possibility of the demise of rural communities due to the migration of people from information-poor rural areas to information-rich urban areas, and suggests that access to information should be made possible at a community level in order to protect rural communities.

2-3-4 Questions in on-line places

As BT [British Telecom] always tells us "*more power to you*", surely network and speed can be symbolised as power (see Virilio, 1986, 1997a; Armitage, 2000b; Cook, 2003; Hamilton and Hoyle, 1999; Massey, 1993, 1994; Hubbard and Lilley, 2004; Allen, 1999; Bridge, 1997). However, we need to recognise that electronic networks do not always have positive effects on connected places. Here I suggest some cultural, social and political problems which can appear in places connected to electronic networks. First, we can think of the crisis of local/national cultural boundaries, territories and identities caused by global electronic networks with homogenising effects.[12] There have been some studies of the crisis or loss of local, national or regional cultural identities in the space of flows. The effects of the space of flows on the space of places can be explained in terms of 'placelessness' (Relph, 1976), 'no sense of place' (Meyrowitz, 1985), 'non-spaces' (Augé, 1995) or 'non-place urban realms' (Webber, 1964). Many have pointed to cultural Americanisation as a form of cultural globalisation. For example, concerning the cultural effects of global media on local youth in South Africa, Strelitz (2003: 248) says that "many admitted to enjoying American teenage drama series, such as Friends. They were interested in the clothing the characters wore". Regarding the effects of the Internet on British children, Holloway and Valentine (2001a: 156-7) proclaim that "both the actions and interests of children and the domination of America in terms of hosts and users combine to produce much of the on-line space used by these British children as an Americanized place". As Featherstone (1993: 177) puts it, "we live in the localities where the flows of information and images have obliterated the sense of collective memory and tradition of the locality to the extent that there is no sense of place".

Second, we can also think of social disintegration in local places by electronic networks with fragmenting effects.[13] Social fragmentation in local places can take place both through on-line interactions not only across global spaces (Doheny-Farina, 1996: 55) but also within local places (Haywood, 1998: 26-7) in that (local) co-present interactions in off-line spaces can be replaced with (local or global) tele-present interactions in on-line spaces. As Gergen (2002: 232) puts it, "as the domain of the absent present is enlarged so the importance of face-to-face relations is likely to be diminished". As Lajoie (1996: 154) argues, "the paradox is that, in the effort to bring others closer together, network technologies have placed a distance between people in the same location". It is for this reason that "the net is often accused of spatial fragmentation in 'real life' just as it creates a 'virtual community'" (Crang, 1998: 98; see also Kitchin, 1998b: 86-90).

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[12] In Chapter 10, I will deal with this question through investing the effects of cable TV on local places.

[13] I will attend to this question in Chapters 8 and 9 with reference to Internet cafés (PC Bangs) and the Internet respectively.

Finally, we can think of 'network-mediated geometry' of power relations between central and peripheral cities in electronic spaces.[14] There have been utopian futurist and technological determinist images of media technologies (McLuhan, 1994; Toffler, 1990). Recently, such images have been more stressed by discourses on 'electronic democracy', based on the Internet with the more horizontal or decentralised and less vertical or centralised structure of communications (see van Dijk, 2000a; Tsagarousianou, 1998), or by "a broader Habermasian view of the new media as providing hope for a new arena of communication, a new public sphere that can replace the old one now crippled by commodification and fragmentation" (Bryan et al., 1998: 8). However, we need to recognise that media technologies can be used to control societies in terms of Innis' (1951) *The Bias of Communication* or Beniger's (1986) *The Control Revolution*, entailing asymmetrical power relations between centres and peripheries through 'long distance control' or 'remote control'. For example, "contrary to popular predictions of their decentralizing impact, digital communications contribute to new and more complex forms of corporate integration, reinforcing center-periphery problems on a global scale" (Gillespie and Robins, 1989: 11). We need to recognise the possibility that media technologies do not annihilate existing hierarchical relations on physical spaces, but rather reflect, reproduce and reinforce them into hegemonic electronic spaces. In this sense, "geography still matters; the Internet creates and reflects a distinct spatial structure interlaced with, and often reinforcing, existing relations of wealth and power" (Warf, 2001: 3).

2-4 Conclusion

Until now, I have explained how electronic media technologies involve and produce multiple time-space networks in two kinds of electronic media spaces: geometrical and geographical media spaces. We saw how electronic media technologies involve multiple time-space dimensions in the geometrical media spaces, and multiple time-spaces contours in the geographical media spaces. Many have sanguinely argued

[14] I will address this question in Chapter 7 as to the national information infrastructure and Chapter 10 as to cable TV.

that technological times are leading to the radical demise of geographical spaces through Virilio's 'third interval' with the disappearance of time-space dimensions. However, we need to recognise that such a process is producing a kind of interval, the 'fourth interval' with the divides of time-space contours.

In this thesis, I investigate how electronic media technologies fabricate divided, different and multiple time-spaces. Chapter 7 explains how new media spaces are constructed differently in terms of networks and speeds within national territories in Korea. Chapter 8 looks at how the Internet penetrates homes, produces fast and slow cities, and constructs the time-space fabric of the city through on-line interactions. Chapter 9 explores how Internet cafés (PC Bangs) produce spatial and temporal landscapes in urban electronic spaces, especially non-stop on-line cities and how such a process has effects on the time-space sense of users. Chapter 10 examines how cable TV leads local places to be integrated spatially and temporally at national and global levels through technological and cultural networks. Finally, Chapter 11 investigates how mobile phones can produce spatially decentralised networks and temporally flexible and uncertain networks in cities.

Chapter 3

The Urban Matrix in the Mediation of Actual and Virtual Spaces

This thesis is concerned with how new media technologies such as the Internet produce actual-virtual hybrid spaces in the city. In this chapter, I review theoretical issues on the ways in which actual and virtual spaces are articulated in the city as the urban matrix of actual-virtual circuits, constructed by new media technologies. Recently, many have argued that new media technologies have resulted in new urbanisation, bringing about the crisis of representation of the city, because the technologies tend to make the city increasingly fluid, hybrid, complex and invisible. Here, my concern is with mappings of the ways in which actual and virtual spaces are articulated with each other in the urban matrix of actual-virtual circuits in which the liminal spaces between actual and virtual spaces and the hybrid spaces between human and machine spaces are formed. I explain two ways in which actual and virtual spaces are articulated with each other in the urban matrix. The first is vertical articulations referring to the reciprocal and relational connections of global electronic spaces and local physical places. The second is horizontal articulations relating to the technological and social constructions of virtual spaces/places as geographical metaphors for, or as geographical alternatives to, actual spaces/places. In addition, I suggest that the articulations of actual and virtual spaces need to be considered along with the tensional relations between centripetal and centrifugal vectors.

3-1 The urban matrix of actual-virtual circuits

With the rapid development of new media technologies over the last three decades of the twentieth century, electronic networks have been increasingly extended across global space. Consequently, many cities, homes and bodies have been increasingly linked together by electronic networks, although many part of the globe are still excluded. In this process, the globe itself becomes a kind of huge matrix in which electronic and physical territories are connected to each other and the boundaries between actual and virtual realties are blurred, as represented in William Gibson's (1984) novel *Neuromancer* or the sci-fi film *the Matrix* where we cannot find the boundaries between actual and virtual spaces. Otto Imken (1999: 92) describes this landscape as 'the global Matrix': "the global Matrix is made up of multiple, complex processes with near-infinite levels of fractal detail and intensity, all built from an enormous number of constituent bits and bytes, a number which is growing exponentially every day". The global matrix is not something far from our everyday lives, but is a lived and real space. Computer screens, mobile phones, call boxes, ATMs [Automated Teller Machines] and so on are the terminals of the global matrix. The global matrix can be characterised by the heterogeneous networks of varied actors such as electronic machines, biological organisms, physical materials, social institutions and so on. It is a huge cyborg itself in Haraway's (1991) terms. Drawing on 'actor-network theory' developed by Latour (1987), Mol and Law (1994) and so on, Urry (2000a: 194) develops such global networks into 'global fluids' which are 'inhuman hybrids' in that "the human and physical worlds are elaborately intertwined and cannot be analysed separately from each other, as society and as nature, or humans and objects".

Cities – especially, global cities which are often called an 'information(al) city' (Hepworth, 1987, 1990a, 1990b; Robins and Hepworth, 1988; Castells, 1989; Catterall, 2000) – act as key nodes underlying the global matrix. The city can no longer be explained only in terms of what are composed of physical territories, material networks, mechanical machines and biological organisms, since such physical actors are increasingly conflated and interwoven with electronic and digital actors. Rather, the city comes to be the urban matrix of actual-virtual circuits in which "cityscape is gradually becoming more and more reliant on systems which are both simulated and transient"

(Ostwald, 1997: 129), and therefore, "images of city matrix becomes that of the computer's, and vice versa" (Boyer, 1995: 145). In this sense, Boyer (1996: 15), inspired by Gibson's *Neuromancer*, suggests 'a new etherealization of geography' where "the principles of ordinary space and time are altered beyond recognition, This matrix is a metaspace or hyperspace superimposed above the level of reality – a space in which reality is transferred from the screen to the memory bank, to the video disk, to imaginary networks". As the city itself comes to be constructed and operated as a kind of computer matrix, our urban experiences and environments increasingly come to be virtual, and it is almost difficult to draw a boundary between actual and virtual spaces. In addition, the fluid and infinite networks of the urban matrix accelerate what Webber (1964) called a 'nonplace urban realm' without "no Euclidean territorial divisions – only continuous variation, spatial discontinuity, persisting disparity, complex pluralism, and dynamic ambiguity" (p.120). As Boyer (1996: 139) states, "the radically decentered non-place of the metroscape defies existence as an imaginable form because of its very dispersal, as do the matrices of cyberspace".

We can identify some spatialities of the landscapes of the urban matrix of actual-virtual circuits. First, the city as the urban matrix of actual-virtual circuits cannot be fully free from the physical or material conditions of the city, and vice versa. Rather, it is a kind of hybrid space between actual and virtual space. Recently, some researchers (Dodge and Kitchin, 2001a, 2001b; Batty and Barr, 1994; Moss and Townsend, 1997a; Zook, 2000) have attended to mapping such (inter-/intra-) urban spaces. They argue that virtual territories cannot be transcendent, but rather are formed in relation to actual territories. For example, Batty and Miller (2000) suggest 'hybrid information spaces' which are formed between 'the place realm composed of physical-material atoms' and 'the non-place realm composed of virtual-ethereal bits' Likewise, in the perspective of architecture, Zellner (1999) suggests 'hybrid space' which blurs the boundaries between the city of bricks and that of bits.

> "The real-actual and the virtual-imaginary are not distinct halves but something akin to oscillating forces in a shifting field, existing not side by side but through and across each other. If we were to assign identities to the real-actual and the virtual-imaginary, we might say that they are at one singular and doubled, like Siamese

twins. If they are entities at all, they share functions and spaces over coterminous territories, or overlapping regions of non-exclusivity. In our cities, there already exist demonstrations of the links between the real and the virtual: the ubiquitous cash machine (ATM), for example, the garish video arcade, even the lowly phone booth all call into play the possibility of a coterminous merging of very real city of bricks and a conceptually experienced 'city of bits' (Zellner, 1999: 10).

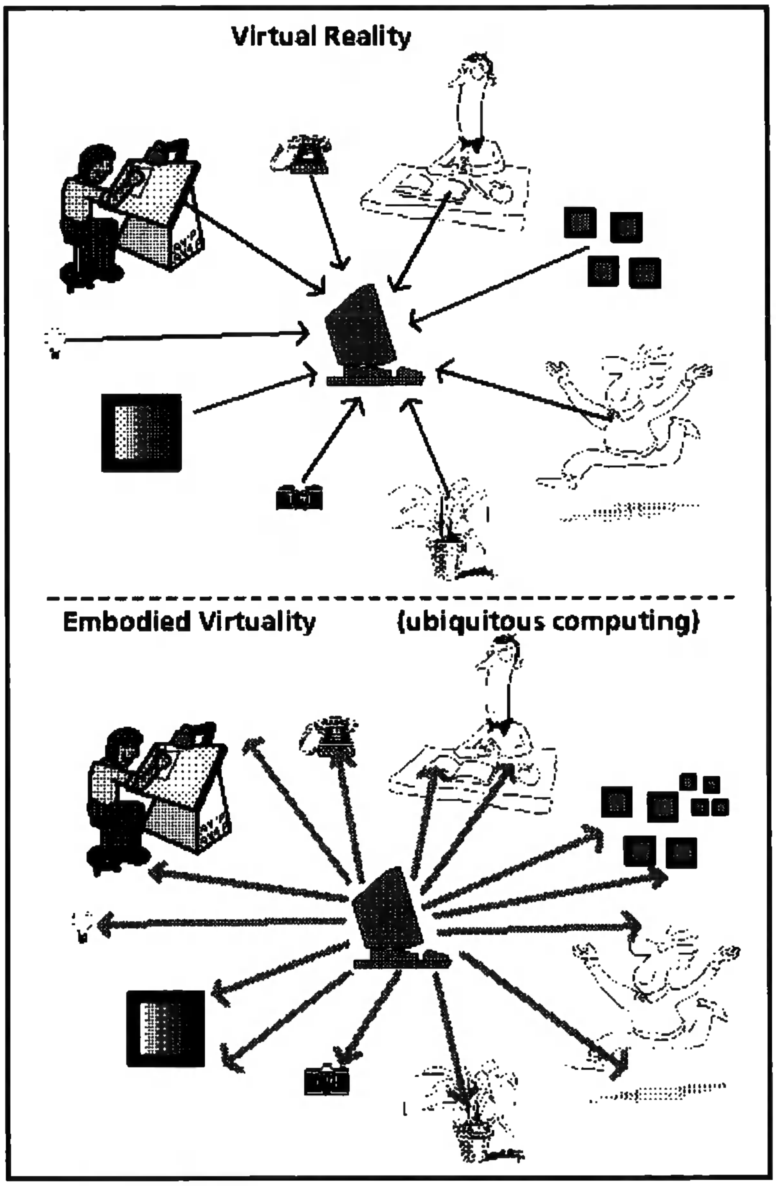

Figure 3-1 Weiser's comparison of virtual reality and embodied virtuality (ubiquitous computing)
Source: Weiser's website [http://www.ubiq.com/hypertext/weiser/VRvsUbi.gif]

Among such architectural hybrid spaces, it is worth drawing attention to 'liquid architectures' or 'transarchitectures',[1] suggested by Marcos Novak (1991, 1996, 1998), "which are part of a larger cultural phenomenon he terms 'transmodernity'" (Zellner, 1999: 128). According to Crang (2000b) who explains Novak's architecture in terms of urban morphology, Novak's architectural imaginations and practices help us to think of the city as dynamic and transmissible, not static and stable: "the city itself is thrown into motion" (p.309). Novak's way of connecting actual and virtual spaces is not immersion casing actual spaces into virtual spaces but instead 'eversion' casing virtual spaces into actual spaces.[2] In this sense, Novak's architectures are similar to what Mark Weiser (1991, 1993) calls 'ubiquitous computing.' This concept is opposed to that of 'virtual reality' which "attempts to make a world inside the computer" and "focuses an enormous apparatus on simulating the world rather than on invisibly enhancing the world that already exists" (Weiser, 1991). On the contrary, 'ubiquitous computing' can be termed 'embodied virtuality' which is coined to "refer to the process of drawing computers out of their electronic shells" (Weiser, 1991) into the physical world (Figure 3-1). Weiser's interest is not in "what was happening in the space behind the video screen" (Boyer, 1996: 11) or how we can enter virtual realities, but rather in how virtual spaces are embodied, embedded and unfolded into actual spaces, especially "by making many computers available throughout the physical environment, but making them effectively invisible to the user" (Weiser, 1993).

Second, paradoxically the city as the urban matrix of actual and virtual circuits comes to be dependent on visibility on the one hand, and loses it on the other hand. The city is based on the screen filled with visual, virtual and symbolic environments,

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[1] According to Novak, "transarchitecture is a superset that contains and extends liquid architectures. If liquid architectures have to do with the observation of liquid variability as a key part of our zeitgeist, tansarchitectures are focused on the effects of that variability" (in Zellner, 1999: 128).

[2] Novak defines eversion as the fifth stage of virtuality: "the first used light and shadow projection, mirrors and shadow theatres, Plato's Cave in other worlds; the second stage encompassed zoetropes (early cinematic form), cinema, television, digital sound and processes of digital-to-analogue and analogue-to-digital conversion; the third virtuality is a form of inversion through computation, scientific visualization, simulation and special effects; the forth is immersion, casting the world into cyberspace; eversion, the fifth, therefore, casts the virtual back into the material world, with the virtual-real and the actual-possible opposition woven together" (in Zellner, 1999: 132).

increasing "a visibility without any face-to-face encounter in which the vis-à-vis of the ancient streets disappears and is erased" (Virilio, 1997b: 382). "This visibility takes the form of a picture language or visual metaphor so that people might relate sensually or perceptively to what is transmitted within the so-called parallel realities of cyberspace" (Hillis, 1998: 546). At the same time, the city comes to be 'invisible' (Batty, 1990; Chatzis, 2001), largely because "new telecommunications networks tend to be largely invisible and silent or, at most, relatively hard to discern." This is because they "consist of underground networks of ducts and cables or aerial lattices of wires over which speed-of-light of electrons or photons carry information (Graham, 1997a: 109). After all, the urban matrix can be represented as "a location that exists nowhere and everywhere" (Nye, 1997: 186).

While 'ubiquitous computing' technologies, as Weiser (1993) states above, are invisibly embedded in the city, the city comes to be produced by the technological mechanism and operation of codes, software or programmes which bring about a kind of 'cyborg urbanisation' (Graham and Marvin, 2001; Chatzis 2001; Gandy 2005), involving various electronic landscapes such as 'the automatic production of space' as the new landscapes of code (Thrift and French, 2002), the 'software-sorted city' as a new kind of urban digital divide (Graham, 2004b, 2005) or 'code/space' as the mutual construction of code and space (Dodge and Kitchin, 2004, 2005). As such, our everyday lives in the urban matrix of actual-virtual circuits are directed by and practiced through technological programmes invisibly installed in almost all urban locales such as airports, libraries and streets, and in almost all objects such as credit cards, mobile phones, automobiles and so on. This means not only that technologies such as software, programmes or codes help cities and societies to work more efficiently or effectively, but also that they cannot operate without such technologically-induced spaces. The city itself, where our bodies and other objects such as automobiles move according to such technological rules or controls, can be seen in terms of 'code/space' where "code dominates the transduction of space to the extent that the transduction is dependent on code" (Dodge and Kitchin, 2005: 172-3). As "the modern city exists as a haze of software instructions" (Amin and Thrift, 2000: 125) and "nearly every urban practice is becoming mediated by code" (Amin and Thrift, 2002: 125), "it is now almost impossible not to live within the orbit of code, anywhere on the planet" (Dodge and

Kitchin, 2005: 164). However, it is also almost impossible to perceive and map the contours of the orbit of code in the urban matrix of actual-virtual spaces due to its 'invisibility' and 'complexity'.

Third, the urban matrix of actual-virtual circuits, based on such ubiquitous computing spaces, can be seen in terms of 'hypertext'[3] in that almost all points are interconnected to one another and are reachable anytime and anywhere like hypertext networks. In this sense, I want to argue that we need to see 'the city as hypertext', not just text[4]. "A hypertext system consists of a collection of pages connected by links" (Colomb, 2002, 45), and "a hypertext system is nonlinear" (Boechler, 2001: 25). One of the most fundamental characteristics of hypertext spaces is that spatial and temporal boundaries are deterritorialised and decentralised through hypertext networks (Landow, 1992, 1994). Lévy (1998, 2001) explains hypertext networks as 'the deterritorialiszation of the text' or 'the universal without totality'.

> "Cyberspace is a system of systems, but by this very fact, it is also a chaotic system. The maximum embodiment of technical transparency, through its irrepressible activity, it shelters opacities of meaning. Cyberspace ceaselessly redefines the outlines of a mobile and expanding labyrinth that can't be mapped, a universal labyrinth beyond Deadalus's wildest dreams. I refer to this universality without any centralized meaning, this system of disorder and labyrinthine transparency, as the universal without totality" (Lévy, 2001: 91-92).

Hypertext spaces can be seen in terms of 'smooth space' as opposed to 'striated space' (Deleuze and Guattari, 1987; Menser, 1996), or 'meshworks' which "articulate heterogeneous elements ... without homogenisation", as opposed to 'hierarchies' which "create structures out of elements sorted out into homogenous ranks" (de Landa, 1996: 188), or 'nonmetric space' where "fixed distances cannot define proximities since distances do not remain fixed, as opposed to 'metric space' where "relations are

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[3] The concept of hypertext was first outlined by Vannevar Bush in 1945 with his Memex information system. And the term 'hypertext' was introduced by Ted Nelson in 1965 (Boechler, 2001).

[4] In Chapter 8, I will explain the urban electronic space of Internet cafés (PC Bangs) in terms of the city as hypertext.

specified by fixed lengths or distances which determine how close points are to each other" (de Landa, 2002: 22). However, we need to recognise that it is difficult for us to make cognitive mappings of such hypertext networks due to their 'unthinkable complexity'. This is the reason why we see them as rhizome-like networks. However, we also need to recognise invisible or remote control networks hidden and operated within hypertext networks, and see the city on the urban matrix in terms of the 'society of control' (Deleuze, 1997).

In this chapter, I explore how actual and virtual spaces are articulated with each other in the city as the urban matrix of actual-virtual circuits. First, I outline the urban matrix in terms of actual-virtual circuits and centripetal-centrifugal vectors. Then, considering the tensional relations of centripetal and centrifugal vectors, I explain two ways in which actual and virtual spaces are articulated with each other. The first is vertical articulations in terms of the reciprocal or relational connections of global electronic spaces and local physical places. The second is horizontal articulations in terms of the technological and social constructions of virtual spaces/places as geographical metaphors for, or as geographical alternatives to, physical spaces/places.

3-2 The configurations of networks, circuits and vectors

3-2-1 Articulating actual and virtual spaces

Figure 3-2 schematises the ways in which actual and virtual spaces are articulated with each other in the urban matrix of actual-virtual circuits in vertical and horizontal dimensions. Before explaining the scheme, it seems to be important to look at how the boundaries between 'space' and 'place' are blurred and fuzzy in the urban matrix of actual-virtual circuits. The traditional distinction between 'space' and 'place' and the conventional definition of them were made mainly by humanist geographers, depending mainly on Heidegger's phenomenological context according to which "place is the locale of the truth of Being" (in Harvey, 1996: 299) and "there is only one true, or 'authentic', relationship to a place, and other relationships are either imperfect or 'inauthentic'" (Crang, 1998: 109). For example, Relph (1976) characterises 'place' as authentic or genuine and 'placelessness' as inauthentic, depthless or superficial in industrialised mass society with telecommunications or consumption spaces without any sense of place (see also Webber, 1964; Meyrowitz, 1985; Augé, 1995). "On Relph's account the Internet is distinctively placeless. It is artificial, arbitrary, and seemingly 'no-place' (utopia)" (Crampton, 2003: 83). Such a concept of 'place' can be contrasted to that of 'space'. As Tuan (1977: 54) suggests, "space is a common symbol of freedom in the Western world. Space lies open; it suggests the future and invites action. ... Compared to space, place is a calm center of established values".[5] In this way, we have had such opposing images of 'place' and 'space': place "is always slower, more earthy, more concrete, more grounded, and more real than space" and "space lends itself to speed, immateriality, abstractness, floatation, and relational disjointure" (Doel, 1999: 8; see also de Certeau, 1984). This kind of formulation of space and place is also reflected in Castells's (1996) thesis of 'space of flows' and 'space of places'. However, the conventional concept of 'place' (or community based on local place) comes to be more and more ambiguous, untenable and problematic, for places become increasingly fluid and ephemeral, while connected to flows. As van Loon (2002: 93) puts it, "if we were to use 'space of places', we would have to bear in mind the inherently dynamic, volatile, contested, unstable, and multiplicitous (rather than duplicitious) nature of 'place'". Although 'space' and 'place' need to be interpreted in different contexts, their relations need to be seen in terms of dialectical and co-evolutionary relations. As Doel (1999: 9) puts it, "there is nothing but *splace*".[6]

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[5] "Equating space with freedom seems to be a frontier phenomenon which suggests Tuan is providing a specifically American reading here. Certainly in Europe the frontier was long gone before the modern era and space has been more related to surveillance than freedom" (Taylor, 1999: 11).

[6] The ways in which the blurring process of global space (or space of flows) and local place (space of places) takes place through new media technologies in cities is one of the main concerns of this thesis, I will address this question through looking at the Internet (see Chapter 9), cable TV (see Chapter 10) and the mobile phone (Chapter 11).

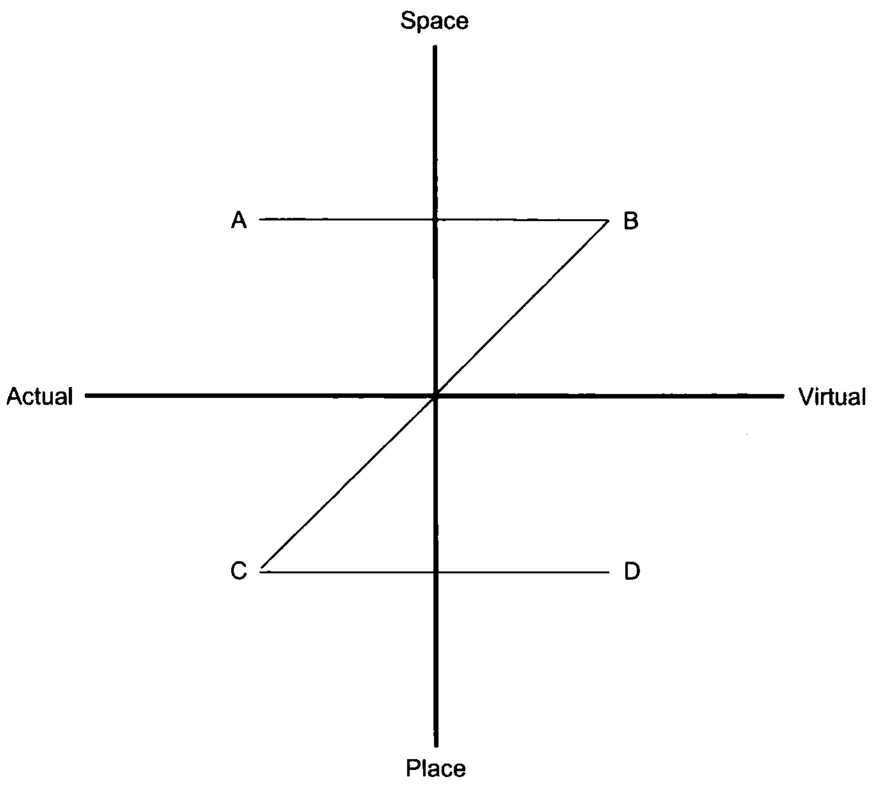

Figure 3-2 The articulations of actual and virtual spaces

I return to the ways in which actual and virtual spaces are articulated with each other, blurring the boundaries between space and place, in the urban matrix of actual-virtual circuits (Figure 3-2). First, the vertical (or diagonal) articulations of actual and virtual spaces in terms of the connections of global electronic spaces and local physical spaces mean the connections of realm B indicating global electronic spaces and realm C indicating local physical places. Here, "space is thus 'top-down', defined by powerful actors imposing their control and narratives on others, Place is the 'bottom-up', representing the outlooks and actions of more typical folk" (Agnew, 2005: 84). What is more important here is that the ontological distinction between 'space' and 'place' as separated geographical scales become redundant and problematic because global electronic spaces are embedded into local physical place, and local physical places are disembedded into global electronic space. This perspective is a typical way in which many contemporary urban researchers such as Saskia Sassen have explained global cities. If technological or other problems appear in local places, then global networks cannot be active, and vice versa. In the vertical articulations of actual and virtual spaces, actual spaces/places tend to be regarded as 'positive', for they have various technological or institutional environments whereby virtual spaces is formed, and actual spaces/places are 'complemented' through virtual spaces.

The horizontal articulations of actual and virtual spaces (in broad terms) can be divided into two types: the connections of realms A and B and the connections of realms C and D. The connections of realms A and B means the articulations of actual and virtual spaces (in narrow terms), and the connections of realms C and D implies the articulations of actual and virtual places. Virtual spaces (realm B) can be seen as geographical metaphors for actual spaces (realm A), containing the sense of 'spatial expansion' through electronic networks (e.g. the 'electronic frontier'). Likewise, virtual places (realm D) can be viewed as geographical metaphors for actual places (realm C), including the sense of 'spatial convergence' through social networks. (e.g. 'virtual community') (see Harasim, 1993b; Wellman, 2001a; 2001b; Wellman et al., 1996; Adams, 1992, 1997, 1998; Batty and Barr, 1994). In addition, seeing virtual spaces/places as metaphorical spaces/places for actual spaces/places can be regarded as an attempt to provide a tangible spatiality and to help create a 'sense of place' to virtual spaces which has been conceived to have no sense of place and no spatiality (Kitchin and Dodge, 2002: 344; Slater, 2002: 535; Graham, 1997a: 113).

> "The metaphors invoke a sense of a recognizable space where offline experiences become useful in the moving around. As such, the metaphorical space is the feeling of three dimensions behind the screen, the perceived possibility of moving through a space far more extensive than the world itself. At the same time, the metaphorical space is crated and interpreted locally in the process of establishing and maintaining the borders of the communities, thereby supporting a sense of being in a special place with certain spatial qualities" (Gotved, 2002: 411-2).

Here, the two types of connections are not separated. Rather, they have the dialectical relations between space and place. People in the on-line world navigate virtual spaces, and at the same time negotiate virtual places. As Tuan (1977: 54) says, "human beings require both space and place". As spaces and places in the off-line world have limits in satisfying their territorial desires, people find alternative spaces and places in the on-line world. In this sense, unlike in the vertical articulations, actual spaces/places in the horizontal articulations tend to be depicted as 'negative' objectives which should be 'substituted' by virtual spaces/places as 'alternative' spaces/places.

3-2-2 Crossing centripetal and centrifugal vectors

The articulations of actual and virtual spaces are not socially and politically neutral, but result in various power networks, especially involving the contesting and conflicting relations between centripetal and centrifugal vectors.[7] Here, it is helpful to explain some with regard to the relations of the two vectors. First, whether certain vectors are centripetal or centrifugal does not necessarily depend on whether the directions of their flows are literally inwards or outwards, but rather on whether they effectively result in reterritorialising or recentralising effects or deterritorialising or decentralising ones. That is, even though networks or contents are extended or dispersed from the central node towards other peripheral points, if such processes facilitate the centralisation of power networks towards the central point, the networks have centripetal vectors because the networks reinforce the centrality of the central node.

Second, centripetal and centrifugal vectors should be thought of as historically and temporally relative. For instance, the electronic mass media such as television or radio which have centripetal vectors have been seen to have centrifugal vectors in relation to the print mass media such as books or newspapers. This point is well expressed in the Canadian media theorist Marshall McLuhan's argument.

> "Electric circuitry has overthrown the regime of 'time' and 'space' and pours upon us instantly and continuously the concerns of all other men. It has reconstituted dialogue on a global scale. Its message is Total Change, ending psychic, social, economic, and political parochialism. The old civic, state, and national groupings have become unworkable. Nothing can be further form the sprit of the new technology than 'a

[7] In this thesis, the tensional and crossed relations of centripetal and centrifugal vectors will be explained as one of the important techno-social processes through which new media spaces are formed.

place for everything and everything in its place.' You can't go home again" (McLuhan and Fiore, 1996: 16).

Third, both centripetal and centrifugal vectors can be thought of to be optimistic or pessimistic. For example, Denis McQuail (2000) suggests four political images of the consequences of mass communication for social integration through combinations of centrifugal and centripetal effects and optimistic and pessimistic visions (Figure 3-3). (a) Freedom and diversity: the positive version of the centrifugal effect stresses freedom, mobility and modernization. (b) Integration and solidarity: the positive version of the centripetal effect stresses the integrative and cohesive function of the media. (c) Normlessness and the loss of identity: the negative view of change and individualism points to the individual isolation and loss of social cohesion. And (d) dominance and uniformity: society can be over-integrated and over-regulated, leading to central control and conformity.

Finally, new media technologies cannot be equalised with centrifugal vectors, unlike technological utopianism, but rather they involve the tensional landscapes between centripetal and centrifugal vectors. Compared with the mass media such as television, radio or newspapers, the new media such as the Internet, cable TV or the mobile phone could be seen to increase centrifugal effects. This is because their modes of communications are different from those of the mass media. Point-to-point or two-way communications as the most important characteristic of the 'second media age' (Poster, 1995) are seen as important technological possibilities which enable 'digital democracy' (see Hacker and van Dijk, 2000; Tsajarousianou, et al., 1998; Hoff et al., 2000). That is, "based on point-to-point communication rather than broadcast models, the new media appear both as non-hierarchical and as evading offline hierarchies" (Slater, 2002: 535). Particularly, 'hypertext networks' such as the Internet produce more radically decentralised networks, for they deny any hierarchical networks (Lévy, 1998, 2001; Landow, 1992, 1994). However, we need to recognise that the new media have not only centrifugal effects, but also centripetal effects on existing power networks (see Becker and Wehner, 2001: 67-8).

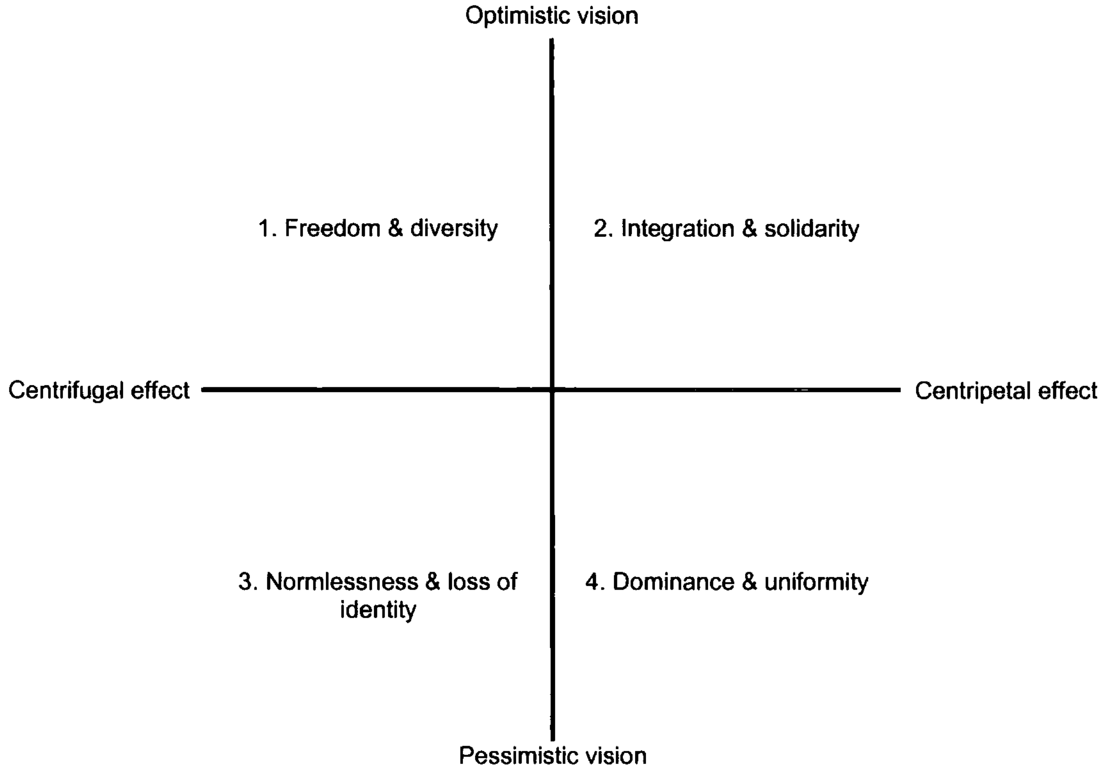

Figure 3-3 Four images of the consequence of mass communication for social integration
Source: McQuail (2000: 72)

In fact, such opposing – centripetal and centrifugal – effects of media networks were an important issue in the Toronto School in the mid-twentieth century, especially between Harold Innis and Marshall McLuhan.[8] According to Innis (1951), while the 'heavy' and 'durable media' (like stones) enable power to last over time (like the case of ancient Egypt), the 'light' and 'portable' media (like papers) allow power to stretch over space (like the case of ancient Rome). In other words, the former media make power temporally extended (time-binding power) through time-biased communications,

[8] The important difference between Innis' and McLuhan's perspectives is whether contemporary media 'space' can be characterised as 'visual/static' or 'acoustic/dynamic'. According to Richard Cavell (2002), "McLuhan was not arguing for a return to the values of orality/ temporality, as Innis was. Rather, he was extending Innis's insight that the bias of contemporary culture was spatial, while reconfiguring the (visually) spatial in terms of the *acoustic*, since this was the effect that electronic media were having on visual culture" (p.25). In other words, "McLuhan ... insisted (post 1953) on a space whose properties were *acoustic*, and thus radically different from the properties of visual space. The 'spatial' and the 'visual' were not conterminous for McLuhan; the spatial also extended into the 'oral' through the concept of acoustic space. It was *visual* space, thus, that McLuhan critiqued. It was *visual* space that was static, not the spatial *per se*. Indeed, *acoustic* space was fundamentally dynamic"(p.26).

and the latter media make power spatially extended (space-binding power) through space-biased communications. According to McLuhan (1964), while the visual media (e.g. the print media such as newspapers or books) tend to produce hierarchical spatial power relations, the acoustic media (e.g. the electronic media such as the radio or television) tend to facilitate heterarchical spatial power relations. For Innis, the electronic media result in the monopolisation of power across space, and for McLuhan, they lead in the decentralisation of power. This point makes McLuhan criticise Innis.

> "What Innis has failed to do in this part of his essay is to make a structural analysis of the modalities of the visual and the audible. He is merely assuming that an extension of information in space has a centralizing power regardless of the human faculty that is amplifies and extended. But whereas the visual power extended by print does indeed extend the means to organize a spatial continuum, the auditory power extended electrically does in effect abolish space and time alike. Visual technology creates a centre-margin pattern of organization whether by literacy or by industry and a price system. But electric technology is instant and omnipresent and creates multiple centres-without-margins. Visual technology whether by literacy or by industry creates nations as spatially uniform and homogenous and connected. But electric technology creates not the nation by the tribe – not the superficial association of equals but the cohesive depth pattern of the totally involved kinship groups" (McLuhan, 1951: xiii).

We can easily assume that Innis' and McLuhan's perspectives inevitably conflict, for their categorisations of media can no longer be tenable in multimedia environments in which visual and audio technologies converge. It seems then that new media technologies produce not consistent or straightforward but paradoxical or contradictory mediascapes: centripetal vs. centrifugal; hierarchical vs. heterarchical; centralised vs. decentralised; re/territorialised vs. deterritorialised; homogeneous vs. heterogeneous; and integrating vs. disintegrated landscapes. In the landscapes of the Internet, in McLuhan's perspective, "global networks are not only tools but offer a venue for the global village, a matrix where the world can meet" (Harasim, 1993a: 3). On the other hand, in Innis's view, "it appears probable that the Internet will become, predominantly, a spatially biased medium" (Comer, 2001: 17).

In order to understand what happens when or where actual and virtual spaces are articulated with each other, we need to consider the tensional relations of centripetal and centrifugal vectors, overlapping actual-virtual layers and centripetal-centrifugal layers. In this way, the urban matrix of actual-virtual circuits needs to be seen in terms of not only the liminal spaces between actual and virtual spaces but also the tensional relations between centripetal and centrifugal vectors. In the following two sections, I explain the ways in which actual and virtual spaces are articulated with each other in vertical and horizontal dimensions respectively, considering how centripetal and centrifugal vectors are involved and generated in the processes.

3-3 The connections of global electronic spaces and local physical places

3-3-1 Reciprocal relations

The vertical articulations of actual and virtual spaces can be seen in terms of the connections of global electronic spaces and local physical places. Generally, images of global electronic spaces and local physical places can be represented as having different and opposing characteristics. Graham (1997a: 120; 1997b: 48; Graham and Marvin, 1996: 116) contrasts the two realms in various terms: 'network' vs. 'territory'; 'motion or flux' vs. 'fixity'; disembedded' vs. 'embedded'; 'immaterial' vs. 'material'; 'invisible' vs. 'visible'; 'intangible' vs. 'tangible'; 'virtual or abstract' vs. 'actual'; and 'logical space' vs. 'Euclidean or social space'. In relation to the effects of cities on time-space, while cities as 'urban places' can be seen to "overcome time constraints by minimising space constraints", cities as 'urban electronic spaces' can be seen to "overcome space constraints by minimising time constraints". In this sense, global/urban electronic spaces can be characterised as ethereal and transcendent realms eliminating the temporal, spatial and material constraints of local/urban physical places.

However, global electronic spaces are not self-sufficient or autonomous realms, but instead can be operated only when they are reciprocally and reflexively connected with local physical places. Local physical places are disembedded into global electronic spaces, and global electronic spaces are embedded into local physical places. Global electronic spaces are produced and maintained by various im/material conditions such as technological infrastructures, social networks, institutional milieus, cultural situations and so on in local physical places (Graham, 2002b). For example, as Thrift (1995: 27) puts it, "the hypermobile world of international money is actually a hyersoical world" in that "money is essentially information and getting that information, interpreting it, and using it at the right time, requires constant human interaction". This condition leads to the uneven, more exactly hierarchical, geographical patterns of electronic spaces. This is because the local im/material conditions which are needed for the formation of electronic spaces are not omnipresent in actual spaces. In particular, "private digital networks make possible forms of power other than the distributed power we associated with public access digital networks" (Sassen, 2000: 25). These centripetal electronic landscapes are obviously observed in the cases of Internet backbone networks, domain names or IP addresses (see Batty and Barr, 1994; Batty and Miller, 2000; Dodge, 1999a; Dodge and Shiode, 2000; Dodge and Kitchin, 2001a, 2001b; Moss and Townsend, 1997a, 1997b; 1998, 2000a, 2000b; Townsend, 2001a, 2001b; Warf, 2001). Theuneven spatial structures of electronic networks and territories indicate that the topological contours of global electronic spaces themselves are constrained and conditioned by the im/material conditions of local physical places. In this sense, Zook (2003: 1261) argues that "the 'space of flows' cannot be understood without reference to the 'space of places' to which it connects", criticising Castells's (1989: 348) thesis that "the historical emergence of the space of flows (is) superseding the meaning of the space of places".

The reciprocal and uneven connections of global electronic spaces and local physical places –or the connections of the 'space of flows' and the 'space of places' – can be observed in global cities (or world cities). As Sassen (1997, 1998, 1999a, 1999b, 2000) observed, in global cities,

> "These (new business) activities inhabit physical spaces, and they inhabit digital spaces. There are material and digital structures to be built, with very specific requirements: the need to incorporate the facts that a firm's activities are simultaneously partly deterritorialized and partly deeply territorialized, that they both

span the globe and are highly concentrated in very specific places" (Sassen, 1999a: 117).

It is clear then that "even the hyperactive web-masters of the world of soft capitalism, ensconced in the corporate citadels of London, New York, and Tokyo, require their endo- and exoskeletons, their infra- and superstructure" (Doel, 1996: 16). Global cities can be represented as 'urban nodes in global networks' (Amin and Graham, 1997: 413) in that they play a crucial role as nodes in the global space of flows through various local technological, economic, social and institutional privileges. That is, the global matrix is programmed, mediated, circulated, coordinated and controlled mainly by global cities as the mega-urban matrix with power networks in terms of 'C^3I (command-control-communication-intelligence)' (Haraway, 1991: 164). At the same time, they can be characterised by the 'global networks of urban nodes' (Borja and Castells, 1997: 16) in that "world cities represent an alternative megageography, one of networks rather than the mosaic of states. ...... The large light pinpricks of light on space photos are actually connected by massive electronic flows of information" (Beaverstock et al., 2000: 123). Such global networks take on multiple and complex, but 'hierarchical' and 'monopolist' figurations (see Taylor, 1997, 2000, 2001; Taylor et al., 2001, 2002; Beaverstock, et al., 1999, 2000), reflecting the urban systems of global cities and other main cities.[9]

3-3-2 Relational networks

In order to make better sense of the connections of global electronic spaces and local physical places, we need to think in terms of 'relational networks' rather than 'territorial scales'. In fact, such a relational perspective is not new in the discipline of geography which has traditionally paid much attention to spatial relations or connections as well as spatial boundaries or territories. As Gould (1991) points out,

[9] In Chapter 7, I will explore how the capital city of Korea, Seoul, which is emerging as a new centre in global electronic space, is attempting to act as a new node in the global space of flows through the production of new technological and cultural spaces.

> "No connections, no geography. .... Even a place, or a region, only takes on human and geographic meaning in relation to other places and regions, and relations mean, once again, connections over geographical and all sorts of other spaces. No place or region exists meaningfully in and of itself, disconnected and floating in a void, but always in relation to, and connected with, others" (Gould, 1991: 4).

Relational perspective of space(-time) has been stressed by Harvey (1969, 1973, 1996) who calls for non-absolute space(-time),[10] and Thrift (1995) who explains global electronic and financial spaces, drawing on 'actor-network theory' and Massey (1994) who calls for a 'global sense of place', stressing the 'power geometry' of globalised place. More recently, some British urban researchers or geographers (Amin and Graham, 1997; 1999; Graham and Healey, 1999; Healey, 2000; Graham and Marvin, 2001; Amin, 2002) have employed 'relational' approaches, partly combined with Latour's (1987, 1993) 'actor-network theory', as an alternative tool to explain urbanisation or globalisation to 'scalar' approaches which have been adopted mainly by American political geographers or British regulation theorists. For example, reviewing critically the literature, based on scalar approaches, by Agnew (1999), Cox (1998), Swyngedouw (1997a), Brenner (1999), Jessop (2000a) and so on, Amin (2000: 392) points out the erosion of the linear ontological distinction between 'place' and 'space': "we now have an ontology that disrupts the traditional distinction between place and

[10] Harvey (1969, 1973, 1996) conceptualises spaces into three kinds: 'absolute', 'relative' and 'relational', in a similar context to Lefebvre's (1991) spatial viewpoint. At first, Harvey did not draw a boundary between 'relative' and 'relational' spaces (Harvey, 1969: 195-7) and explained Leibniz's relational space as a particular kind of relative space (Harvey, 1973: 13-4). In his book *Justice, Nature and the Geography of Difference*, however, Harvey (1996) stresses the concept relational space, comparing Liebniz's and Whitehead's relational perspectives of space. Philosophically, a relational view of time-space was first suggested by Leibniz as the opposite concept to Newton's absolute time-space and was completed by Whitehead's metaphysics of relation. While Leibniz's relational perspective is quantitative and idealist, Whitehead's perspective is qualitative and empirical. "If Leibniz is rejecting much about Newton's view, he is also accepting much. Both, in the end, are abstract and formal. So both involve the rejection of views of space or place that give a central role to the actions of everyday life. In Newton this is a rejection of the relational in favour of the absolute; in Leibniz there is an embracing of the relational, and a rejection of the absolute. But in both the relations of contiguity that before were temporalized, and described in narrative terms, are reinscribed in the quantitative terms appropriate to modernism" (Curry, 2002: 507). "Whitehead's criticisms arise, however, from within the Newtonian tradition itself. They do not rely on the logical exploration of possible worlds in the fashion of Leibniz, but on the study of relational possibilities of actual processes at work in nature, in so far as human beings can experience and describe them" (Harvey, 1996: 260).

space as in-here verse out-there boundaries". In short, "there is no such thing as a scale" (Thrift, 1995: 33), and there are only networks which are incomplete, tentative and approximate in themselves and traverse and make meaningless the boundaries between global spaces and local places.

According to Graham and Marvin (1999), relational approaches rest on two ideas about the interplay between cities, technologies and infrastructure networks. First, relational urban and social theorists "reject any idea that space, place and time have any essential, predefined or fixed meaning. ... Places are worked out through social action in dynamic, specific ways that resist easy generalisation and constantly change over time" (p.203). Second, such dynamic and multiple conceptions of place should "make us highly sceptical about the notions within the modern infrastructural ideal suggesting some essential or necessary order, coherence or unitary quality to cities as things" (p.204). That is, such a perspective (a) "allows complex global-national-regional-local interconnections to be placed at the centre of analysis of cities without seeing them as a simple hierarchical progress"; (b) "allows us to begin to appreciate the multiple geographies of cities and their various parts", and (c) "helps us to appreciate the fundamentally ambivalent tensions of cities and the sites within them, precisely because of its understanding of cities as places in which diverse relational webs do or do not connect" (Amin and Graham, 1999: 15). In short, the perspective of relational approaches helps us to see cities in the contingent, complex, different and multiple spatio-temporal dimensions of urban networks. In this sense, Healey (2000) represents the city as a 'multiplex circuitry':

> "The result of these tendencies is that the conception of the spatially ordered and socio-economically integrated city, reflected in the cohesiveness of its communities, has been displaced by an image of the city as fragmented and segmented. Rather than a cohesive, 'uniplex' structure, it has a 'multiplex circuitry'. It is a collection of relations, each with their own nodal points and time-space relations" (Healy, 2000: 56).

The 'multiplex' city can be conceptualised in terms of non-linear and relational 'networks', not linear 'scales' or nested 'territories. Then, the city itself is not a cohesive and coherent entity surrounded by impermeable boundaries and based on homogeneous territories, but it is composed of a variety of internal/external and visible/invisible networks making intra- and inter-urban boundaries dissolve. Furthermore, the city needs to be seen in terms of 'actor-networks': heterogeneous actor and relational networks. In this sense, with a relational and poststructuralist perspective, Doel and Hubbard (2002: 362) argue that the world city itself needs to be seen as "a heterogeneous assemblage of practices, materials and actants drawn from within and without the city limits" rather than "as a site in a world-wide network of heterogenous flows".[11] Of course, given that people, objects and locales in ordinary cities are more and more linked to various electronic networks through which such actors are connected to one another internally and externally, we need to see ordinary cities as well as global cities in such a perspective (see Amin and Graham, 1997; Short et al., 2000).[12] Satellite, cable or mobile networks are increasingly employed by ordinary people in their everyday lives, the city itself is constituted through extremely contingent and complex networks which produce unthinkably different and multiple time-space networks and make bodies, objects and locales intricately interwoven and interconnected within/between cities. As Amin and Thrift (2002: 64) describe, "telematics enable real-time interaction at a distance. Through this, they constitute a stretched space-time reaching into suburban and beyond, linking households, offices and parts of cities to sites around the world (mediated by call centres in other parts of the world and satellites in space)". This means that:

> "A complex, progressive conception of space is produced, wherein people and things are located within complex networks of mobilities, interactions, and transactions that bind them together across space. ... Scales such as 'local' and 'global' become redundant, with each network simultaneously connecting all locations within the network. Such a conceptualisation thus renders fixed spatial boundaries and scale

[11] Especially, Doel and Hubbard (2002) see both of the approaches to world cities suggested by Castells (1996, 2000b) and Taylor (1997, 2000; Beaverstock et al., 1999) as structuralist viewpoints in the sense that Castells "takes informational capitalism as a given, rather than as an ongoing achievement; as axiomatic, rather than performative"(p.355) and Taylor "continues to follow a logic of exclusivity (i.e. London is not New York, and New York bankers are not London bankers, irrespective of the traffic in things between them)" (p.357).

[12] In Chapter 10, I will deal with how cable TV brings about the cultural globalisation in the ordinary city through its electronic networks and people's everyday life.

problematic. Moreover, it recognizes that each network is just one of a multitude of networks, thus creating multiple, simultaneous but partial, spatial-time configurations that are at one 'local' and 'beyond'" (Dodge and Kitchin, 2005: 173-4).

However, the perspective of relational approaches stresses that the city itself is connected fully and indifferently to global networks. Rather, it underscores that the city comes to be increasingly fragmented or segregated through the dis/connections of networks. While some local networks can stretch and extend beyond local boundaries through global networks, others are disconnected from the global networks. That is, "ICTs can create disconnections as well as connections" (Graham, 2004: 324) and "new forms of connection produce new forms of disconnection" (Thrift, 1995). It should be noted that "new media technologies will not somehow evaporate the meaning of urban places in some gigantic stampede to move online" (Amin and Graham, 1999: 28), and "the rise of telematics does not represent the end of old forms of technological and human communication, or the dematerialization of the city into a space of bits and flows" (Amin and Thrift, 2002: 66). Rather, the existing place-based relational webs of dis/connections of cities have significant effects on the ways in which local physical places are dis/connected with global electronic spaces.

> "It is clear that complex combinations of electronic propinquity in the 'non-place urban realm' and place-based relational meanings based on physical propinquity and transport need to be considered in parallel. Place-based and place-bounded ways of living, and the social, economic, institutional and cultural dynamics that can arise where urban propinquity does matter is still critically important in shaping how cities and localities are woven into global lattices of mobility and flow" (Graham, 1997b: 47).

After all, the reciprocal (co-constitutional) and relational (non-determinist) connections of global electronic spaces and local physical places make us see images of the two realms being demystified. On the one hand, images of local physical places as bounded, grounded or protective realms are shattered because they are disembedded and splintered through global electronic spaces. On the other hand, images of global electronic spaces as a-terrestrial, a-territorial or aggressive realms are also broken down because they are embedded and anchored in local physical places. The city seems to be too light to be terrestrial and too heavy to be ethereal.

3-4 The constructions of virtual spaces/places as geographical metaphors

3-4-1 The electronic frontier

The horizontal articulations of actual and virtual spaces can be understood in terms of the constructions of virtual spaces/places as geographical metaphors for actual spaces/places. Here, virtual spaces/places can be understood as alternative spaces/places to actual spaces/places in that actual spaces/places are often seen as objects to be substituted with virtual spaces/places in order to resolve socio-spatial problems in contemporary societies and cities, such as the fragmentation of social relationships, the demise of local communities, the degeneration of public spaces, the spatio-temporal constraints of urban spaces and so on. That is, the substitution of the actual by the virtual signifies a 'solution' of the real, although the substitution of the imaginary world for the real world implies a 'false approximation' (or simulation) of the real in the perspective of Baudrillard (Doel and Clarke, 1999). Furthermore, this process means the 'dissolution' of the boundaries between the actual and the virtual (Nunes, 1997: 164). There are many geographical metaphors: 'cyberspace', 'virtual reality', 'electronic frontier', 'information highway', 'virtual community', 'virtual café', 'chat room' and so on (see Hillis, 1999a, 1999b). "There is no space worth discussing that somehow might be understood or represented apart from language and the necessary use of metaphors in human acts of communication" (Hillis, 1999b: 134). Importantly, we need to recognise that geographical metaphors are not socially and politically neutral, and have mystifying effects or conceal realities (Smith and Katz, 1993; see also Cresswell, 1997; Simonsen 2004). In order to decode the meanings of virtual spaces/places as geographical metaphors for actual spaces/places, we need to recognise that they are constructed not only technologically, but also socially. In this sense, I explore two metaphorical terms – 'electronic frontier' as a metaphorical 'space' and 'virtual community' as a metaphorical 'place' – and explain how they have ideological or illusionary effects.

The 'electronic frontier' (Rheingold, 1993a; Batty and Barr, 1994; Healy, 1997; Ludlow; 1996; Behar, 1997) as a metaphor which came from the American historian Frederick Jackson Turner's (1962) historical viewpoint of the American frontier is one of the most frequently used metaphors of virtual spaces. We can see some similarities and differences between the American frontier and the electronic frontier. First, we can compare their spatialities. The American frontier is based on physical territories, and the electronic frontier on electronic territories. Thus, while the American West was naturally already there, the electronic territories were artificially invented. While "the American West was long perceived as virgin land, an empty region waiting to be appropriated" (Nye, 1997: 2), or as a definite *tabula rasa* waiting to be filled with homesteaders and settlements, "cyberspace has no inherent limitations. And mainframe may represent a temporary roadblock on the information superhighway, but the possibilities for expansion are (virtually) limitless" (Healy, 1997: 66). In a sense, the electronic frontier can be seen as the extension of the American Frontier and as another kind of exploitation and expansion of territories. Drawing on Tuan's (1977) concept of 'place' and 'space': "place is security, space is freedom: we are attached to the one and long for the other". Healy (1997: 57) explains the Internet in terms of the movement from place to space in the drama of American history: "the most recent chapter in this drama is the Internet, a story still being written. The metaphorical space of the Internet may be seen as representing a new kind of frontier". As Mark Slouka (1995: 92) points out, "what we had here, as all the talk of space and freedom make clear, was not just the (digital) highway to heaven, but the second coming of the American frontier – an 'infinite' and 'permanent frontier'". In addition, just as at the end of the nineteenth century, "as *terra incognita* disappeared from European maps, writers of adventure stories retreated from realistic to fantastic, purely imaginary spaces" (Phillips, 1997: 7), so too at the end of the twentieth century, people move from actual to virtual territories, another kind of unrealistic space, which are being perceived as indefinitely ever-expanding spaces without having certain boundaries.

Second, we can compare Frederick Jackson Turner's and Howard Rheingold's viewpoints. As "for Turner American national identity could not invoke a common cultural inheritance but it could appeal to a common experience of successive adaptation to environmental conditions by settlers along the frontier" (Johnson, 2001: 95), so "for Rheingold, virtual community is chosen rather than given and, like the lifestyle enclave, reflects the voluntary association of like-minded individuals" (Healy, 1997: 62). That is, "for Rheingold the Internet represents a new space in which to form new forms of communities based upon our interests and affinity, rather than coincidence of location" (Kitchin, 1998b: 86). This means that for both Turner and Rheingold, collective community identities are not given but made like Anderson's (1991) 'imagined community' or Said's (1995) 'imaginative geography'. However, while for Turner, movements towards the West along the frontier played an important role in integrating different ethnic and cultural identities into a unitary national identity, for Rheingold, in the electronic frontier, there are various communities with different interests and identities which could be internally homogenous, but externally heterogeneous.

Third, we can compare Thomas Jefferson's and Al Gore's viewpoints. Just as the American continent exploited through the frontier was connected through infrastructures such as roads and canals by Jefferson, so the electronic continent expanded through the electronic frontier is being connected through the information highway called the National Information Infrastructure and the Global Information Infrastructure. And just as "Jefferson and Madison turn to communication technologies – in their day, canals and roads – which could overcome the otherwise natural limits to democratic polity" (Ess, 2001: 2), so too through the information highway, "the 'digerati', including Nicholas Negroponte and Bill Gates, promise the realization of Marshall McLuhan's utopian vision of an electronic global village" (Ess, 2001: 1). "In 1806, Jefferson announced an ambitious program for the 'progress of improvement' to bring the highway to the country, which, more than anything else, brought the country to the city" (Carey, 1989: 7). About 200 years later, Gore says in Buenos Aires in March 1994, "We now have at hand the technological breakthroughs and economic means to bring all the communities in the world together. We now can at last create a planetary information network that transmits messages and images with the speed of light from the largest city to the smallest village on every continent" (in Schiller, 2001: 159). In a sense, "life in cyberspace seems to be shaping up exactly like Thomas Jefferson would have wanted: founded on the primacy of individual liberty and a commitment to pluralism, diversity, and community" (Kapor, 1993). That is there appears a sort of 'cyber-Jeffersonian renaissance' (Wilbur, 1997: 11).

There is another parallel between the physical highway and the electronic highway: their military origins and American imperialism based on economic reasons (see Jones, 2001: 53; Schiller, 2001: 161). In particular, "the NII proposal can be seen as an attempt to directly stimulate the United States' stagnating post-cold war economy" (Wise, 1997: 138), and the GII can be seen as a strategy to dominate the world economically and culturally. Slouka (1995) sarcastically describes Al Gore Jr. as an electronic highway builder and his father Al Gore Sr. as a physical highway builder.

> "For just as surely as Al Gore Sr.'s highway system had helped homogenize the American landscape, replacing the distinctive color and lingo of regional culture with the ubiquitous ugliness of the corporate strip, his son's electronic highway would make us blander still, sacrificing a different kind of regionality – the regoinality of race and gender and age and opinion – to the needs of the all-blurring, eternally inoffensive Netsoul. And thus homogenized, our edges rounded and smoothed, we would fit more easily into the pegboard of authoritarian control" (Slouka, 1995: 94-5).

We need to recognise that the information highway tends to reproduce and reinforce existing power networks in physical and material territories through centripetal vectors. I want to suggest this point through drawing parallels between the physical highway and the electronic highway. While in the physical highway, peripheral cities are directly linked to physical networks without being connected to central cities; in the electronic network, peripheral cities are indirectly, only through central cities, linked to electronic networks. Given that the Internet is mediated by actors – such as Internet exchange points, Internet service providers or Internet domain operators – in central cities, peripheral cities come to be more technologically and culturally dependent on the central cities.[13] We think of these two kinds of networks – the physical highway and the

[13] I will underline these spatial relations between the central city and peripheral cities in Chapter 7 as to the national information infrastructure and in Chapter 10 as to cable TV.

electronic highway – in terms of 'random' and 'scale-free' networks respectively. According to Barabási (2002),

> "The degree distribution of a random network follows a bell curve, telling us that most nodes have the same number of links, and nodes with a very large number of links don't exist. Thus a random network is similar to a national highway network, in which the nodes are the cities, and the links are the major highways connecting them. Indeed, most cities are served by roughly the same number of highways. In contrast, the power law degree distribution of a scale-free network predicts that most nodes have only a few links, held together by a few highly connected hubs. Visually this is very similar to the air traffic system, in which a large number of small airport are connected to each other via a few major hubs" (Barabási, 2002: 71).

The spatial structure of the Internet tends to manifest itself as scale-free networks. This implies that for the Internet the most important problem is that the breakdown of electronic systems in central nodes can result in the collapse of the whole network (Albert, Jeong and Barabási, 2000: 379; see also Poster, 1990: 3-4). The space of electronic networks can be seen in terms of what is called 'code/space' in which "the code 'fails', then the entire transduction 'fails'"(Dodge and Kitchin, 2005: 178). Importantly, we need to recognise that a critical fail in one location as a central node in electronic networks can instantly lead to failures in other locations as peripheral nodes, but not vice versa, making impossible on-line interactions not only within the central city, but also within/between other cities. While in the case of the genetic engineering of food, the effects can be 'temporally unbounded and dispersed' (Adam, 2000: 139), in the case of electronic networks with centralised spatial structures, the effects can be 'spatially unbounded and dispersed' and 'temporally instantaneous and simultaneous'[14]

[14] A typical example is a worldwide Internet disaster was caused by a virus called the Sapphire/Slammer Worm in 2003. It was the fastest computer worm in history. "As it began spreading throughout the Internet, it doubled in size every 8.5 seconds. It infected more than 90 percent of vulnerable hosts within 10 minutes. The worm (also called Slammer) began to infect hosts slightly before 05:30 UTC on Saturday, January 25" (CAIDA, 2003). In the case of Korea, "at its peak on 25 January, the malicious code caused scattered slowdowns in net traffic and effectively shut down the Internet in South Korea, the world's most wired country" (BBC1, 2003). It can be assumed that one of the reasons why Korea was affected more seriously than any other country is because the spatial structure of Korea's Internet backbone networks is highly centralised and hierarchical, that is, 'scale-free networks' (see Chapter 7). The virus invaded KT's [Korea Telecom] DNS [Domain Name System] at a telephone office - the most

(e.g. the Internet disaster caused by the Sapphire Worm of January 2003, see CAIDA, 2003). This characteristic of the Internet is far from the original purpose of the Internet designed and constructed to avoid the total collapse of networks by attacks or accidents.

3-4-2 The virtual community

The term 'virtual community' has been used as a geographical metaphor for and as an alternative community to off-line community in actual spaces. "The history of the word 'community' is just as fraught and ambivalent as that of the concept of place" (Harvey, 1996: 310), for its meaning and definition have been changed over time (see Williams, 1976: 75-6).[15] To simplify it to the extreme, there are two kinds of concepts of community: 'place-based communities' with their distinctive territories, boundaries and identities; and 'network-based communities' as personal social networks sharing common interests or values, not necessarily based on local territories. In particular, the development of communication technologies has resulted in changes from place-based to network-based communities, and as a result, "we are seeing the dislocation and relocation of senses of belonging and community" (Robins, 1995b: 146; see also Foster, 1997: 24). As Wellman and Gulia (1999: 169) put it:

> "More recently, sociologies have discovered that such neighborhood and kinship ties are only a portion of people's overall community networks because cars, planes, and phones can maintain relationships over long distances. ... This conceptual revolution

important node of Internet backbone networks in Korea - in Seoul, and this disturbance of the node by the virus led to the paralysis of the whole network.

[15] According to Raymond Williams (1976), the term community became established in English in a range of senses. In particular, "from C17 there are signs the distinction which became especially important from C19, in which community was felt to be more immediate than society, although it must be remembered that society itself has this more immediate sense until C18. ... From C19 the sense of immediacy or locality was strongly developed in the context of larger and more complex industrial societies" (p.75). In particular, "the contrast, increasingly expressed in C19, between the more direct, more total and therefore more significant relationships of community and the more formal, more abstract and more instrumental relationships of state, or of society in its modern sense, was influentially formalized by Tönnies (1887) as a contrast between *Gemeinschaft* and *Gesellschaft*" (p.76).

moved from defining community in terms of space – neighborhoods – to defining it in terms of social networks" (Wellman and Gulia, 1999: 169).

Generally, virtual communities as a typical example of 'communities without propinquity' (Valentine, 2001: 118) are based on network-based communities rather than place-based communities (see Rheingold, 1993a, 1993b; Harasim, 1993b; Wellman and Gulia, 1999; Wellman, 2001a; 2001b; Hampton and Wellman, 2001). Furthermore, more recently, "the term 'community' has become almost synonymous with 'online group'" (Baym, 2002: 70). The rapid development of the Internet and computer-mediated communication increasingly enables spatially dispersed like-minded people to get together in virtual communities and to have communications with one another, regardless of the physical distance between them. "The computer network appears as a godsend in providing forums for people to gather in surprisingly personal proximity ... without the physical limitation of geography, time zones, or conspicuous social status" (Heim, 1991: 73). Ironically, "the desire to create 'virtual' communities over the web both points to the disappearance of 'real' communal relations ... and to the fact that humans desperately need a sense of belonging" (Stevenson, 1999: 167).

It seems that most of the debates as to the effects of on-line communities in virtual spaces on off-line communities in actual spaces arise from such different senses and definitions of community: place-based or network-based communities.[16] First, some argue that on-line communications bring about individualised and fragmented social relationships, especially in off-line local places or communities (see Heim, 1991; Robins, 1995b; Lajoie, 1996; Doheny-Farina, 1996; Foster, 1997; Kolko, and Reid, 1998; Kitchin, 1998a, 1998b; Crang, 2000a; Bauman, 2001; Gergen, 2002). They argue that social life in off-line local places or communities can be dissolved and distorted

[16] Interestingly, both 'dystopian' and 'utopian' visions of on-line communities argue that the other party depends on the ideal type of community. For example, in a dystopian perspective, McBeath and Webb (1997: 256) argue: "the structure of a projection of virtual community is a double movement of alienation from the 'real' everyday world of objectified culture into the atomised private life-world and then to the 'virtual' community world, an illusion as humanly rich as the ideals of community in the everyday world". In a utopian perspective, Kollock and Smith (1999: 16) claim: "when ... critics describe online communities as more isolated than 'real-life' groups, their comparison seems to be to an ideal of community rather than to face-to-face communities as they are actually lived. There is a great deal of loneliness in the lives of many city dwellers".

through individualised and fragmented networks in on-line communities. In this sense, Kitchin (1998b: 86) says that "Rheingold little speculates upon whether cyberspace will rapidly progress the degeneration of communities in geographic space as people search out public forums based upon individual personalities". Doheny-Farina (1996: 55) also argues that "the net can either enhance communities by enabling a new kind of local public space or it can undermine communities by pulling people away from local enclaves and toward global, virtual ones. The second trend is in ascendancy". As such, many critics negatively and sceptically perceive the effects of on-line community on off-line community in that on-line community is "contributing to processes that drain offline sociality of its remaining communality (by replacing, disembodying, mediating, increasing fragmentation)" (Slater, 2002: 536). For them, on-line communities are seen to result in the decline of local communities, public arenas or communal social life in urban society, identified by late nineteenth- or early twentieth-century social theorists such as Ferdinand Tönnies, Emile Durkheim and Georg Simmel and stressed by Sennett (1977) or Habermas (1989), accelerating the transformation of social space from *Gemeinschaft* into *Gesellschaft*.

However, for Howard Rheingold, Barry Wellman, Linda Harasim and so on, *Gemeinschaft* and *Gesellschaft* can be brought together into like-minded and public-based communities. They see communities as 'social networks' themselves which can be revitalised through electronic networks. As Rheingold (1993a: 5) puts it, "virtual communities are social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feelings, to form webs of personal relationships in cyberspace". For them, it does not matter whether on-line communities are based on local places or not. For some of them, it is hard to recover off-line communities we have lost in actual spaces. Instead, they believe that it is possible to find its alternative in on-line communities by "transcending and overcoming the fragmented and anomic character of contemporary offline life through the postmodern equivalent of utopian communities" (Slater, 2002: 536; see Toulouse, 1998). As Wellman and Gulia (1999) argue,

> "It is even possible that the proliferation of computer-mediated-communication may produce a counter-trend to the contemporary privatisation of community. In the

> twentieth century, community has moved indoors to private homes from its former semi-public, accessible milieus such as cafés, parks, and pubs. ... Yet virtual communities provide possibilities for reversing the trend to less contact with community members because it is so easy to connect online with large numbers of people" (Wellman and Gulia, 1999: 188-9).

Furthermore, Quarterman (1993) claims that on-line communities increase human connections and interactions not only in virtual spaces but also in actual spaces, refuting the argument that "networked communities are 'thin' communities in that they do not involve direct human interactions as in 'thick' communications" (p.12).

However, we need to be sceptical about such utopian communities in virtual spaces for some reasons. First, given that people in on-line communities can conceal their real identities through pseudonyms or avatars and have multiple virtual identities, it is difficult for them to share consistent social relationships (Kolko, and Reid, 1998; Webb, 2001). In addition, they tend to fall into solipsism in on-line spaces (Robins, 1995b; Foster, 1997), and "this denies that possibility of a genuinely democratic communicative exchange, where the individuality of the 'other' has to be engaged with" (Stevenson, 1999: 167). Second, just as people in on-line communities can easily connect with other people, so too they can easily disconnect with other people. Especially, as people in on-line communities tend to inhabit multiple on-line communities and to move easily from a community to another, it is difficult for them to feel a sense of belonging in a single on-line community (Crang, 2000a). Third, hierarchical social relations appear in gated on-line communities. As Schalken (2000: 162) observes, "getting accepted by the core group is usually considered an achievement and is in some communities even formalised in a hierarchy of levels. Thus in virtual communities we often find a social stratification that resembles that of real communities (in Internet slang this is referred to as *irl*)".

Finally, on-line communalities are in parallel with gated-communities in off-line spaces. That is, "the basis for community on the nets is the security afforded by the illusion of being in another world having left behind a troubling environment" (McBeateh and Webb, 1997: 256) and "virtual realms are seen as part of a strategy where the wealthy retreat into privatised enclaves that promise to keep the user from accidents of proximity that are the grist of living in places" (Crang, 2000a: 305). "The wish to leave body, time and place behind in search of electronic emulation of community does not accidentally intensify at a time when the space and time of everyday life have become so uncertain, unpleasant, and dangerous for so many – even if it is the people best insulated from risk who show the greatest fear" (Brook and Boal, 1995: ix, in Hagen, 2000: 60). As Skeates (1997: 15) states, "in Gibson's texts, it leads to the fight into cyberspace and attempts to colonise and privatise 'outer space'. In real terms it leads to the creation of more and more secured and private spaces, which in turn leads to a never-ending search for new territories to urbanise". In this sense, we can see the shift from off-line to on-line communities in terms of "a 'virtual flight', paralleling in cause and aim the 'white flight' from the inner cities and their problems to a more civilized – and ordered – suburbia" (Hagen, 2000: 59).[17] As Graham (1997b) puts it,

> "The urban middle classes have scattered to be 'cocooned' in suburban areas which have little genuine public space. Such suburbanites are increasingly paranoid about crime and the incursions of different social groups, leading to physical gates and electronic surveillance systems being installed, which furthers their isolation and fear. And so the cycle continues. In other words, 'virtual cities' in electronic spaces, based on systems like the Internet, with their informal 'electronic cafés' and interactive discussion groups, are an electronic antidote to the depressing reality of real urban life" (Graham, 1997b: 41).

Thus, on-line communities can be seen in relation to 'post-modern urbanism' observed by the California School (Soja, 1989, 1997, 2000; Davis 1990; Watson and Gibson, 1995; Scott and Soja, 1996; Dear and Flusty 1998). While being concerned with virtual cities, Geyh (2001: 104) suggests their two competing visions: "the city as fortress and scanscape, in which the spatial logics are those of control, containment, exclusion, and surveillance, and the city as polis, in which the logics are those of

[17] Explaining the formation and proliferation of on-line communities in relation to the process of the white flight or the formation of gated communities are inadequate in Korea where ethnic composition is almost homogeneous. Rather, it seems that on-line spaces or communities in Korea are mostly used by young people (not an elite group) as new socio-cultural spaces in their everyday lives.

freedom, access, equality, and interchanges". Although utopian communitarians such as Rheingold argue for virtual community as 'polis', their arguments also imply virtual community as 'fortress' in the sense that they see on-line communities as homogeneous territories where like-minded people get together. As Light (1999: 125) points out, "critics such as Mike Davis rightly attack the exclusions of electronic spaces. Cyberspace is heavily dominated by élite groups, yet often presented as if open to all; its privatised spaces presented as if they are public". Indeed, virtual urban landscapes in William Gibson's texts are not different from actual ones in Mike Davis' texts (see Featherstone and Burrows, 1995; Burrows, 1997; Kitchin and Kneale, 2001; Kneale and Kitchin, 2002; Kneale, 2003). In this regard, "virtual communities do not exist in a different world" (Robins, 1995b: 146), but rather "participants in the electronic virtual communities of cyberspace live in the borderlands of both physical and virtual culture" (Stone, 1991: 112).

3-4 Conclusion

We have seen two ways in which actual and virtual spaces are articulated in the urban matrix: vertical articulations in terms of the reciprocal and relational connections of global electronic spaces and local physical places, and horizontal articulations in terms of the technological and social constructions of virtual spaces/places as geographical metaphors for, or as geographical alternatives to, actual spaces/places. When we think about how and where actual and virtual spaces are articulated, we need to consider what is going on there. In this sense, I have suggested that we need to overlap two layers: the layer of actual-virtual spaces; and the layer of centripetal-centrifugal vectors. That is, the articulations between actual and virtual spaces need to be seen in parallel with the tensional relations between centripetal and centrifugal vectors. Here, I underline that virtual spaces are not transcending or overcoming actual spaces, but interconnected and interdependent with actual spaces, and are articulated with actual space not only technologically, but also socially. As Sassen (2000: 28) puts it, "digital space, whether private or public, is partly embedded in actual societal structures and power dynamics".

In this thesis, I explore not only how actual and virtual spaces or human and machine spaces are articulated with each other, but also how the tensional relations between centripetal and centrifugal vectors appear in actual-virtual or human-machine hybrid spaces. Chapters 6 and 7 explain the dual facet of national media spaces which are multiple and deterritorialised on the one hand, and centralised and reterritorialised on the other hand. Chapter 8 looks at how Internet cafés (PC Bangs) produce deterritorialised spatio-temporal boundaries in cities and involve territorialised socio-cultural boundaries through invisible social boundaries. Chapter 9 investigates how the Internet involves the symbolic conflicts between the deterritorialision and the reterritorialision of symbolic identities. Chapter 10 examines how cable TV makes peripheral/provincial cities/regions dependent on the central/capital city/region through its multiple networks, and local places linked to global space through simultaneously centrifugal and centripetal spatial-cultural networks. Finally, Chapter 11 looks at how mobile phones produce individualised and decentralised spatio-social networks which enable people to have new social networks on the one hand, and at the same time can be used as control networks through which people cannot avoid their existing social networks.

Chapter 4

Post-/humans' Bodies Wired up to Electronic Machines and Networks

One of the main concerns of this thesis is with how new media technologies blur the boundaries between humans and machines in the city and change human bodies, identities and boundaries in the hybrid city. For this, I here review the theories on these processes and effects. Recently, it is argued by some thinkers who are concerned with cyberculture that new technologies are bringing about a new cycle of revolution, producing a new kind of technological environment called 'third nature' and a new type of human beings, called 'post-humans'. These processes persuade us to rethink the human in human geography and to be concerned with 'post-human geography'. In this chapter, I explain the geographies of post-humans in which the boundaries between humans and machines are blurred, focusing on how electronic machines, screens and networks can transform human bodies, identities and boundaries. I address this question through looking at two types of post-humans. The first is visual 'avatars' as virtual bodies on the screen. Here, I explain four properties of their bodies and identities: multiplicity and fluidity; flexibility and reflexivity; fragmentation and ephemerality; and dis/embodiment. The second is tactile 'cyborgs' as human-machine hybrids. Here, after describing different images of the post-human, I explain them in terms of two kinds of processes. One is the implosion of humans and machines: the blurring of human-machine boundaries through human-machine networks. The other is the explosion of the human body: the dilating of human boundaries through human-machine networks.

4-1 Towards post-human geography: nature, humans and machines

Marvin (1988: 141) says that "perhaps men would be evolutionarily transformed in the process of adapting to an automated environment. … Nineteenth-century observers were especially interested in how men might change their biological constitutions or their ways of waging war in response to machine imperative". With the development of various technologies since the late twentieth century, technological environments have been dramatically transmuted, changing the ways in which humans exist, feel, think and interact. The development of state-of-the-art technologies in the sectors of informatics, electronics, cybernetics, genetics, biology, medical science and so on – for example, artificial intelligence, ubiquitous computing, info-technology, bio-technology, nano-technology, etc – has brought about a new kind of technological environment called 'third nature' and new kinds of human beings called 'post-humans'.

According to Luke (1995b: 27-30), nature has evolved through three stages: (a) 'first nature which is seen as having some cosmogenic or theogentic origins'; (b) the 'second nature of artificial technospheres'; and (c) the 'third nature of an informational cybersphere/telesphere'. Here, first nature gains its identity from the varied terrains forming the 'bioscape/ecoscape/geoscape of terrestriality'. Second nature finds expression in the 'technoscape/socioscape/ethnoscape of terrestriality'. Third nature assumes its forms in the 'cyberscape/infoscape/mediascape of telemetricality'. The third nature can be seen as a new technological environment in which "the vector of information begins to create a new terrain that will impose itself on top of the second nature of labor and its products" (Wark, 1994: 85). It is composed of 'bits' and 'nets' which result in "the collapse of the boundaries between the social and technological, biological and machine, natural and artificial" (Stone, 1991: 83). New technological environments make us perceive the emergence of new hybrid beings (between humans and machines), the importance of liminal experiences (on blurred boundaries), the significance of non-/human practices (combined with technologies) and the difficulty of representing or mapping the world because of increases in hybridity, liminality, mobility and fluidity.

We can observe that the ontological or ecological boundaries between humans and non-humans (especially, machines) are being blurred in new technological environments. In this course, instead of physical discourses which have dominated the twentieth century, there appear to be biological discourses in the twenty-first century. 'Post-humanism' can be seen as a kind of technocultural discourse which could be called 'techno-Darwinism' based on 'evolutionism'. Alternately, in the perspective of 'deconstructionism', some could argue that there has been no boundary as a matter of fact for the outset. This point can be seen as more reasonable to geographers who have mapped the relations between humans (culture) and non-humans (nature) for a long time (see Castree and Nash, 2004: 1342-3), although some could say that "geography ... has historically tended to relay up a series of binary oppositions (above all, perhaps, human/physical) (Badmington, 2004: 1345). In this sense, Bruce Braun (2004) offers two readings of post-humanism: as a form of 'deconstructive responsibility', and a type of 'ontological play'. The first is a deconstructive and critical (furthermore sceptical) perspective of humans and their boundaries against non-humans such as animals, like Jaques Derrida's critique of 'fundamental anthropology' that anxiously differentiates the human from the animal and Giorgio Agamben's critique of 'anthropological machine' which can be understood in a similar context. By comparison, the second is a creative and evolutionary perspective in terms of Donna Haraway's 'ontological choreography' or Manuel de Landa's 'open-ended becoming' of the world, and 'groundless ground' from which "the fixing of the human comes into view as a problem" (Braun, 2004: 1353). Drawing on the latter perspective, Braun (2004: 1354) argues that "the human has no essence, and never did, but is rather understood as in 'in-folding' of the world, an effect of ongoing and ceaseless ontological play" and suggests that "we have to forget about beginnings and ends, and instead attend to the middle – that place where everything happens, where everything picks up speed and intensity".

Recently, many have been concerned with how existing human beings evolve into 'post-human' beings through 'intimate organic-machinic relations' (Gray et al., 1995) or 'the silent merger of technology and biology' (Kroker, 1995) (see Haraway, 1991; Gray, 1995; Featherstone and Burrows, 1995; Halberstam and Livingston, 1995; Balsamo, 1997; Dixon and Cassidy, 1998; Luke, 1997; Hayles 1999; Law, 2000). It is argued that "developments in technology point towards the possibilities of post-bodies and post-human forms of existence" (Featherstone and Burrows, 1995: 2). Such post-humans are not beings which are far from everyday life. For example, as soon as we are connected through our mobile phones, we ourselves come to be changed into post-humans, and "as you gaze at the flickering signifiers scrolling down the computer screens, ... you have already become posthuman" (Hayles, 1999: xiv). As such, human bodies can be no longer seen as pure organic beings, but rather they are hybrid beings as 'human-machine hybrids' formed through the hybrid networks of 'human-machine networks'. Nowadays, people live in their everyday lives and cities, increasingly connected to not only fixed but also mobile technologies such as automobiles, mobile phones, digital cameras, MP3 players and so on. In a sense, new technologies (and combined with human practices) triggering the emergence of post-humans and their geographies can be seen as technological organs extending the human body beyond its biological boundaries and as what Foucault (1988: 18) calls 'technologies of the self' which "permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality".

Increasingly, many people as human-machine hybrids, desire to be connected (with also desires to be disconnected) with electronic machines and to change their bodies, identities and boundaries through their technological and social practices. Their bodies and identities are expressed in different forms and with various properties on electronic screens and their bodily boundaries and territories are changeable and malleable through electronic networks as artificial and alternative nervous systems. In such new technological environments, we need to make sense of how humans constitute themselves and their world in relation to non-humans (especially, technologies and machines). This can be understood in terms of 'post-human geography', which I suggest refers to geography beyond the geography called just 'human geography' and, as Whatmore (1999: 25) claims, attempts "to re-cognize the human in human geography", and, as Latour (in Crawford, 1993: 262) argues, seeks "to accommodate the nonhumans in the fabric of our society". Recent discourses on post-humans in the discipline of human geography persuade geographers to rethink what is the human in human geography. For example, in *Mapping posthumanism: an exchange* (*Environment and*

Planning A, 2004, volume 36), the contributors rethink the concepts and relations of humans and non-humans and suggest some implications for (human) geography. They particularly criticise Francis Fukuyama's (2002) *Our Posthuman Future* for his fundamental humanism drawing a boundary between humans and non-humans and his dependence on anthropocentric humanism involving a set of binary oppositions such as human/inhuman, self/other, natural/cultural and so on. Alternatively, they find a new perspective on the relationships of humans and non-humans in the British geographer Sarah Whatmore's (2002) *Hybrid Geographies* of which perspective makes us escape anthropocentric discourse.

Whatmore's (1997, 1999, 2002) 'hybrid geography' "is concerned with studying the living rather than abstract spaces of social life, configured by numerous, interconnected agents – variously composed of biological, mechanical and habitual properties and collective capacities – within which people are differently and plurally articulated" (Whatmore, 1999: 26). Importantly, 'hybrid geography' is about 'more-than-human' rather than 'post-human' geography. This is because, as she suggests, "it is what *exceeds* rather than what comes *after* the human" (Whatmore, 2004: 1361). Drawing on 'actor-network theory' suggested by Michel Serres, Bruno Latour, Michel Callon, and John Law and others, Whatmore (1999: 27-30) emphasises three interwoven aspects of hybrid geography: 'hybridity', 'collectivity' and 'corporality'. First, "the concept of hybridity as it is deployed by writers like Latour and Haraway seeks to implode the object/subject binary that underlines the modern antinomy between nature and society and to recognize the agency of 'non-human' actants" (Whatmore, 1999: 27). Second, "the notion of the hybrid collectif implodes the inside/outside binary which discerns social agency as an internal property of discrete, unitary individuals (including corporate individuals)" (Whatmore, 1999:28). This signifies open systems in which "there is no inside/outside distinction" (Latour, in Crawford, 1993: 257). Finally, "the broader significance of the body in social theory has been associated with the elaboration of various theories of practice which reassert, against the lexical cast of the cultural turn, the corporeal properties that condition the very capacities of cognition and communication that are the hallmark of conventional notions of social (human) agency" (Whatmore, 1999: 29). In forming and understanding the fabric of our society, the materialities and practices of hybrid and heterogeneous actors with collective and relational networks are more significant than (at least as much as) cognitive representations and linguistic competences which have been considered the distinctive abilities and unique characteristics of the Cartesian subject. All kinds of material practices can be interpreted as semiotic means by which actors communicate with each other, forming the fabric of our society and we understand their configurations. Therefore, it is not the case that '*there is nothing outside the text*', but rather '*there is more than the text*'. It is this 'materialist semiotics' that makes Whatmore's hybrid geography echo Thrift' non-representational theory.

Thrift's (1996b, 1997b 1999a, 2000) 'non-representational theory' is 'the theory of practices' (not 'the theory of representations'), epistemologically drawing on Heidegger's and Wittgenstein's philosophies. "Non-representational theory arises from the simple (one might almost say commonplace) observation that we cannot exact a representation of the world from the world because we are slap bang in the middle of it, co-constructing it with numerous human and non-human others for numerous ends (or, more accurately, beginnings)" (Thrift, 1999a: 296-7). In addition, "nonrepresentational theory is an approach to understanding the world in terms of effectivity rather than representation; not the what but the how" (Thrift, 2000: 216). The introduction of the theory relates to the appearance of a new kind of 'structure of feeling' (Williams, 1961), which is an ambiguous concept as much as 'non-representational theory', in a new technological age which generates 'the crisis of representation'. According to Thrift (1996b: 284), "it (the structure of feeling) is able to capture the importance and 'thisness' and 'liminality' of much new experience and, at the same time, the difficulty of representing it in theory and in practice". Until now, representations of the world (described by people and geographers) have been one of the most important subjects in the discipline of geography, whether their tools are texts, images or maps. More recently, many geographers and other researchers, however, began to realise that the world cannot be understood only in terms of representations and rather practices or performances have more significant effects on the world, doubting the boundaries between the subject (humans) and the object (non-humans) which have been taken for granted under the modernist way of thinking and representing. That is, they began to recognise "the inability of knowledge in social analysis to do anything other than hold onto, produce, and represent, the fixed and the dead; a failure to apprehend the lived present an *open-ended generative process*; as *practice*" (Harrison, 2000: 499). Thrift (1997b: 125-133) summarises the tenets of non-representational theory as follows. First, "non-representational theory is about practices, mundane everyday practices, that shape the conduct of human beings towards others and themselves in particular sites" (p.126-7). Second, "non-representational theory is concerned with the practices of subjectification (note the crucial 'ion'), not with the subject" (p.127). Third, "non-representational theory is always and everywhere spatial and temporal. It is spatial-temporal in three different ways" (p.129). Fourth and finally, "non-representational theory is concerned with technologies of being, 'hybrid assemblages of knowledge, instruments, persons, systems of judgement, buildings and spaces, underpinned at the programmatic level by certain presuppositions about, and objectives for, human beings'" (p.130).

The emergence of so-called post-humans through the co-evolutions of human bodies and electronic machines can be seen as one of the most outstanding landscapes of hybrid cities where the boundaries between actual and virtual spaces or human and machine spaces are being blurred. Many people, especially young people, are living cyborg lives in hybrid cities, reducing their physical constraints in virtual spaces beyond the screen or extending their bodies through electronic networks such as mobile phones. The activities and abilities of human bodies come to be dependent on the functions and capabilities of electronic machines and networks. In this course, it seems to be unwise to distinguish between subjects as human bodies and objects as electronic machines, for the two beings are interwoven with each other, deterritorialising themselves towards each other. The properties of their personal bodies and identities and the contours of their social interactions and relations are not neutral against such processes. In this sense, this chapter is concerned with the geographies of post-human beings, asking the most fundamental question: how are human bodies, identities and boundaries transmuted, while being wired up to such electronic machines? To address this question, I look at two types of post-humans. In the next section, I explain the characteristics of visual 'avatars' as virtual bodies on the screen in four properties: multiplicity and fluidity; flexibility and reflexivity; fragmentation and ephemerality; and dis/embodiment. In what follows, I turn to tactile 'cyborgs' as human-machine hybrids. After describing images of the post-human, I explain them in terms of two kinds of processes. One is the implosion of humans and machines: the blurring of human-machine boundaries through human-machine networks. The other is the explosion of the human body: the dilating of human boundaries through human-machine networks.

4-2 Avatars as virtual bodies on the screen

> "To the extent that the interface pulls the users into cyberspace, the frame seems to disappear. The transition into cyberspace, through interface, has been liken to Lewis Carroll's heroine Alice' journey through the looking-glass" (Lajoie, 1996: 163).

> "Cyberspace is like Oz – it is, we get there, but it has no location. ... Certainly there will be a shifting from the sense of territory, of being an inhabitant of an earthly system of values that includes roots, walls, and possessions, towards a radical adventure that blasts it all." (Stenger, 1991: 32).

4-2-1 Multiplicity and fluidity

Avatars through which people express themselves as visualised and digitalised self-images can be seen in terms of the 'second self' (Turkle, 1984) or the 'virtual self' (Kolko, 1999). One of the most fundamental characteristics of virtual bodies and identities as avatars is that they appear to be 'multiple' and 'fluid' like 'bits' (binary + digit), the technological minimum unit of the virtual world. "A bit has no color, size, or weight, and it can travel at the speed of light. It is the smallest atomic element in the DNA of information. It is a state of being: on or off. True or false, up or down, in or out, black or white. The meaning of the 1 or the 0 is a separate matter" (Negroponte, 1995: 14). Digital technologies can transform material landscapes in the analogue/actual world composed of atoms into immaterial landscapes in the digital/virtual world composed of bits and expanding indefinitely. That is, "in the network society, we are becoming bits, everything is becoming bits, and globalization is just being digital" (Luke, 2002: 524). As Moravec (1998) describes,

> "Today we take pride in storing information as densely as one bit per atom. ... The computer to human comparisons suggests that a human brain could be encoded in less than 10^{15} bits. If it takes a thousand times more storage to encode a body and surrounding environment, a human with living space might consume 10^{18} bits, and a large city of a million human-scale inhabitants might be efficiently stored in 10^{24} bits, and the entire existing world population world fit in 10^{28}" (Moravec, 1998: 89).

As such, the digital world composed of bits tends to be expressed quantitatively and dichotomously (as one and zero). Ironically, the digital world has the potential to transform qualitatively the world which has been perceived as binary and categorised into one/zero and being/nothing. In the digital world, zero does not mean emptiness (the less) and one does not imply fullness (the more). In Deleuze's (1998) sense, zero is like the virtual and one is like the actual. As the actual cannot be prior to the virtual, so one cannot be superior to zero. In this sense, cyber-feminist Plant (1996: 179, 1997: 51-57) says metaphorically about the changed meaning of zero in the digitalised world.

> "Digitalizaton sets zero free to stand for nothing and make everything work. The ones and zeros of machine code are not patriarchal binaries or counterparts to each other: zero is not the other, but the very possibility of all the ones. Zero is the matrix of calculation, the possibility of multiplication, and has been reprocessing the modern world since it began to arrive from the East. It neither counts nor represents, but with digitalization it proliferates, replicates, and undermines the privilege of one. Zero is not its absence, but a zone of multiplicity which cannot be perceived by the one who sees" (Plant, 1996: 179).

The digital world of 'bits' and 'nets' can be characterised by multiplicity and fluidity. In the digital world, "all that is solid melts into information" and "all that is information melts into hyperspace" (Novak, 1998: 26). In the digital world, virtual bodies and identities tend to be multiple and fluid (Turkle 1996; Bell, 2001; Kitchin, 1997; 1998a, 1998b). "Life in cyberspace is positively bursting forth in all directions" (Werthein, 1998: 57). For example, as we can see in on-line games or films such as *the Matrix*, virtual bodies can "be digitally reproduced infinitely in the same form (Green, 1997: 65)" and be transmuted continuously in different forms. In addition, through avatars in virtual spaces, one can have different his/her bodies at once and change instantly and constantly them into other forms. That is, in the digital world, "the self is reconstituted as a fluid and polymorphous entity. Identities can be selected or discarded almost at will, as in a game or a fiction" (Robins, 1995b: 138; see also Moravec, 1998: 88). People desire to have new virtual and digital bodies and identities different from their physical and biological ones, resulting in the 'decentring of the self' (Hall, 1992: 285; Bell, 2001: 135) or the 'decentered subject' (Turkle, 1996: 259).To borrow Frantz Fanon's (1986) *Black Skin, White Masks*,[1] this can be expressed as 'physical skin, digital masks'.

'Multiplicity' and 'fluidity' are the fundamental properties of virtual bodies and identities, which lead to other properties with positive or negative images. In general, while 'flexibility' and 'reflexivity' are explained with positive images of them, 'fragmentation' and 'ephemerality' are with negative ones. We need to recognise that overstated explanations, whether they have positive or negative images of virtual bodies and identities, are likely to be technological determinist, neglecting that bodies and identities are always already constructed in socio-cultural and spatio-temporal contexts.

4-2-2 Flexibility and reflexivity

Generally, the terms 'flexibility' and 'reflexivity' have positive images, for they are thought of as key strategic properties by which to adapt to a contemporary society based on disorganised social systems and individualised social relations (see Beck, 1992; Beck et al., 1994; Lash, 2003). Since the 1970s, while our society has been dependent on flexible economic and social systems in extremely compressed time-space (Harvey, 1989), the subject and self-identity have been increasingly fluid and

[1] The Internet can provide some implications for Fanon's postcolonial viewpoint. For Fanon, "the colonial regime's imposition of skin hierarchies not only defines the visibility of the body, and also territorialises the body" (Pile, 2000: 264), and this make people desire to have alternative bodies to make their natural bodies invisible. This desire can be found also in virtual spaces where people have 'invisible', 'dislocated' and 'deterritorialised' bodies (see Turkle, 1996). In addition, for Fanon, "the politics of location co-ordinates not only your place in the world, but also a wider set of connections with others, who may be in very different places, or indeed in the same place" (Pile, 2000: 275). The Internet enables alternative 'local-global' networks as political strategies (see Sassen, 2001; Sassi, 2000; Adams, 1996; Fredrick, 1993), like in the case of the Zapatistas in Chiapas, Mexico (Castells, 1997b, 2000a; Froehling, 1999).

fragmented (see Giddens, 1991; Hall, 1992). In these changes, individuals also need to be flexible and reflexive to adapt to and survive in such a rapidly changing society. Drawing on Ulrich Beck's *Risk Society*, Lash (2003: 52) says that "the subject related to today's fragmented institutions ... has moved from a position of reflection to one of being reflexive". "Reflexive ... has more to do with reflex than reflection. Reflexes are indeterminate. They are immediate. They do not in any sense subsume. Reflexivity ... is characterized by choice" (Lash, 2003: 51). Here, while the term 'reflection' relates to the Cartesian subject of simple modernity or the Kantian subject of determinate judgement, the term 'reflexivity' relates to the subject of second or reflexive modernity.

Bodies and identities in virtual spaces can be characterised by such flexible, reflexive or reflective subjects. For example, drawing on Emily Marin's (1994) *Flexible Bodies* seeing flexibility as the immune system of the body, Turkle (1996) stresses the significance of multiple and flexible identities in virtual spaces.

> "In the past, the immune system was described as a private fortress, a form, stable wall that protected within from without. Now we talk about the immune system as flexible and permeable. It can only be healthy if adaptable (p.253) .... Today, people are being helped to develop ideas about identity as multiplicity by a new practice of identity as multiplicity in online life ... The many manifestations of multiplicity in our culture, including the adoption of online personae, are contributing to a general reconsideration of traditional, unitary notions of identity" (p. 260).

Concerning gender swapping or MUDs [Multi-User Dungeons], Turkle (1996: 213-4) says that "gender-swapping is an opportunity to explore conflicts raised by one's biological gender. ... MUDs are grounds for an action-based philosophical practice that serve as a form of consciousness-raising about gender issues". What Turkle argues is that virtual spaces make people reflexive or reflective on themselves or others and understand others having different social and cultural situations. While taking on alternative bodies and identities in virtual spaces, people can experience and understand different social and cultural contexts.

Individuals tend to have their own distinctive social practices and cultural tastes in terms of Pierre Bourdieu's (1990) 'habitus'. However, virtual spaces make individuals free from such 'embodied' habitus to some degree, decoding their bodies and identities coded by disciplinary ideologies and technologies which define social or sexual identities (see Foucault, 1978). In this sense, virtual spaces can be seen as the space of resistance, "teasing open new holes in the world" (Plant, 1995: 183) and rejecting the monopolistic voice of officialdom or authority. In fact, "the history of cyberspace is the history of hackers" (Shields, 1996: 10). As Heim (1991: 13) states, "when on line, we break free, like the monads, from bodily existence. Telecommunication offers an unrestricted freedom of expression and personal contact, with far less hierarchy and formality than is found in the primary social world". In this sense, virtual spaces can be seen in terms of Bakhtin's (1984) 'carnival' or 'second' world. As Shields (1996; see also 2003) puts it,

> "The experience of loss, and thus of rupture and transformation, highlights the carnivalesque qualities of computer-mediated communication. Irreverent parody, wit and corrosive criticism, and experiments wit text layout, upend the oppressive domination of content by the medium and technology. On the screen, the textual narratives appeal to bodily emotions and desires and to the off-line agency of actors. In so doing, they subvert the apparent suppression of agency, dependence on the terms of computer technology, and the users' unacknowledged dependence on corporate telecommunication giants" (Shields, 1996: 7-8).

We, however, need to recognise that calling for these flexibility and reflexivity sees bodies as malleable, absorbable or negotiable, and sees technologies as transcending and overcoming social and cultural situations as well as physical and biological conditions. As Green (1997: 61) says, "technology becomes purely digital, and can thus be rendered as a-social and a-cultural. A circular and self-fulfilling argument can only result: the digital bodies represented in digital worlds are created through technologies which are already outside social relations, and will therefore transcend those relations". We need to keep in mind that bodies and identities are already constructed socially and culturally and contextualised temporally and spatially. We need to see how virtual bodies and identities can be freed from or restricted by social and cultural constraints at the same time, considering the tensional relations between the two possibilities.[2]

4-2-3 Fragmentation and ephemerality

While 'flexibility' and 'reflexivity' are viewed with the positive images of virtual bodies and identities, 'fragmentation' and 'ephemerality' are seen as negative images of them, appearing to be centrifugal at individuals. That individuals can have multiple bodies and identities in virtual spaces means that their bodies and identities come to be fragmented and ephemeral. What is important here is that although one's multiple virtual bodies and identities could exist in his/her singular physical body at the same time, they are difficult to unify and sustain in his/her physical or biological body space. This means that his/her body and identity come to be spatially fragmented and temporally ephemeral. More importantly, such fragmentation and ephemerality of virtual bodies and identities can undermine their flexibility and reflexivity by which they can live together with others in virtual spaces. As Kolko and Reid (1998) argue,

> "On-line personae are not spatially integrated, and from the individual's point of view there can be a definite psychological disjuncture between the experience of being one persona and of being another. This psychological disjuncture is permitted by the discrete nature of on-line spaces. Various on-line social spaces may overlap in the real-life identity of participants, but on-line personae cannot be readily unified by others as being operated by one physical individual. This lack of integration does not allow much flexibility for negotiation in interaction with other on-line personae" (Kolko and Reid, 1998: 219).

Furthermore, "the crisis of self-identity is more than a personal (that is, psychological) crisis" (Robins, 1995b: 142), for the 'crisis of identity' at an individual level can lead to the 'crisis of community' at a collective level in virtual spaces. The fragmentation and ephemerality of bodies and identities make social relations in virtual

[2] In Chapter 9, I will deal with the tensional relations as one of the research questions, which have appeared in the symbolic or linguistic landscapes in virtual spaces in South Korea.

communities loose and temporary and thus virtual communities fragile and weak. People in virtual spaces tend to be little aware of what or how they do and say to other people or what or how others see and think about them. Webb (2001: 560) explains this in terms of 'avatar culture': "avatar culture binds people together temporarily and loosely and then frees them up to relocate themselves elsewhere" (Webb, 2001: 560). As individuals in virtual spaces not only have multiple self-identities but also inhabit multiple on-line communities, it is hard for them to have a constant sense of belonging to community or to have steady relationships with other people. "The most obvious feature of computer-mediated communications is that it allows communications between people who are spatially dispersed" (Slater, 2002: 535; Rheingold, 1993). However, "the dispersed nature of virtual geographies further imperils the fragile ability of the multiple and fragmented self to contribute to community continuity" (Kolko and Reid, 1998: 220). It can be argued then that the dispersed and dislocated spatiality of virtual spaces or communities makes virtual bodies and identities more fragmented and ephemeral and thus makes virtual communities less stable and consistent. As Kolko and Reid (1998: 221-2) put it, "selves must be locatable geographically to be firmly embedded in a cause-effect relationship. As the tourist may behave destructively when removed from the social constraints and responsibilities of home ground, so the virtual persona lacks social responsibility when ties to place are displaced".

However, we need to recognise that such critiques of virtual bodies and identities in dispersed spaces and communities is based on essentialism "inherited from the Enlightenment's figuring of the Cartesian subject" (Bell, 2001: 114) or on orthodox Freudian psychoanalysis which assumes a robust executive ego (Turkle, 1996: 259). Such fundamentalisms mean that individuals should have centripetal bodies and identities. To avoid such an essentialist perspective, we need to accept "a social constructivist perspective (which), contra essentialism, stresses the temporal and spatial locatedness of identity, as well as identity as a process" (Bell, 2001: 114) and in which "the essence of this self is not unitary, nor are its parts stable entities" (Turkle, 1996: 261). According to Bridge (1997: 623), "the increasing diversity of networks to which we are exposed in modernity are argued to dislocate identity (an argument that goes back to the urbanisation literature and feelings of urban anomie) or to enhance it". It seems that Kolko and Reid or Webb are in the first perspective following the tradition of modern urban theorists lamenting shattered communities or alienated anomic cities (like Tönnies or Simmel). Here, bodies networked to multiple on-line communities come to lose their cohesive, coherent and inherent identities. In the latter perspective, White (1992) suggests that "identities confined to single circumscribed networks cannot be seen as having fully developed personhood", and similarly Sennett (1996) argues that "the social homogeneity and enclosure in suburbs leads to a childlike naive psychology about others" (in Bridge, 1997: 623). It can be argued that virtual spaces can provide people with opportunities to have diverse, multiple and intermeshing networks.

4-2-4 Dis/embodiment

'Dis/embodiment' or im/materiality is one of the most debatable and paradoxical properties of virtual bodies and identities. "Disembodiment signifies that a person's online identity is apparently separated from their physical present" (Slater, 2002: 536). Mitchell (1995) defines the replacement of the corporeal by the incorporeal as one of the properties of the city of bits. Disembodiment makes people free from both situated temporal and spatial constraints and given physical and biological conditions. "The physicality of human bodies is effaced, people are disembodied by an infinitely mutable play of digital signs and codes which represent a subjective consciousness prised from its necessary location in an organic body" (Green, 1997: 61). "If we type ourselves into being in cyberspace, ... we can make and remake who we are endlessly, liberated from the meat of our RL (real life) bodies" (Bell, 2001: 116). Thus, virtual spaces can be represented as "a social space free of the constraints of the body" (Kitchin, 1997: 154).

Although virtual spaces can be characterised as disembodied, it is doubtful whether virtual spaces could be fully free from the realms of bodies, at least genders. Many argue that gendered landscapes cannot disappear in virtual spaces or realities (Balsamo, 1995, 1997; Argyle and Shields, 1996; Vasseleu, 1997). This is in part because "we do not know how to behave in a gender-free environment. Once we travel beyond the frame of a gender-bounded reality we are in an uncharted realm" (O'Brien, 1999:87). In spite of the disappearance of physical and biological bodies in virtual spaces, we need to recognise that the "disappearing body is not a post-human body-without-gender"

(Balsamo, 1995: 233). Although we can be disembodied in virtual spaces, it is hard for us to be outside gendered territories. There are the paradoxical landscapes of the body in virtual spaces: disembodied, but still gendered landscapes. We can see this paradoxical landscape in Stratton's (1997: 253-4) description of William Gibson's (1984) novel *Neuromancer*.

> "Gibson's imagery is saturated through with an anxiety over gender relations and the loss of the body as a site of the construction of identity. The cowboys and jockey who jack into the networks, or 'matrix,' as Gibson calls it, are male. As its name suggests, the matrix itself is female. It is simultaneously mother and lover. In the image, womb and vagina are conflated and the male who disappears into the matrix, leaving his body behind, succeeds in fulfilling the desire that, Freud argues, makes the woman's genitals uncanny: he returns 'home.' The price of this fulfillment is the loss of the body".

Stratton's explanation reminds us of 'the Imaginary' of Jacques Lacan. In a sense, virtual spaces can be seen in terms of the Symbolic: "like the Symbolic governed by the Law of the Father, Cyberspace forces users to abandon desire for the mother/material, in favour of the matrix" (Lajoie, 1996: 163). However, it seems that virtual spaces are like the Imaginary where people are connected to the mother/matrix, as Stratton describes. As Springer (1991: 306) states, "the pleasure of the interface, in Lacanian terms, results from the computer's offer to lead us to into a microelectronic Imaginary where our bodies are obliterated and our consciousness integrated into the matrix" (in Lajoie, 1996: 162). The Imaginary of Lacan can be characterised by 'spatiality', 'visuality' and 'duplicity' (Gregory, 1997: 211-2), and these features are not different from the properties of virtual spaces. The screen is like the mirror, and virtual space is like the Imaginary. Just as people identify their visual images in mirrors with themselves, so too they can identify virtual images as their virtual avatars on computer screens with themselves, in pursuit of the object of desire in virtual spaces.[3]

[3] I will further discuss virtual spaces in terms of the Imaginary in Chapter 9 in which I also explain virtual spaces in terms of Bahktin's carnival worlds.

What is important here is that Lacan's Imaginary is a gendered space. This is because the space of the Imaginary is based on 'masculinism' or 'phallocentrism' in that males are subjects and females are objects and males are full and females are empty (Blum and Nast, 2000). In addition, the space of the Imaginary is based on 'ocularcentrism' in that "within the Imaginary, space is hierarchically organized and structured in terms of a centralized, singularized point-of-view by being brought under the dominance of the visual"(Grosz, 1990: 38, in Gregory, 1997: 212). These landscapes of the Imaginary are also not different from those of virtual spaces or reality where visual and optical technologies are used to achieve masculinist and panoptic desires and to transcend the physical limits of the body through a mind-body split (see Penny, 1994; Robins and Levidow, 1995; Hillis, 1996; Broughton, 1996). "Much of the work of cyberspace researchers, reinforced and perhaps created by the soaring imagery of William Gibson's novels, assumes that the human body is 'meat' – obsolete, as soon as consciousness itself can be uploaded into the network" (Stone, 1991: 112-3). "This cybernetically achieved transcendence – as reflected in the 1980s cyberpunk desire to leave the body or meat behind and floating as pure data in cyberspace – is also a vehicle for merging a hyper-individuated modern consciousness into a large whole" (Hillis, 1996: 71).

Disembodiment (or mind-body disconnections) in virtual spaces can be made possible through two kinds of 'human-machine connections': 'body-machine connections' and 'mind-machine connections'. This means that virtual spaces are still embodied or gendered spaces for two reasons. The first is because disembodiment can be achieved through 'body-machine connections', and this point signifies that virtual spaces are still embodied spaces. In order to enter virtual spaces or realities, people should be sensually connected to various technological interfaces such as terminals, screens, keyboards, mouse and so on, or use technological prostheses such as helmets, glasses, gloves, suits and so on. As Vasseleu (1997: 57) puts it, "the aims of many who are investing in virtual environments are being directed towards the legitimation of fantasies of disembodied mastery and eradicated corporal limits in the shared imaginative universes of their creation. But this fantasy is bound to the bodies it excludes". The second is because disembodiment means 'mind-body disconnections' through 'mind-machine connections', and this point implies that virtual spaces cannot be free from gendered spaces. The screen can be explained as a kind of sieve through which only the mind with transcendent abilities can pass, while the body with physical constraints cannot enter. This point is very ironic and paradoxical. That virtual spaces are disembodied spaces where only mind is permitted and meat is left beyond means that virtual spaces cannot be seen as disembodied spaces. For the mind-centred spaces can be seen as the Cartesian world, based on the modern Western dualism of mind and body, where males are included and females excluded. As Elizabeth Grosz (2005: 48) states, "Descartes distinguished two kinds of substances: a thinking substance (*res cogitans*, mind) from an extended substance (*res extensa*, body); only the latter, he believed, could be considered part of nature, governed by its physical laws and ontological exigencies. The mind, the thinking substance, the soul, or consciousness, has no place in the nature world". Green (1997) points out very properly why virtual spaces cannot be disembodied spaces in terms of genderless spaces.

> "Technologies take humans beyond the boundaries and limitations of their organic physicality, extending their senses and enabling activities otherwise impossible. Feminist philosophers and social theorists have explicitly examined this ideal as masculinist; that is, the imagined bodies of scientific and technological rationality are constructed around the assumption of a masculine embodiment. From this point of view, virtual realities are imaginaries in which individuals can act from a point of disembodied consciousness, leaving their bodies behind" (Green, 1997: 66).

Until now, I have argued that virtual spaces produce embodied and gendered spaces through human-machine connections. I want to say that the geographies of post-humans on the screen cannot be free from gendered landscapes.[4] Such human-machine hybrids as avatars, visual post-humans on the screen, are developed further into cyborgs, tactile post-humans. In order to understand their post-human geographies, I turn to cyborgs as human-machine hybrids.

[4] I will explore embodied and gendered post-human landscapes with reference to gamers in Internet cafés (PC Bangs) (see Chapter 8) or mobile phone users (see Chapter 11).

4-3 Cyborgs as human-machine hybrids

"The 'arts of existence' … by which men not only set themselves rules of conduct, but also seek to transform themselves, to change themselves in their singular being, and to make their life into an *oeuvre* that carries certain aesthetic values and meets certain stylistic criteria" (Foucault, 1985: 9-10)

"By the late twentieth century, our time, a mythic time, we are all chimeras, theorised and fabricated hybrids of machine and organism; in short, we are cyborgs. The cyborg is our ontology; it gives us our politics. The cyborg is a condensed image of both imagination and material reality, the two jointed centres structuring any possibility of historical transformation" (Haraway, 1991: 150).

4-3-1 Images of the post-human: upgraded or downgraded?

People have envisioned grotesque bodies, which are neither purely humans nor non-humans (animals or machines), from ancient Greek myths to Western modern novels. However, in the age of pre-cybernetic machines, "there was always the spectre of the ghost in the machine" (Haraway, 1991: 152) and such hybrid landscapes were still based on the hierarchical dualism between humans and non-humans. However, with technological developments associated with computer technology, artificial intelligence, cybernetics, robotics, artificial life, and more recently nanotechnology in the late twentieth century, there have been changes in such hybrid landscapes in both imagined and lived spaces. As Haraway (1991: 152) argues, "late twentieth-century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines". That is, post-human beings as 'human-machine hybrid' began to appear (Featherstone and Burrows, 1995) or 'hybrid human-machine system' (Stelarc, 1998), called shortly 'humachine' (human + machine) (Luke, 1997) or more widely 'cyborg' (cybernetic + organism) (Haraway, 1991) which "is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as creature of fiction" (Haraway, 1991: 147).

According to Gray et al. (1995: 3), the technologies of cyborg have come largely from four centres. "Most have military origins, although civilian medical research has become almost as important a source. The other major centers of actual cyborg creation are entertainment (print, film, games, and action figures) and work (the computer industry, certainly, but also the cybernetization of all industry)". Among them, it has been strongly argued that cyborgs owe their births to military origins. For example, "the concept – and the reality – was created originally within the strategic logic of (partially militarised) space travel where it was imagined that altered human bodies would better sustain interplanetary or (in its more ambitious forms) interstellar travel" (Law, 2000: 7). As Haraway (1991: 151) states, "their main trouble with cyborgs ... is that they are the illegitimate offspring of militarism and patriarchal capitalism, not to mention state socialism". Such cyborgs have been depicted as opposing images (negative or positive), in cyberpunks, sci-fi animations or sci-fi films such as *Blade Runner*, *Total Recall* or *Minority Report*, with regard to the effects of cyborgs on humans and societies.

On the one hand, there are negative and apocalyptic images in which the appearance of cyborgs leads to the disappearance of human bodies or the end of humankind. Cyborgs are depicted as creatures, "displacing humanity through a evolutionary process leading first to a cyborg/human assemblage, and ultimately to extinction and replacement of the human altogether" (Lenoir, 2002: 204). As Virilio argues, "just as the geographic world was colonized by means of transportation or communication, we have the possibility of a colonization of the human body by technology" (in Der Derian, 1998b: 20). As Vasseleu (1997: 56) says, "the site of reproduction is relocated from the maternal body to the matrix of cyberspace". Furthermore, "the whole trajectory of life on Earth is pre-programmed for us to develop new creatures (intelligent machines) that will come to usurp and dominate us (exactly the narrative played out in films such as *the Matrix*, of course)" (Bell, 2001: 146). In addition, as "new cyborgs are ... more than metal and flesh; they come to life in the presence of data" (Schuurman, 2004: 1337), worries and fears appear about the 'society of control' (Deleuze, 1997). For example, even Fukuyama who saw info-technologies as tools with liberalist effects in capitalism in *The End of History and the Last Man* (1992) sees bio-technologies in terms of 'bio-catastrophe' with anti-democratic or anti-human effects in *Our Posthuman Future* (2002). It can be argued then that "the networked cyborg that has already arrived is responsible not for the dawn of a new utopia, but for massive downgrading of career and life options, immense and perhaps irreversible ecological damage, and global injustice" (Cubitt, 1998).

On the other hand, there are positive or emancipating images in which cyborgs are depicted as messiah-like beings, eliminating dichotomistic categories which have defined hierarchical boundaries, territories and identities. This is at the heart of what Haraway (1991) calls a 'cyborg politics' (p.150), which is a kind feminist strategy 'through coalition – affinity, not identity' (p.155), that is, a 'politics of affinity' (Marsden, 1996: 12). Haraway argues that "we should take pleasure in the confusion or transgression of these boundaries and the potent fusions and possibilities they offer" (Valentine, 2001: 59). That is, cyborgs are seen to lead to the abolishment of hierarchical worlds, and instead, the formation of the hybrid world where different humans in terms of genders and races and non-humans in terms of animals and machines are coexistent through hybrid networks. Here, the post-human such as cyborgs "participates in re-distributions of difference and identity" Halberstam and Livingston (1995: 10) and is "conductive to the long-range survival of humans and of the other life-forms, biological and artificial, with whom we share the planet and ourselves" (Hayles, 1999: 291).

However, we need to ask whether the world of cyborgs could really be free from gendered landscapes, based on hierarchical or patriarchal relations. "Despite the arguments of theorists such as Donna Haraway that cyborgs are androgynous entities that render gender boundaries meaningless, this is effectively irrelevant when you look at actual cyborg texts" (Holland, 1995: 165). In actual cyborg films, while the boundary breakdowns between humans and technology are enthusiastically explored, 'gender boundaries are treated less flexibly', with cyborgs tending, in fact, 'to appear masculine or feminine to an exaggerated degree' (Springer, 1991: 308, in Holland, 1995: 165). Indeed, in many cases of sci-fi films (e.g. *Terminator* or *RoboCop*), male cyborgs have been characterised as prototypical masculine images having very forceful and transcendent abilities. It is also true that in many cases, female cyborgs are not free from archetypal feminine images, although they are also sometimes represented as powerful and combative (Figure 4-1). What is clear is then that the world of cyborgs is still a male-dominated masculinist society. Although Haraway's (1991: 150) argues for the 'post-gender world' of cyborg where modernist categories, relations, boundaries, territories and identities are broken down by human-machine hybrids, we need to bring into question Haraway's post-gender world.

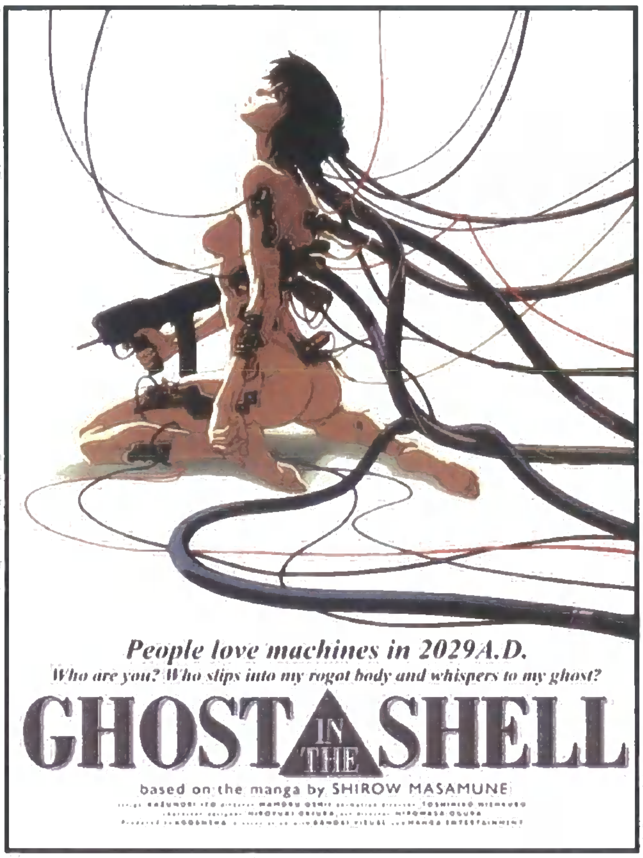

Figure 4-1 An image of a female cyborg
Note: From *Ghost in the Shell*, a Japanese animation

4-3-2 The implosion of human and machines

As human bodies are increasingly connected to electronic machines in their everyday lives, "human life and technology are produced through, or folded into, each other in complex ways. ...... Instead of there being an interface between humans and technology, they become entwined as hybrids" (Dodge and Kitchin, 2005: 169). In this process, "much of the human world has been on automatic, has expanded beyond the immediate influence of bodies and has made its way into machines" (Thrift and French, 2002: 311), and as a result, "the capacities of bodies have been extended in numerous ways by the new technologies" (Thrift, 1996b: 289) which involve "the ongoing production of space as one of transduction in which performativity is one component, and the salience of objects and nonhumans another" (Dodge and Kitchin, 2005: 172). These processes mean that hybrid or fractal 'beings' (more exactly, 'becomings') appear, neither pure humans nor machines. Such human-machine hybrids can be seen in terms of 'open systems', where it is impossible to draw a boundary between the subject (observer) and the object (observed) or between system and environment, explained in terms of the 'cybernetic' system (Weiner, 1948) or 'autopoietic' system (Luhmann, 1995). That is, "in marked contrast to the classical paradigm of the closed, conservative system premised upon equilibrium thermodynamics, cybernetic systems are complex, feedback-controlled systems, responsive to the flows of matter and energy that pass or dissipate through them" (Marsden, 1996: 7; see also Hayles, 1999; de Landa, 1998). In such cyborg landscapes based on the open systems of human-machine hybrids, we can observe two basic processes or changes in the boundaries of human bodies: the implosion of humans and machines and the explosion of the human body. The former can be understood in terms of Haraway and the latter in terms of McLuhan.

The implosion of humans and machines can be understood in terms of the blurring process of human-machine boundaries through human-machine networks or in terms of the deterritorialising process of human bodies into electronic machines and vice versa. There have been some explanations about how ontological boundaries on modernist dualism are blurred. Hayles (2000: 84) discusses the demise of ontological boundaries in terms of 'cybernetic theory': "fusing cybernetic device and biological organism, the cyborg violates the human/machine distinction; replacing cognition with neural feedback, it challenges the human-animal difference; explaining the behavior of thermostats and people through theories of feedback, hierarchical structure, and control, it erases the animate/inanimate distinction". Drawing on 'actor-network theory', Law (2000: 7-8) explain cyborgs as hybrids in three ways, suggesting cyborgs as alternative networks to functional networks. A cyborg is a 'fleshy-machinic hybrid' and 'a hybrid which lies between science fact and science fiction", and finally it is 'more than one but less than many'. And, Haraway (1991: 151-153) suggests three crucial boundary breakdowns making the image of cyborgs possible in the standpoint of 'feministic politics': the boundaries between 'human and animal', between 'animal-human (organism) and machine', and between 'physical and non-physical'. Boundary-blurring processes between humans and humans can be seen in terms of 'co-evolution' (Haraway, 2003) or 'a-parallel evolution' (Deleuze and Gatutari, 1987) between humans as 'quasi-subjects' and machines as 'quasi-objects' (Latour, 1993).

These processes signal that humans are entering into a new kind or stage of human evolution, for "in this implosion, organisms lost their ontological privilege to genomes" (Haraway, 2003: 70). The post-human revolution means that "evolution through natural selection is over – the 'natural' body cannot get any better on its own, so the net evolutionary step is to meld carbon and silicon" (Bell, 2001: 143). Stelarc (1998: 116), an Australian performance artist, argues that our bodies need to be move from the 'psycho-biological' realm to the 'cyber-technological' realm. That is, human bodies come to encounter 'post-evolutionary' imperatives: "it is no longer of any advantage to either remain 'human' or evolve as a species. Evolution ends when technology invades the body" (Stelarc, 1998: 118), and "the body becomes hollow with no meaningful distinctions between public, private, and physiological spaces" (Stelarc, 1998: 120). This process persuades us to rethink the ontological figurations and meanings of our bodies being pierced and penetrated by electronic wires. It is not pertinent any more to see the body as a coherent and cohesive organic being. Rather instead, it seems to be more reasonable to regard it as a fluid and fractal becoming. More importantly, this ontological transmutation of the body leads us to encounter phenomenological problems, challenging the freely floating subject through the separation of mind from the body. That is, it seems to be inadequate to see the human subject in terms of the Cartesian subject or the Heideggerian Subject, both of which are based on mind-body dualism. What and how we see, feel, think and understand the world could be considerably different and changed according to the extent to and the way in which our bodies as human-machine hybrids are connected to electronic machines and networks. That is, it is the body itself that plays an important role in perceiving the world, and "it is the body that allows mediated space to be experienced sensorily, precisely as space made wearable" (Hansen, 2002: 370). This viewpoint of the body is somewhat different from some models, including Descartes', regarding the body "in terms of metaphors that construct it as an instrument, a tool, or a machine at the disposal of consciousness, a vessel occupied by an animating wilful subjectivity", and "as a possession, a property of a subject, who is thereby dissociated from carnality and makes decisions an choices about how to dispose of the body and its power" (Grosz, 2005: 50). Rather, as Thrift (1996b: 289) argues, the human subject is called to enter into "what Merleau-Ponty calls 'the flesh' of the world, a mutually tactile space in which the body and the world communicate with each other in a doubled and crossed situating through which both body and world are ramified". Concerning the body in cyberspace, Harvey (1996: 281) articulates this in 'relational' terms: "it is, perhaps, wise to consider how transitions in the definitions of space and time through changing social processes are effecting changing conceptions of the body and consequently of identity, particularities, and where the human body resides in the scale of things". In order to understand the communication and ramification between the body and the world, we turn to the explosion of the human body in terms of the dilating of human boundaries.

4-3-3 The explosion of the human body

Humans have increased their mobility for a long time in human history, and more recently, the mobility of human bodies has been more radically increased through human-machine networks. This process means not only increases in the physical mobility of human bodies across geographical space through transportation machines and vehicles, but also the extension of the body through human-machine networks.

> "Our own bodily technology evolved toward mobility, and we have used technology to augment it. We are at the wheel of our car, our control panels in front of us,

> regulating our own private environment, And cars and driving are not the only area in which we increase control of transportation – we effectively increase it via the new technologies of communication, by using fax machines and e-mail" Jones (2001: 64-65).

As such, human-machine hybrids can be understood in terms of the explosion of the human body as the dilating process of human boundaries through human-machines networks and as the deterritorialising process of human boundaries towards the world through the replacement of the physical boundaries of the human with its sensory boundaries. This involves the blurring of boundaries between the body and the world as well as between the body and the machine. That is, human-machine hybrids can be seen in terms of McLuhan's (1964) thesis of the 'extensions of man' in the 'global village' (see Zylinska, 2002).[5] In McLuhan's understanding, "technology is an 'extension of biology': the expansion of the electronic media as the metaphor or environment of twentieth-century experience implies that, for the first time, the central nervous system itself has been exteriorized" (Kroker, 1995). A cyborg is "an extended system – merely to sustain a self, but to enhance operation and initiate alternate intelligent systems" (Stelarc, 1998: 121), and a "technologically extended organism: the body that ends at the furthest point of the radius of action of its sensors and remote-control devices, linking biological rhythms and a media universe crossed by information flows" (Palumbo, 2000: 23). In this system, "the relevant boundaries for interaction are defined less by the skin than by the feedback loops connecting body and simulation in a technobio-integrated circuit" (Hayles, 1999: 27). Thus, we can see such human-machine hybrids in terms of the deterritorialised body which Deleuze and Guattari (1987) call a 'body without organs' (not organs without a body). In Deleuze and Guattari's terms, "the body-without-organs was the body that was so plugged into the rest of the world that there were no longer definitive boundaries between Self and Other. The body-without-organs was a deterritorialised body" (Everard, 2000: 46). "The surface that in Deleuze and Guattari's words becomes deterritorialized, also becomes hypertactile" (Stone, 1995: 398). These processes are facilitated with the emergence of mobile or

[5] McLuhan's thesis of the 'extensions of man' have implicitly and explicitly given crucial insights to geographers who are concerned with the ways in which transportation and communication technologies result in the extended boundaries of the body (Janelle, 1973; Adams, 1995, 2000; Kwan, 2000, 2002; Townsend, 2000).

wearable technologies. Drawing on Lucy Schuman' concept of the 'amplified body', as Callon and Law (2004: 9) put it, "technologies such as cell phones are not best thought of as extensions to the body. Instead they are organs, integrated into the body. ... They have become wearable, and what is worn" (Callon and Law, 2004: 9). "The wearable computer beings to function as a true extension of the mind and body, and no longer feels as if it is a separate entity" (Mann, 2002: 7, in Thrift, 2004a: 183). Already, many of our intelligent and sensual (tactile, optical and auditory) organs or nervous systems are connected to electronic networks such as the Internet, the mobile phone, the Walkman and so on. We can see such electronic devices as electronic prosthetic circuits which can function as parts of our bodies and organs and extend our bodies. When the circuits are absent, missing or broken down, and thus our bodies cannot be connected to or extended through the circuits, we feel frustrated.

What is ironic is that as human bodies are connected with electronic machines, particularly, what Virilio (1998d) calls the 'vision machine', what Virilio (1998c) calls 'polar inertia' appears. Virilio (2000: 46) says that "the body of the witness becomes the unique element of stability in a virtualized environment". In other worlds, "the age of the vision machine is the age of 'polar inertia', in the sense that the poles on a globe stand still as the globe spins. Thus bodies stand still as light is moving" (Lash, 2002: 58). This means that the body comes to be increasingly fixed in given sites, instead information or signs circulate around the body through electronic networks.

4-3-4 Cyborg society and urbanisation

When we say that the organic is increasing imbricated in the technological, becoming a cyborg, we can ask this question: "what is technological specially? What are the technologies with which bodies are mixed?" (Fraser and Greco, 2005: 24). There are various levels and forms of cyborgs as human-machine hybrids according to levels of technologies: for example, 'hi-tech cyborg' and 'low-tech cyborg' (Hess, 1999). The former is a cyborg with technologies called 'exotic' technologies, and the latter is a cyborg with technologies called 'mundane' technologies (Michael, 2000, in Fraser and Greco, 2005: 24). When it comes to cyborgs, we often tend to envision characters – as hi-tech cyborg – which appear in sci-fi films such as Steven Spielberg's film *AI* or George Lucas's film *Star Wars*. However, "the cyborg is not only fiction or image but also partly fact. (Valentine, 2001: 58) in that "almost everyone in urban societies could be seen as a low-tech cyborg, because they spend large parts of the day connected to machines such as cars, telephones, computers, and of course, televisions" (Hess, 1995: 373). As Gray et al. (1995: 3) argues, "even if many individuals in the industrial and post-industrial counties aren't full cyborgs, we certainly all live in a 'cyborg society'. Machines are intimately interfaced with humans on almost every level of existence". It is in this sense that Haraway claims that "the physical implosion of the 'natural' and the 'technical,' materially-semiotically speaking, is a normal, everyday, earthly fact" (Haraway, 2003: 70), and that "we are all chimeras, theorized and fabricated hybrids of machines and organism; in short, we are cyborgs" (Haraway, 1991: 150).

We can perceive that our bodies are increasingly connected to mechanical or electronic machines in cities, and observe that our cities are filled with cyborg spaces, and furthermore are planned and constructed for cyborg spaces, resulting in 'cyborg urbanisation' (Graham and Marvin, 2001; Chatzis 2001; Gandy 2005). For example, in the case of automobiles, they produce new kinds of hybrid spaces, burring the boundaries between human and machine spaces and between public and private spaces, beyond forming 'machine space' as an 'automobile territory', observed by Horvath (1974), in physical cities. As Sheller and Urry (2000: 739) put it, "the car-driver is a 'hybrid' assemblage, not simply of autonomous humans, but simultaneously of machines, roads, buildings, signs and entire cultures of mobility" (see also Thrift, 2004c). Such automobiles can be seen in terms of 'intelligent environments' in which "the boundaries between human and inhuman could be redescribed" (Thrift, 2003: 390) and "programs have increasingly come to be framed as environments in their own right, motivated by quasi-biological principles" (Thrift, 2004b: 464). In addition, automobiles tend to reconstitute or dissolve the boundaries between public and private spaces, especially facilitating the use of public spaces for private purposes, though this does not mean the end of public spaces (Sheller and Urry, 2000, 2003; Sheller 2004). As Sheller (2004) states, "as the automobile system and information and communication technologies converge into hybrid 'cybercars' traveling through 'intelligent cities', there seems to be even greater scope for an intensification of such privatisation processes at the expense of public life". This expansion of private spaces in public spaces through such technological machines can be seen as the extension of personal bodies' boundaries and territories. Likewise, mobile phones, more popularly used by people than cars, also produce such cyborg spaces in which the boundaries between human and machine spaces, between public and private spaces and between absent and present spaces are blurred. Mobile phones can be thought of as typical 'mundane technologies' which brings into being 'low-tech cyborgs' in our everyday lives and cities.[6]

However, we also need to recognise that cyborg society and urbanisation is not homogenous to all kinds of people, but rather produce polarised or fragmented landscapes in that all peoples' bodies are connected to or extended through electronic networks. Here, we need to understand that cyborgs are not only produced technologically but also constructed socially in terms of the 'social construction of scale' (Marston, 2000) in that "none of these new scale formations is socially neutral" (Swyngedouw, 1997b: 168). What is important for my purpose is that "the primary physical site of personal identity, the scale of the body is socially constructed" (Smith, 1993: 102).[7] It has been argued that different bodies in terms of male/female, young/older, rich/poor, white/coloured, heterosexual/homosexual and normal/disabled bodies have different mobilities across time-space because they have different social, cultural, economic and institutional abilities and constraints. For instance, as Thrift (1985: 388) notes, "working-class life-spaces are even now predominantly local: a local school is followed by a local job. Middle class life-spaces are more spatially extensive: a local school may be followed by a university in a different location and then a job somewhere else again". Or, as Rose (1993: 75-6) states, "only white heterosexual men can usually enjoy such a feeling of spatial freedom. Women know that spaces are not necessarily without constraint; sexual attacks warn them that their bodies are not meant to be in public spaces, and racist and homophobic violence delimits the spaces of black and lesbian and gay communities".

[6] See Chapter 11 which is concerned with the landscapes of bodies-with-mobiles.

[7] In fact, to see the body and its scale in terms of 'social construction' as well as 'technological construction' may be regarded still as the heirs of Cartesianism which sees the body as a passive tool or object (Grosz, 2005: 50).

Likewise, we need to recognise that what kinds of bodies in terms of genders, generations, classes, races and so on are more likely to be connected to electronic machines and more mobilised through electronic networks across time-space. This problem is related to the reciprocal, reflexive and reproductive relations between physical and electronic spaces. As Graham and Marvin (1996: 191) make a point, "inequalities in physical and electronic space tend to be mutually reinforcing. ... Affluent social elites working in transnational corporations tend to have intense physical mobility as well as an intensive use of electronic spaces". In this sense, we need to "connect the geopolitics of flow with the spatialities of urban change and the 'personal extensibilities' of the body through the prostheses of electronic technologies" (Graham, 2001b: 409).[8] Furthermore, we need to recognise that the human body can be composed of different kinds of boundaries – physical, sensory and social boundaries – and to pay attention to how such different boundaries can be changed in different ways. As Heim (1991: 74) puts it, "what technology gives with one hand, it often takes away with the other. Technology increasingly eliminates directs human interdependence. While our devices give us greater personal autonomy, at the same time they disrupt the familiar networks of direct association". Heim's statement means that although the sensory boundaries of the body could be extended through human-machine networks, the social boundaries could be shrunk through the replacement of human-human networks with human-machine networks. This process produces a kind of 'non-place' (Augé, 1995). Amin and Thrift (2002: 45) call this kind of space a 'post-social and post-human' community: "as software and other technological entities become more prominent in cities, so the notion of the relationship, and of sociality, needs to be disassociated from its fixation on human groups".

[8] In this context, I will explore how new media technologies result in cyborg society and urbanisation and change the boundaries of the human body in Korean cities such as Seoul, which appears as a new electronic node of the global space of flows. In particular, I will look at various demographic, gendered and bodily post-human landscapes in order to know what kind of human bodies in terms of generations or genders, and what kind of boundaries of human bodies in terms of sensory and social boundaries, are extended or shrunk through electronic machines such as the Internet or the mobile phones in cities in Korea.

4-4 Conclusion

In this chapter, I have been concerned with the geographies of post-humans in a new technological environment where human bodies are increasingly connected to electronic machines and as a result, the boundaries between them come to be gradually blurred. I have explained such post-human landscapes, focusing mainly on how human-machine networks change human bodies, identities and boundaries. I have argued that the geographies of post-humans are not only technological but also social. Many have argued that human-machine networks give us the potential to escape hierarchical or patriarchal relations, mainly drawing on McLuhan's (1964) thesis of the 'extensions of man' or Haraway's (1991) manifesto of the 'post-gender world' of cyborgs. However, I bring into question such utopian visions, neglecting existing bodily, social, cultural and institutional inertia. Rather we need to see how the technological and the social intersect each other, producing hybrids landscapes in the 'middle kingdom' (Latour, 1993: 77).

In this thesis, I explore the ways in which human bodies, identities and boundaries are changed through new media technologies. Chapter 8 investigates what gendered landscapes Internet cafés (PC Bangs) entail in a kind of cyborg city and what effects they have on the sensory and social boundaries of the body. Chapter 9 examines how the Internet changes the boundaries of the human body through on-line interactions and enables people to have multiple and fluid bodies/identities on the screen, causing tensional relations with social, cultural and institutional constraints. Chapter 10 explains how the networks of cable TV extend the boundaries of the experiences of human bodies and deterritorialise local places where human bodes dwell towards global spaces through its technological and cultural networks. Chapter 11 looks at how mobile phones produce bodies-with-mobiles as human-machine hybrids, making them act as nodes in techno-social networks and how the devices change the boundaries of the human body and make mobile users desire to be connected to or disconnected from their mobile machines.

Chapter 5

Methodological Background

5-1 Case study areas and focus

The following chapters deal with macro-level (chapters 6 and 7) and micro-level research (chapters 8 to 11). The macro-level research focuses on how new media spaces have been produced and configured at a national level, as an analytic unit, in relation to the articulations of national and global techno-economic spaces. The macro-level research is approached in two temporal-spatial dimensions. One is a temporally diachronic and spatially vertical dimension where I explain how national media spaces have been transformed from mass media spaces that are 'integrated' and 'territorialised' at a national level, into new media spaces that are 'multiple' and 'deterritorialised' at global, national and local levels through the 'scalar fixes of techno-economic spaces' in capitalism in the perspective of 'territorial scale' approaches. However, this does not mean that the scales of new media spaces are absolute or fixed, but rather it should be noted that their scales are conceived, imaged or ideological spatial concepts. This point is more underlined in the micro-level research. The other is a temporally synchronic and spatially horizontal dimension where I illuminate how national media spaces are organised into new media spaces 'centralised' and 'reterritorialised' in the capital city/regions as the centre of new media spaces, and how the capital city recreates its centrality in new media spaces through the 'network politics of dis/connections' in the perspective of 'relational network' approaches.

The micro-level research as an empirical study is concerned with how new media spaces have been fabricated in cities through the development and use of new media technologies such as the Internet (and Internet cafés), cable TV (combined with satellite networks) and mobile phones. I focus on how the boundaries between various binary categories such as time/space, actual/virtual, human/machine, social/technological, global/local, public/private and so on are blurred in cities by new media technologies and people's everyday practices, employing post-structuralist concepts such as Latour's actor-networks, Deleuze and Guattari's rhizomes and Haraway's cyborgs (see Chapter 1).

For this, I examine large cities in Korea where new media technologies are more actively used by people, more dynamically blurring the boundaries between various binary territories in the cities than in medium-sized and small cities or rural areas. Two large cities, but with different local settings, were selected as case studies: Seoul in the capital region as a core region in Korea and Daegu in the southeast region as a sub-core region in Korea (Figure 5-1). Strictly speaking, the research is not a watertight or balanced comparative study of Seoul and Daegu, although I sometimes compare their different, relative or relational landscapes in the course of the research. In fact, in the cases of the Internet and cable TV, I tried to focus on both of the two cities in a more or less balanced way. However, in the case of Internet cafés, I looked at Seoul more closely than Daegu, and in the case of mobile phones, I looked at Daegu more closely than Seoul. Rather, what I would like to identify through cases studies of the two cities – the capital/central city (Seoul) and the provincial/peripheral city (Daegu) – are not only their generalities or specificities, but also the 'power-geometries' of 'network-mediated spaces'. For example, cable TV has been often regarded as a local media which enables cities or places to have their own autonomous, independent and democratic networks at a local level, and thus can form centrifugal, decentralised and heterarchical networks at a national level. Through case studies of Seoul and Daegu, we can make better sense of how cable TV has substantial effects on the central/capital and peripheral/provincial cities through cable-mediated spatial power networks (see Chapter 10). This kind of power-geometry of network-mediated spaces can also be found in the case of KII [Korean Information Infrastructure] (see Chapter 7).

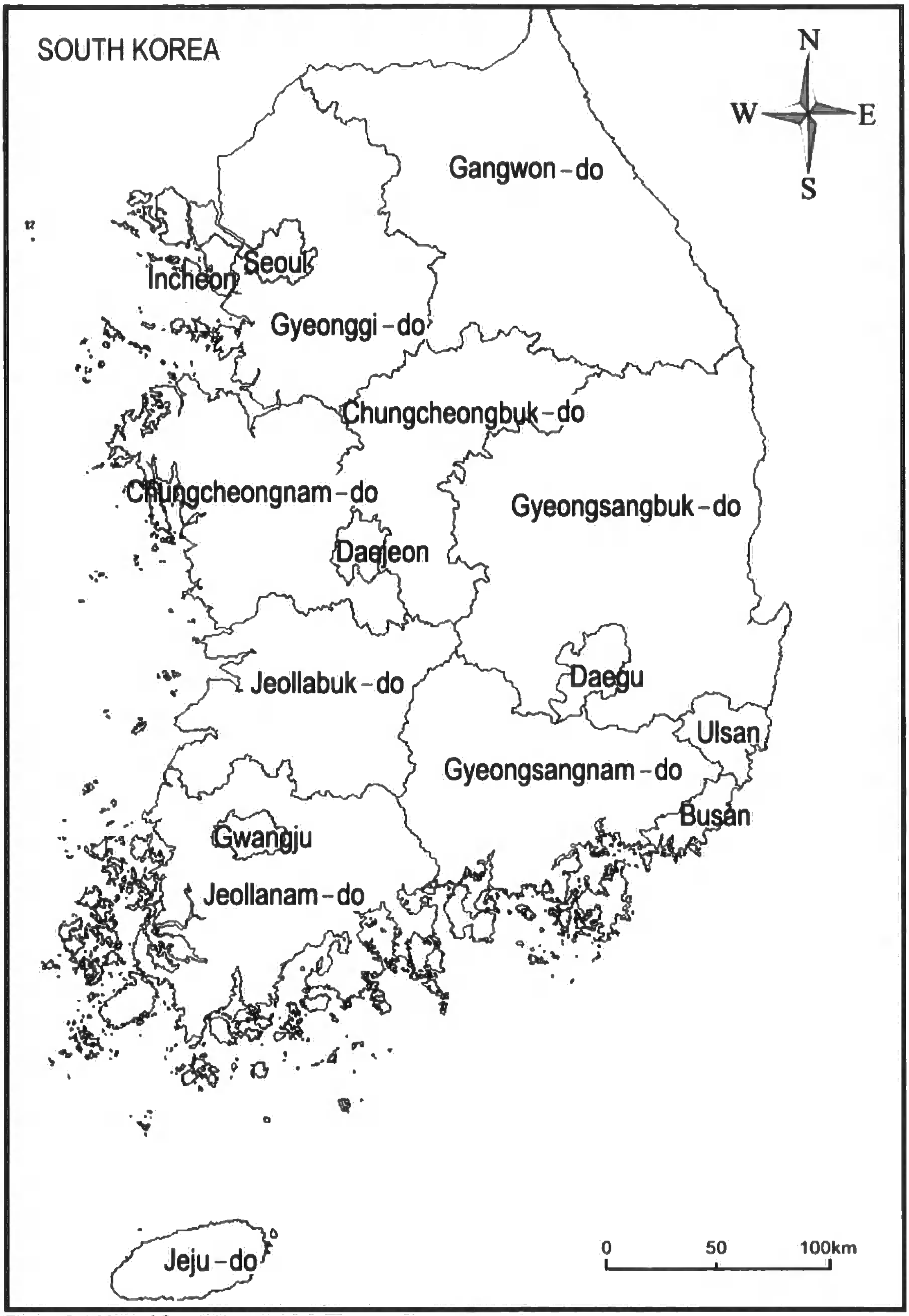

Figure 5-1 Map of South Korea

Here, it would be helpful to briefly describe the local situations and settings of Seoul and Daegu. Seoul, the capital city of Korea, is the absolute centre in not only physical but also electronic national territories. Most of the political, administrative, economic, social or cultural functions, facilities and activities of Korea are highly concentrated in the city and its surrounding area, the capital region which is composed of two large cities (Seoul and Incheon) and a region (Gyeonggi-do). For example, according to the Ministry of Commerce, Industry and Energy, Korea (2003), 46.6 per cent of the total population, 47.1 per cent of GRDP [Gross Regional Domestic Product], 80 per cent of the largest 500 companies' head offices, 66.7 per cent of research and development institutes are located in the capital city region. In terms of the spatial division of labour, a dual spatial division of labour appears within/between sectors in that while the capital region is where corporations' head offices and high-tech industries are concentrated, the southeast region is where corporations' branch factories and heavy and chemical industries are located.[1]

Furthermore, the city is also the centre in new media spaces. Electronic networks and infrastructures, media-related economic or cultural activities, high-tech electronic industries and Internet domains are concentrated in the city, and a high percentage of populations use new media technologies and devices such as the Internet or the mobile phone. Recently, the local government has been attempting to construct new mediascapes or technoscapes in the city (for example, the construction of the Teheran Valley where venture businesses related to IT are concentrated and wired and wireless broadband network infrastructures are well established, and the project of the Digital Media City as a new urban space for multimedia, cultural or IT industries). Indeed, Seoul is like a black hole in electronic spaces as well as physical spaces in Korea.

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[1] The industrial restructuring in Korea in the 1980s has changed national economic space. For example, it has brought about the 'intensified spatial division of labor' in Korea in that the capital region has been more specialized in high-tech industrial activities and R&D activities, whereas the rest of the country has been more specialized in the nonhigh-tech industrial sector (Park, 1993). As a result, it has produced a new flexible economic space in the case of the Seoul metropolis through the new regime of accumulation of post-peripheral Fordism (Cho, 1997).

Table 5-1 Comparison of Seoul and Daegu

	Seoul	Daegu
Population (in 2000)	9,853,972	2,473,990
Area	$605.52km^2$	$885.61km^2$
Main Industry	Electronic	Textile
Percentage of Internet users [A]	58.2%	45.2%
Percentage of Mobile phone users [A]	60.0%	49.9%
Number of PC Bangs [B]	5,758	1,497
Number of Cable TV outlets [C]	32	12

Source: [A] Korea Network Information Center (2001) (as of June 2001), [B] Korean Game Development and Promotion Institute (2002) (as of June 2001), [C] Korean Broadcasting Commission (2002b) (as of June 2002)

By comparison, Daegu is the third largest city of the largest seven cities (Seoul, Busan, Daegu, Incheon, Gwangju, Daegeon and Ulsan) in Korea and is the second largest city in the southeast region of Korea, which is composed of three large cities (Busan, Daegu and Ulsan) and two regions (Gyeongsangnam-do and Gyeongsangbuk-do). The city is one of the most conservative cities politically, socially and culturally in Korea, and has been as the centre of the textile industry in Korea for a long time, and more recently, the local government has tried to restructure the city into the city of fashion and design. While the textile industry has stagnated, the local economy of Daegu also has been depressed for a long time. Although Daegu is the third largest city in Korea, there are few spectacular mediascapes or technoscapes, compared with Seoul. In addition, although there are the numbers of cable TV outlets or Internet cafés (PC Bangs) more or less suitable to the size of the city, Daegu has a low percentage of households connected to the Internet and people using the Internet or the mobile phone, compared with other large cities (Table 5-1).

However, this does not mean that there no technocultural spaces in Daegu. We need to understand that the ways in which technocultural landscapes appear between Daegu and Seoul are just different. That is, while Seoul involves the new media landscapes of production and consumption, Daegu entails only the new media landscapes of consumption. As I said above, this research is not a watertight and balanced comparative study the central/capital city (Seoul) and the peripheral/provincial city (Daegu) with different local settings. However, this does not mean that the two case study areas were explored separately. Rather, while being concerned with what webs of spatial power networks have been formed between the two cities through various network-mediated vectors, I explore the power-geometries of network-mediated spaces which have been configured through centrifugal and centripetal vectors (especially, see Chapter 7 for the national information infrastructure] and Chapter 10 for cable TV).

This research focuses on young people in their 20s in Seoul and Daegu, especially university (or college) students. They have been described as the 'N-generation' (Tapscott, 1999), and they began to appear as a new social class in Korea in the late 1990s when new media technologies and networks such as the Internet or the mobile phone began to be developed and proliferated rapidly. While the life of previous generations was analogue and off-line, that of the N-generation is digital and on-line. Recently, many academics have shown much interest in the digital life of such young people – especially, teenagers – who are connected to electronic media or information technologies such as video/computer games (Funk and Buchman, 1996; Buckingham, 2001), mobile phones (Kasesniemi and Rautiainen, 2002; Henderson, Taylor and Thomson, 2002), the Internet (Tapscott, 1999; Holloway and Valentine, 2003) and other media technologies (Howard, 1998; Hutchby and Moran-Ellis, 2001).

In particular, criticising adults' biased viewpoints of children's use of the Internet, based on technological determinism (whether pessimism or optimism), Valentine, Holloway and Bingham have explained how children's use of the Internet is embedded in their mundane and everyday lives through the interrelations of off-line and on-line worlds (or the interrelations between private and public spaces) (Bingham, Valentine and Holloway, 1999; Valentine, Holloway and Bingham, 2000, 2002; Valentine and Holloway, 2001a, 2001b, 2002; Holloway and Valentine, 2001a, 2001b, 2003). What we can know from their studies of children's Internet use in their homes or schools is that we need to observe the behaviours, thoughts, attitudes and feeling of certain social groups in relation to Internet use in the perspective of 'emic' (from insider's view), not in the perspective of 'etic' (from outsider's view), although "it is almost impossible to find terms which are not in some way a combination of the two" (Crang, 1997a: 187). This point provides significant insight into my research of the ways young people in Korea use new media technologies such as the Internet or the mobile phone in their everyday lives.

Although many researchers have drawn attention to how young people like teenagers or children use information and communication technologies, there has been scant attention to young people in their 20s who are generally categorised as adults. In fact, it is young people in their 20s that are most active in multimedia spaces or technocultural spaces. In Korea, they use more and better new media technologies such as the Internet or the mobile phone more than any other social group, and are more sensitive to, more accustomed to and more engaged in new media technologies and spaces than any other demographical or social group (Table 5-2). It is for this reason that young people mainly in their 20s, especially university (or college) students, were selected as a research group in this research.

Recently, in the discipline of cyberpsychology, some researcher have paid attention to university or college students' behaviours in relation to Internet usage, for example the differences between male female users (Odell et al., 2000; Sherman et al., 2000), the differences between them and other social groups (Zhang, 2002) and their addiction to the Internet (Chou, 2001). In this research, much of my concern is with the 'cyberpsychogeographies' of young people linked to electronic machines and networks and inhabiting virtual spaces and realities in the hybrid city where the boundaries between actual and virtual spaces and between human and machines are blurred. In other words, the research is a study of 'psychogeography experienced by any truly wired person' and 'a mental map of the city of his or her situational experiences' (Novak, 1998: 23), formed by new media technologies which produce not just the physical- and material-landscapes of spectacular, superficial, visual and virtual images but also the social- and psycho-landscapes of bodies, identities, feelings and emotions in cities.

Table 5-2 Percentages of Internet and mobile phone users by sex and age

Age	Internet		Mobile phone	
	Male	Female	Male	Female
7-19	88.6	86.5	21.5	29.4
20-29	86.2	74.0	90.0	75.8
30-39	62.2	45.7	92.1	47.2
40-49	41.5	22.7	84.5	38.4
50-59	19.0	7.6	64.2	24.8
60-	4.7	0.4	27.8	5.4
Average	58.7	44.6	65.7	39.2

Source: Korea Network Information Center (2001: 264 and 266) (as of June 2001)

5-2 Research schedule, data and methods

Data were collected for this research through both quantitative methods (statistics books or questionnaire surveys) and qualitative methods (off-line and on-line semi-structured or unstructured interviews, participant observation, visual image analysis and time-diary analysis). In order to collect such data, the research fieldwork was conducted mainly in 2002 for the use of Internet and Internet café and in 2003 for cable TV and mobile phone use (Table 5-3). In July 2002, in order to collect primary data for the macro-research as to the development of new media spaces in Korea (see Chapters 6 and 7), I conducted literature surveys, collecting (off-line or on-line) official or (unpublished or informal) non-official data related to the Korean government' policies or plans for national informatisation, and the Seoul metropolitan government's projects or plans for urban informatisation, and collecting various statistics or other data related to the Internet and other new media technologies. Much of the official and collective data collected and used for the research comes from various white papers, statistics books and other official data released by some important national institutes: for example, the Ministry of Information and Communication [MIC], the Ministry of Culture and Tourism [MCT], the National Computerization Agency [NCA], the Information Culture

Center of Korea [ICCK], the Korea Network Information Center [KRNIC], the Korean Information Society Development Institute [KISDI] and so on.

In particular, concerned with Seoul's urban strategies to make itself a digital city not only physically or technologically but also imaginarily or ideologically, I critically interpreted various off-line and on-line (textual and visual) data collected from the Seoul metropolitan government, while being careful not to be subject to ideological and strategic 'ways of seeing' (Berger, 1972). Here, my interests were in how the city creates an imaginative digital city through not only representations or discourses but also practices or performances such as festivals, contests, broadcastings, narratives, images and so on and in how citizens come to perceive and represent such an urban image socially and ideologically constructed through such institutionalised practices and collective imaginations (see Chapter 7). Especially, analysing image maps of Seoul as visual or aesthetic data through a 'visual method' as a kind of qualitative method in geography (Bartram, 1993; Rose, 2001; Crang, 2003), I looked at the circular, recursive or reflexive relations between the city and its image and between the city-maker (image-maker) and the city-viewer (image-viewer).

In order to find more detailed data (not informed by official data released by various related institutes) on university students' behaviours, attitudes or thoughts in relation to the use of the Internet and locales such as Internet cafés in their everyday lives (see Chapters 8 and 9), I conducted questionnaire surveys as a quantitative method, with the capacity to gather information from large samples (McLafferty, 2003: 98), of 400 university students (100 males and 100 females in Seoul and Daegu each). I also used semi-structured interview surveys, as one of the most commonly used qualitative methods (Kitchin and Tate, 2000: 213; Longhurst, 2003: 118), from September to October in 2002. In fact, I collected more than 400 questionnaires but adopted exactly 400 for the convenience and efficiency of calculation and comparison, excluding questionnaires filled in incompletely or inadequately. It was important to decide the period of surveys, because in the case of students, their spatial and temporal patterns related to the use of the Internet in their everyday lives could vary between academic terms and holiday seasons. I began to carry out my surveys in September when the second academic term in most universities in Korea begins (the first academic terms begins in March). In the questionnaire surveys, my concern was mainly with the temporal and spatial patterns of Internet use, especially related to on-line interactions such as e-mails, BBS [Bulletin Board Systems], on-line chatting and on-line gaming in different urban locales such as homes, universities and Internet cafés. In addition, in the interview surveys, my concern was mainly with the relationships between actual and virtual spaces/identities, and thus, I asked them about how they think of the effects of virtual spaces on their everyday lives in actual spaces and vice versa, and about the ways in which they express and use their virtual identities in virtual spaces, especially drawing on a kind of 'psychoanalysis method' in terms of 'the mutual constitution of visual images and spectators' (Rose, 2001: 105).

Table 5-3 Fieldwork timetable

	2002	2003
July	• Literature surveys of the Korean government' policies for national informatisation and the Seoul metropolitan governmet's projects for urban informatisation • (non)official data collection of the Internet and other media	• On-line participant observation of and on-line in-depth interviews of Internet users • Literature surveys and (non)official data collection of cable TV and the mobile phone
August	• Literature surveys of Internet cafés (PC Bangs), and (non)official data collection from and Interview with the Korean Internet PC Culture Association	• (non)official data collection from and Interviews with the Korean Cable TV Association, cable TV SOs [System Operators] (in Seoul and Daegu) and cable TV PPs [Programme Providers]
September	• Participant observation of Internet cafés, and interviews with Internet café users (in Sinchon, Seoul)	
October	• Questionnaire surveys of and semi-structured interviews with Internet and Internet cafés users (in Seoul and Daegu)	• Interviews with and time-diary surveys of mobile phone users (in Daegu)

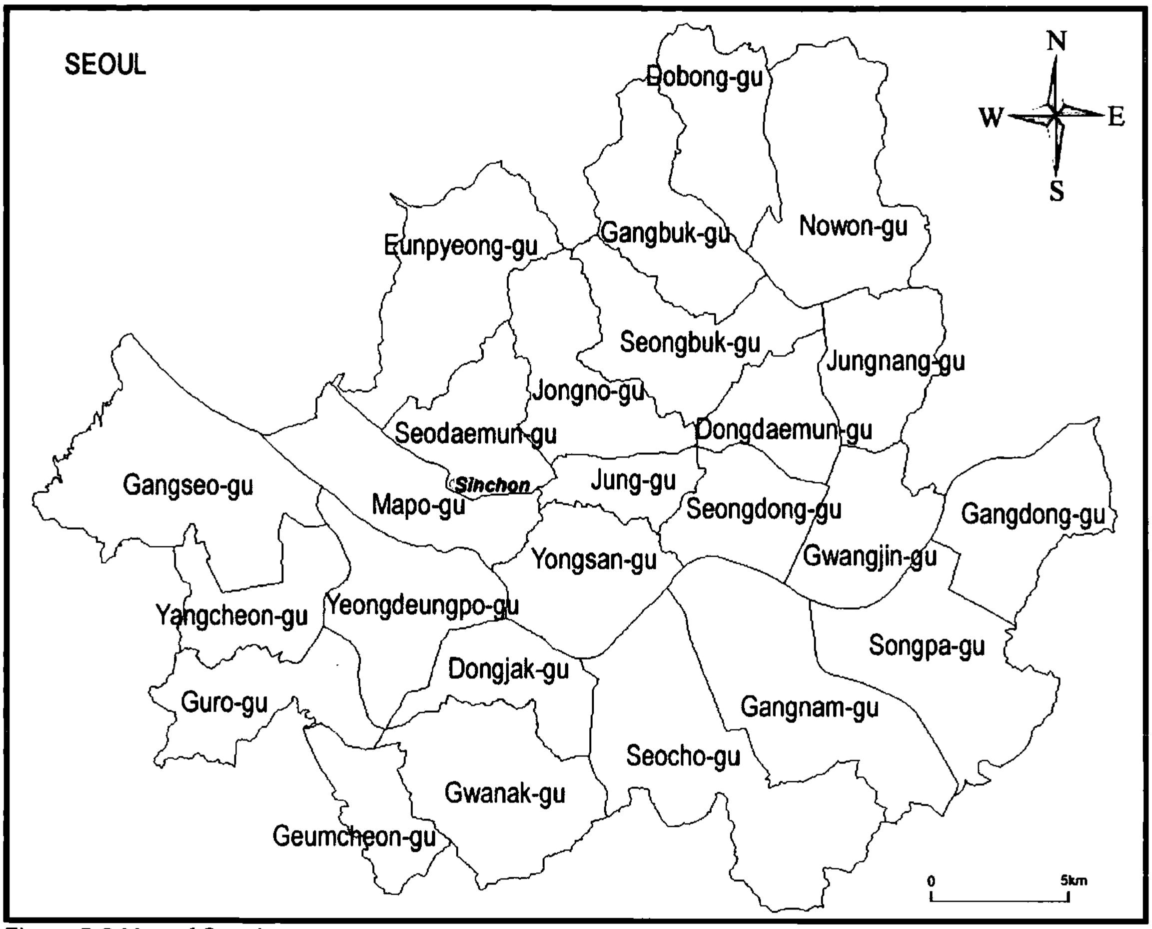

Figure 5-2 Map of Seoul

Before a deep case study of Internet cafés (PC Bangs) in Korea (see Chapter 8), I first interviewed the staff of the Internet cafés association of Korea (called the Korean Internet PC Culture Association) in order to know the development, situation and context of Internet cafés in Korea, and collected (un)official data from them. Then, for a deep case study of Internet cafés, I went to Sinchon, located in the western part of Seoul as one of the sub-centres of the city (Figure 5-2), which is a quarter where some universities and colleges are located, and one of the typical consumption cultural spaces for young people in Seoul. Of course, the most important reason why I selected Sinchon is that there are many Internet cafés distributed along streets and around universities. From September 2002, I surveyed various Internet cafés and their street landscapes and their users and owners in Sinchon through qualitative methods such as participant observation and interview surveys. I intensively observed the circadian landscape of an Internet café called *Lemon PC Zone* in Sinchon for 24 hours from 18:00, 24 September (Tuesday) to 18:00 the next day, while interviewing the users and staff of the Internet café, and recording and picturing their behaviours, activities or practices not only within the Internet café but also in virtual spaces.

Recently, there have been some ethnographical studies looking at the practices or performances by which the spatialities of locales such as cafés, restaurants and other public spaces are produced, while using mainly participant observation (Crang, 1994; Wakeford, 1999; Laurier et al., 2001; Erickson, 2004; see also Crang, 2003). In a sense, this method can be seen as "a simple skill of doing and watching that we all do as part of our everyday lives without realising it" (Laurier, 2003: 146). Before I began the research, I, as a native Korean, was not aware of the Internet café's hidden meanings and roles in the production of new urban electronic spaces. However, while surveying Internet cafés in Korea, as a Britain-based researcher and outsider, I was able to see their significance and the implications. In the course of the study of Internet cafés, I have tried to have simultaneously both an insider's and outsider's viewpoint.

While coding, analysing and categorising the materials of the questionnaire and semi-structured interview surveys conducted in 2002, I realised that I should have collected more qualitative data. It seemed that the off-line interview surveys as a traditional qualitative method as well as questionnaire surveys as a quantitative method have some limits when researching Internet users and discovering their behaviours, thoughts, attitudes and feelings in virtual spaces. This is exactly because "the physical location of interviews affects discussion" (Crang, 2002b: 649). That is, while off-line interviewees may be reluctant to reveal their own experiences or behaviours in virtual spaces, on-line interviews with 'anonymity' would be much more helpful and useful. In on-line interviews, the psychological distance between the interviewer and the interviewee can be much closer, even though the physical distance between them is obviously much farther than in the cases of off-line interviews.

As Madge and O'Connor (2002: 100) suggest, in geographical research, "the Internet can aid interaction with formerly unapproachable groups, providing previously unobtainable information and perspectives", although "many of the issues and problems of conventional research methods still apply in the virtual venue". Particularly given that much of research focus is on Internet users, the Internet itself can be employed as an effective and efficient tool in the research. With this methodology in mind, I inhabited on-line chat rooms during July in 2003 in order to conduct on-line participant observation and in-depth interview surveys as qualitative methods (see Chapter 9). In the course of the surveys, through the method of participant observation "to understand the world views and ways of life of actual people from the 'inside', in the contexts of their everyday, lived experiences" (Cook, 1997: 125), indeed, I as an insider could experience and observe people's social spaces and relations in virtual spaces, communicate and interview with a lot of people, and pick up on their various stories. In some cases, I did on-line (unstructured) interviews with different people for more than one hour, and they talked to me their various behaviours, thoughts and emotions in virtual spaces with open-minded attitudes and open-ended responses. This research is difficult or almost impossible in the cases of off-line interviews.

In addition, "the Internet has been described as the world' largest library" (Neustadtl et al., 2002: 186) in that it can form a kind of global knowledge or information network, or what Pierre Lévy (2000) calls 'collective intelligence' through which the territories of knowledge or information are expanded and interconnected. Of course, in such hypertext or labyrinthine networks, "to use the Internet as a source material in geographical research needs a focused approach if one is not to be overwhelmed by the wealth of virtual pathways one could follow" (Parr, 2003: 58). I wanted to find out and harness various personal or social traces left in the virtual library. Especially, in virtual villages such as personal web-homepages or web-logs (or blogs) and Bulletin Board Systems [BBS] in which people left their various personal or social traces such as notes, diaries or debates, we can find out a number of their traces like "parish documents, gravestones, and other trances of 'the world we have lost'" (Meyrowitz, 1995: 109). Certainly, although such traces in virtual spaces could not last for a long time like gravestones in towns and could disappear soon like footsteps on the beach, they can be used as remarkable data of people's mundane and everyday lives in virtual spaces. We need to pay attention to such volatile, precarious or ephemeral traces, and I wanted to record 'the world we will lose' in the course of my on-line research. As van Loon (2002: 93) puts it, "flow allows us to engage with the ephemeral nature of in-between-ness" in everyday life.

From August 2003, I began to carry out surveys of cable TV (see Chapter 10). In fact, the part of cable TV in the thesis is less concerned with human agencies or behaviours than any other part (dealing with Internet cafés, the Internet or the mobile phone). Rather, it lays emphasis on how local places come to be wired to and delocalised through the multiple networks of cable TV ranging across different spatial scales. First, I did literature surveys to understand the various institutional contexts of cable TV in Korea, capitalising mainly on 'the Broadcasting Act' (2003 version) and 'the Enforcement Decree of the Broadcasting' (2003 version) and the present situations of cable TV, drawing on journals released by the Korean Broadcasting Commission and off-line and on-line (non)official data offered by with the Korean Cable TV Association.

In order to know how local cable TV SOs [System Operators] are embedded or disembedded in their local zones, I conducted case studies of two cable TV SOs (*C-vision* in Seoul and *TJN* in Daegu). While concerned with the technological construction of channels such as local, terrestrial, satellite and PP [Programme Provider] channels and the organisational and geographical network of the SOs, I interviewed the staff members of the cable TV SOs. In addition, in order to see how programme flows are formed through PP channels, which account for the most parts of cable TV channels, I analysed the geographical origins of 8,903 programmes which were transmitted for a week from 1 to 7 September 2003 through 45 PP channels (belonging to the Korean Cable TV Association) in various genres such as movie, drama, sports, music, news, documentary, education, religion, hobby, shopping and others. The data are based on their cable TV timetables, and their origins were identified mainly through call interviews with the programme providers.

Finally, from October 2003, I surveyed mobile phone users in Daegu (see Chapter 11). Compared with other media such as the Internet or cable TV, it was somewhat difficult to find official data on mobile phone users. Thus, I surveyed mobile users (university students) mainly through semi-structured interviews as a qualitative method to "understand how individual people experience and make sense of their own lives" (Valentine 1997: 111). "The reliance on interviews may be ... a least-bad option in circumstances when other forms of access to research setting are denied" (Crang, 2002b: 650). Before interviews with the mobile phone users, I gave them time-diaries, as a means to estimate the use of time in relation to media use (Nie et al. 2001), and I asked them to record in the time-diaries their spatial and temporal behaviours in relation to the use of the mobile phone, the Internet, cable TV and so on for two days (a day of the working week and either a Saturday or a Sunday). The time-diary analysis method was a very useful means to comprehend the patterns of their temporal, spatial and social behaviours related to the use of different media.

In addition, I asked them tell me the number of people whose details were stored in their mobile phones and e-mail accounts in order to understand and compare the various socio-spatial differences and implications of mobile phones and e-mails. In addition, through interviews with them, I could hear about their various desires and emotions which they come to have in their mundane lives through the use of the mobile phone, and compare the spatial, temporal, social and cultural implications of the mobile phone in their everyday lives with those of other media such as the Internet or cable TV. through in-depth interviews with six males who are classmates studying mathematics in the same university, I could collect data related to how the mobile phone and other media mediate and remediate them in on-line and off-line spaces and how they think about the implications of such media for their social relations or interactions in their everyday lives.

Chapter 6

The Trans/formation of National Media Spaces and the Scalar Fixes of Techno-Economic Spaces

In this chapter, I focus on the government's technological, economic and cultural policies to explain how Korea's media spaces have been transformed in the late twentieth century. The development of national media spaces can be seen in two temporal and spatial dimensions: one is a diachronic and vertical dimension; and the other is a synchronic and horizontal dimension (see Chapter 7 for the latter dimension). In this chapter focusing on the former dimension, I describe the transformation of national media spaces: from mass media spaces integrated and territorialised at a national level into new media spaces that are multiple and deterritorialised at global, national and local levels. First, I explain the revolutions of media technologies in relation to the evolution of capitalism in terms of the techno-spatial fixes of capitalism. Then, I explore the transformation of national media spaces in Korea from mass media spaces in the 1960-70s through transitional media spaces in the 1980s into new media spaces in the 1990s. Finally, I suggest that the transformation of national media spaces in Korea needs to be understood in terms of the scalar fixes of techno-economic spaces in capitalism for two reasons: the first is because the process itself can be seen in terms of the deterritorialisation of national media spaces from the single layer of national space into the multiple layers of local, national and global spaces, and the second is because the process can be seen in terms of the rearticulation of national techno-economic spaces with global techno-economic spaces.

6-1 The development of media technologies in capitalism

Here, what I want to argue is that the development of media technologies needs to be explained in relation to the development of capitalism. Capitalism has evolved with changes in media technologies which allow capitalism to have and control its extended and accelerated time-spaces in terms of 'time-space distanciation' (Giddens, 1990) which "involves the stretching of social relations over time and space so that relations can be controlled or coordinated over longer periods of time (including into the ever more distant future) and over longer distances, greater areas or more scales of activity" (Jessop, 2000a: 340) and 'time-space compression' (Harvey, 1989) which "involves the intensification of 'discrete' events in real time and/or the increased velocity of material and immaterial flows over a given distance" (Jessop, 2000a: 340). These changes in the time-space of capitalism, supported by the development of technologies can be understood as the techno-spatial fixes of capitalism. Here, I explain the development of media technologies through 'communications revolutions' (Williams, 1982; Beniger, 1986; Carey, 1989; van Dijk, 1999) in relation to the development of capitalism through the scalar fixes of techno-economic spaces in capitalism, especially concerned with Lash and Urry's (1987, 1994) 'dis/organised capitalism' and Beniger's (1986) 'control revolution'.

Media technologies have been developed intensively in relatively short and certain periods with economic, political and cultural changes. This process is called a 'communications revolution'. According to Carey (1989: 190), such communications revolutions could be divided into three stages. The first communications revolution was the innovation of printing, which mechanized the production of information, extended literacy, and enlarges the domain of empire. The second revolution occurred over the last century with the birth, through electricity, of the capacity to simultaneously produce and transmit messages – a process that extends from the telephone and telegraph to television. The third communications revolution involves the linkage of machines for information storage and retrieval with the telephone, television, and computer, producing new systems of 'broadband' communication or 'information utilities'. Here, mechanical/electronic media technologies with modern mediascapes have been developed through the last two revolutions. van Dijk (1999) calls the former revolution a 'first communications revolution' and the latter a 'second communications revolution'. Similarly, Poster (1995) calls a new techno-cultural age, formed through the latter revolution a 'second media age'. The former relates to the emergence of the 'mass media' introducing modern mass society, and the latter to the appearance of the 'new media' or 'multimedia' inducing information or network society (van Dijk, 1999). In this sense, I here use the terms first and second communications revolutions in the perspective of van Dijk, not Carey.

These communications revolutions can be understood in relation to the development of capitalism. For, as Webster (2000a: 78) argues, "the 'information revolution' represents the unhindered expansion of capitalism across the globe and deeper into the private realm, taking with it a dynamism – constant innovation, competitive pressure, unrelenting demand to make profit, search for new market opportunities – that is destabilizing of all settled forms". For example, concerning technological developments through the long-wave cycles of capitalism, Berry (1997) states that "telemobility is with us as fifth wave innovations have brought the Internet, cyberspace, virtual reality, and friction-free capitalism" (p.302) and that "cyberspace, a term coined by William Gibson is his 1984 novel *Neuromancer*, is to the fifth wave what railroads were to the third and highway/airways have been to the fourth" (p.307). In this sense, it can be said that the first communications revolution occurred with the emergence of 'organised capitalism' by the third long-wave cycle of capitalism, and the second communications revolution with the appearance of 'disorganised capitalism' by the fifth long-wave cycle of capitalism. For this understanding of these relations, we need to attend to concepts of Lash and Urry's 'dis/organised capitalism' and Beniger' 'control revolution'. Lash and Urry (1987, 1994) divide the development of capitalism into three stages: 'liberal', 'organised' and 'disorganised' capitalism and summarise their main characteristics as follows:

> "First, in nineteenth-century, 'liberal' capitalism, the circuits of the different types of capital more or less operated on the level of the locality or region, often with relatively little intersection or overlap. Second, in twentieth-century, 'organized' capitalism, money, the means of production, consumer-commodities and labour-power came to flow most significantly on a national scale. The advanced societies

> witnessed the appearances of the large bureaucratic firm, vertically and in some cases horizontally integrated nationally. There was also the replacement of locally based craft unions by industrial unions whose territorial bases were 'stretched' to cover national dimensions. Commodity markets, capital markets and even labour markets took on significance across the scope of entire national economies. Third, in the more fragmented and flexible types of production that accompany the 'disorganization' of capitalism, this circulation takes place on an international scale. At the end of the twentieth century circuits of commodities, productive capital and money qualitatively stretch to become international in terms of increases in global trade, foreign direct investment and global movements of finance. This has taken place especially in the 1980s" (Lash and Urry, 1994: 2).

In organised capitalism, its political and economic spatial organisations can be characterised by the integration of different local spaces into a national space by the national government and industrial capital. This was made possible by the technological development of transportation and communication networks. This process could be understood as a scalar fix of political-economic spaces. Beniger (1986) calls this process a 'control revolution':

> "Along with these rapid changes in mass media and telecommunications technologies, the Control Revolution also represented the beginning of a restoration – although with increasing centralization – of the economic and political control that was lost at more local levels of society during the Industrial Revolution. Before this time, control of government and markets had depended on personal relationships and face-to-face interactions; now control came to be reestablished by means of means of bureaucratic organization, the new infrastructures of transportation and telecommunications, and system-wide communication via the new mass media. ... Therefore, the new societal transformations – rapid innovation in information and control technology, to regain control of functions once contained at much lower and more diffuse levels of society – constituted a true revolution in societal control" (Beniger, 1986: 7).

Beniger's control revolution which solved the crisis in the second half of the nineteenth century can be summarised as three kinds of innovations: (a) bureaucratic organization: the rise of bureaucratic function, sharp task divisions and hierarchies, rationalization by formal procedures, preparation (for example paper forms) and time synchronization; (b) new infrastructure of transportation and communication (paved roads, trains, telegraph, telephone and so on) to handle the explosive growth in mass transportation of goods and people; and (c) mass communication and mass research (national press, film, radio, advertising, market research, opinion polls) as ways to reach and map an elusive new mass of consumers (Dijk, 1999: 50). Theses technologies were invented and introduced on a small scale in the late nineteenth and early twentieth centuries, and "in the decades between 1920 and 1970, they were diffused on a large scale as the main technologies of an economic age characterised by mass production and mass consumption" (van Dijk, 1999: 50). Importantly, Beniger (1986: 434) explains the technological and economic origins of information society in the context of the 'control revolution': "the information society has not resulted from recent changes, as we have seen, but rather from increases in the speed of material processing and of flows through the material economy that began more than a century ago". In short, in the process that different local places were integrated into a national space in organisation capitalism during the third long-wave cycle of capitalism in the nineteenth century, the first communications revolution and the control revolution occurred, and this process facilitated the formation of the so-called information society during the forth long-wave cycle of capitalism in the twentieth century.

Recent changes in technological and economic systems have led to the phase of disorganisation capitalism with the fifth long-wave cycle of capitalism in the late twentieth century. This process has produced new technological, economic and social spaces like complex global-local networks more extended at a global level and more elaborated at a local level than ever before through new production, consumption and communication technologies. Particularly, new media technologies form various 'technoscapes' and 'mediascapes' across global space, transgressing national boundaries (Appadurai, 1990; Morely and Robins; 1995; Luke, 1994; 1995a, 1995b). Lash (2002: 26) describes this process as a movement towards a 'global information culture' with three new logics and changes: (a) the principle of the national is being displaced by that of the global; (b) the logic of manufacturing is displaced by the logic of information; and (c) the logic of the social is being displaced by that of the cultural. Webster (1995: 162) also stresses the crucial role of 'information' in the landscapes of globalised capitalism, in fours aspects: (a) information flows are a requisite of a globalised economy, particularly those financial and services networks which tie together and support dispersed activities; (b) information is central to the management and control of transnational corporations, both within and without their organisations; (c) information is crucial to the emerging phenomenon of global localism, whereby international and local issues and interests are connected and managed; and (d) information now plays a more integral part in work practices, at once because computerisation has pervasive effects and also because there has been a noticeable increase in the information intensity of many occupations.

In the processes of 'time-space distanciation' (or extension) and 'time-space compression' (or acceleration), new technologies bring about another kind of 'control crisis' and 'control revolution', inducing and reducing uncertainties in global space at the same time through the control of time-space (see Ferguson, 1990; Adam, 2003). In this sense, van Dijk (1999: 50) explains the second communications revolution in terms of Beniger's control crisis and revolution: "it is productive to apply Beniger's analysis to the present situation, defending the thesis that we are now going through a 'second control crisis' which partly being solved using the media of a 'second communications revolution'". For example, concerned with the compression and control of time(-space) through modern temporal innovations, especially Virilio's three Ts (19th-century transport, 20th-century transmission and 21st-century transplantation), Adam (2003) suggests how the intensification of temporal logic has paradoxical consequence: increases both in the control of time and in the loss of control. On the one hand, new technologies can be used "to support the flexibility, efficiency and productivity of organization, to improve all kinds of logistic processes, to replace transportation of goods and people by transportation of information, and to reach effectively a segmented public of communicating consumers" (van Dijk, 1999: 51). On the other hand, "structural relations and processes that arise from the control of time tend to be beyond the control of those involved, since the combination of instantaneity of communication with simultaneity of networked relations no longer functions according to the principles of clock time and mechanical interaction" (Adam, 2003: 69-70). Particularly as the authority and sovereignty of national states are undermined by "the enormous growth of private digital networks – especially the case of the global financial markets" (Sassen, 2000: 19), it comes to be more difficult to control the electronic time-space of instantaneity and simultaneity.

To summarise again the relations between the development of technologies and the development of capitalism, just as the first communications revolution and control revolution are related to economic, political and spatial changes from local to national systems in organised capitalism with the third long-wave cycle of capitalism which began in the 1890s, so too the second communications revolution and control revolution to economic, cultural and spatial changes from national to global systems in disorganised capitalism with the fifth long-wave cycle of capitalism which began in the 1980s. This implies that the development of media technologies needs to be thought of in relation to the techno-spatial fixes of capitalism, especially the scalar fixes of techno-economic spaces.

With this postulation, this chapter explains the transformation of national media spaces in Korea. Since the media spaces of Korea have had their continuous and discontinuous landscapes in the history of development, it is not easy to draw clear boundaries between them in temporal-spatial dimensions. Nevertheless, I here want to divide the historical process of modern mediascapes in Korea into four stages according to their spatial configurations: (a) firstly, primary media in the late ninetieth and early twentieth centuries; (b) secondly, mass media spaces of which networks were integrated and territorialised at the single layer of national space during the 1960s and the 1970s; (c) thirdly, transitional media spaces in the 1980s; and lastly, new media spaces of which networks have been multiple and deterritorialised at the multiple layers of global, national and local spaces since the 1990s (Table 6-1). In this chapter, I will focus on the last three media spaces in the late twentieth century.

Table 6-1 The chronology of media events in the 19th and 20th centuries

In Korea	Year	In the world
		1st long-wave cycle
	1836	Telegraphy (S. Morse)
	1939	Photography (L.J.M. Daguerre)
Primitive media spaces		**2nd long-wave cycle**
	1866	Transatlantic cable completed
	1876	Telephone (A. G. Bell)
Submarine cable (between Korea and Japan by Japan)	1884	
Submarine cable (between Korea and China by the UK, -1887) Telegraphy (between Seoul and Incheon)	1885	
		3rd long-wave cycle
	1895	Radio telegraphy (G. Marconi) Motion picture camera (Lumière brothers)
Telephone (between Seoul and Incheon)	1902	
	1920	Radio broadcasting begins (KDKA, USA)
Radio broadcasting begins (JODK)	1927	BBC founded
	1933	FM radio invented
	1936	TV broadcasting begins (BBC, UK)
	1941	Commercial TV begins (WNBT, USA)
Mass media spaces		**4th long-wave cycle**
	1946	Computer (ENIAC)
	1947	Transistor invented
	1950	Cable TV begins (to boost microwave signal)
CBS (private, Christian)	1954	Colour TV begins
TV broadcasting begins (HLKZ, private, -1959)	1956	VTR invented
	1957	Sputnik
MBC-radio (private, commercial, Busan)	1959	
KBS-TV (national)	1961	
DTV (private, commercial TV, -1980)	1964	

MBC-TV (private)	1969	ARPANET Apollo
	1975	Satellite-based cable TV begins (HBO, USA)
	1977	Interactive cable TV begins (Qube, USA)
Transitional media spaces		**5th long-wave cycle**
Colour TV	1980	
Korea Telecommunications Authority founded Pager Internet introduced	1982	
Mobile phone (car phone)	1984	DBS begins (Japan)
TDX-1 invented	1986	Deep Dish TV Satellite Networks established
The extension and automation of nationwide telephone networks completed	1987	
Information culture movement Analogue cellular phone	1988	
	1989	Private satellite launched (USA)
New media spaces		
	1990	WWW
SBS-TV (private, local)	1991	HDTV begins (Japan)
	1992	Star TV begins satellite broadcasts to South and East Asia
ISDN	1993	NII [National Information Infrastructure] (USA)
CDMA	1994	Digital satellite TV begins (USA)
KII [Korean Information Infrastructure] Satellite (Ksat 1) Cable TV	1995	
CT-2 Digital cellular phone DBS	1996	
HDTV PCS	1997	DVD introduced
Cyber Korea 21	1999	

Source: Jeong, S.I. and Jang, H.S. (2000); Kang, S.H. (1996); MIS (2001a); KISDI (2000); Downing, et al. (1995); Croteau and Hoynes, (2000)

6-2 Mass Media Spaces in the 1960s-70s

The formation of modern media spaces in Korea needs to be thought of in the dynamics of global political and economic spaces. For example, primary media spaces such as submarine cables, electric wires, telegraphs and telephones established in Korea in the late ninetieth were also produced as a result of the geopolitical power relations between China and Japan and between Russia and the UK around the Korean Peninsula in the time of imperialism. Since Korea is located in between the countries of continental powers and the countries of marine powers, there have been the power tensions and conflicts between the two powers. Such international relations or geopolitical situations had effects on the formation of primary media spaces in Korea. In the early 1960s, the Korean government began to undertake industrialisation and modernisation in order to be incorporated into global economic systems. As in the case of advanced counties in the late nineteenth and early twenties centuries, economic, social and cultural modernisation in Korea in the 1960s and 1970s was supported by the extension and integration at a national level of transportation, communication and broadcasting networks such as railways, highways, telegraph telephone, radio[1] and television. In the process, the mass media had played an important role in forming and diffusing modern cultural values or social behaviours, in controlling public opinion and political ideology and integrating sub-national regions into an economic, political and cultural national space. Here I suggest how television networks, as typical mass media spaces, have been developed, extended and integrated at a national level in Korea.

Television networks began to be established in Korea in the 1960s under the control of the Korean military government (Park's government). KBS-TV (Korean Broadcasting System) as a national broadcaster was established and managed by the government in 1961 for facilitating political propaganda and manipulating the image of

[1] Interestingly, Korea' first private commercial radio broadcasting station (MBC-radio) was established in 1959 not in Seoul, the capital city of Korea, but in Busan, the second largest and first largest port city of Korea, located in the southeast part of Korea, not so distant from Japan. This was partly because of the concern of the government about the transgression and influence of Japan's broadcasting into the city (Kang, D.I, 1997: 24). Spill-over problems have been at issue in the case of terrestrial or satellite TV broadcasting until now.

the authoritative government,[2] and DTV as a private and purely commercial broadcaster and MBC-TV as a private and semi-commercial broadcaster entered television broadcasting territories in 1964 and 1969 respectively (Jeong, S.I. and Jang, H.S. 2000: 33 and 39). By the 1970s, the broadcasting networks of KBS and MBC were rapidly spread out at a nationwide scale. MBC very rapidly formed its nationwide broadcasting networks in the early 1970s, surpassing TBC (DTV's name changed in 1966) of which broadcasting stations were established only in Seoul and Busan, and KBS also increasingly constructed nationwide broadcasting networks. (Jeong, S.I and Jang, H.S., 2000: 87). With this diffusion of nationwide broadcasting networks, the adoption of televisions in households also began to diffuse from the 1970s (Park, S.B. 1977). But the control of the government over broadcasting networks and contents also became more thorough for "television was seen as an important instrument, as well as to provide support for Park's dictatorship during its 18-year region through the imposition of severe censorship over content" (Lee and Joe, 2000: 133).

Furthermore, in 1980 when colour TV broadcasting began, there was an upheaval in Korea's broadcasting and press history by the new military government (Cheon's government) which newly emerged in 1980. "Private ownership of broadcasting media was completely forbidden by the Prime Press Law. Under this policy, all radio and TV stations except MBC for television and CBS for radio were integrated into the Korean Broadcasting System (KBS)" (Lee and Joe, 2000: 133). As a result, TBC and other private broadcasters were incorporated into KBS which was already changed from a national to a public TV broadcaster in 1973, and MBC was changed from private to public TV (Jeong, S.I. and Jang, H.S. 2000: 135).[3] In this political turmoil, television networks had been continuously extended at a national level during the 1980s when anti-government protests and democratisation struggles were frequent and strong. For political justification and stabilisation, the Korean government in the 1980s thoroughly

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[2] This background of KBS-TV eventually became a reason of the 'KBS-TV reception free boycott movement' in the 1980s (Kim, 2001).

[3] We can summarise changes in the structure of television broadcasting in Korea as: national (KBS) in the early 1960s → national (KBS)-private (DTV and MBC) in the late 1960s → public (KBS)-private (MBC and TBC) in the 1970s → public (KBS and MBC) in the 1980s → national (EBS)-public (KBS and MBC)-private (SBS and so on) in the 1990s.

used the mass media such as television, called a 'consciousness industry' (Webster, 2000a: 78) in that "the mass media play a very influential role in consciousness formation" (Lull, 2000: 29). "Consciousness reflects the inevitable inculcation of ideological themes delivered by mainstream media in ways that inspire concordant thought and social behavior" (Lull, 2000: 29), even though "viewers do not regard television as a neutral 'window on the world' since they are well aware, not least from the media themselves, that television content – like the world which it inflects – is fabricated" (Webster, 2000b: 232). Since there were only two public television broadcasters with only a few channels, it was not difficult to do so.

For example, in the 1980s a variety of popular, ideological and political programmes for political stabilisation and national integration were transmitted through television networks, and especially a lot of sports programmes such as baseball or football began to be broadcast on television screens in order to dull people's political consciousness (Jeong, S.I. and Jang, H.S. 2000: 140-1). The government planed implicitly the so-called 3S (sex, screen and sports) policy in the 1980s in order to turn people's consciousness from political issues to emotional aspects and thus to reduce people's political discontents and interests. The sudden emergence of sports (on TV) can be seen a part of the policy. As a result, sports began to appear (on TV) as a new secular realm of popular culture in Korea in the 1980s, and many people began to be collectively engaged in sports (programmes). The Seoul Olympic Games in 1988 can also be understood in the context of the policy. This point shows that "the meaning of mediated sport is the outcome of a complex articulation of technical, organizational, economic, cultural, political, and social factors" (Jhally, 1989: 84). Indeed, the government's policy was a kind of cultural and ideological strategy to use popular culture such as the mass media, sports, films and TV in order to achieve political and ideological purposes by making something visible and something invisible to people. These cultural landscapes in Korea clearly show how media, spectacles and images can be politically and ideologically used for power and as power (see Althusser, 1971; Benjamin, 1969; Debord 1994; Baudrillard, 1994).

6-3 Transitional media spaces in the 1980s

It was the 1980s that was a turning point in Korea's history of the Korean government' policy on information and communication sectors (MIS, 2001a; KISDI, 1988a; Kim, J.S., 2000). This means that changes appeared in the modern media spaces of Korea. The media spaces of the 1980s can be characterised as transitional media spaces from mass media spaces in the 1960s-70s to new media spaces since the 1990s. On the one hand, the networks of existing mass media spaces had been further extended and integrated at a national level, and on the other hand, new information and communication industries and networks as the preconditions of new media space began to be developed. That is, the construction of new information and communication networks in the 1980s led to the establishment of essential facilities and infrastructures on which new media spaces could be shaped rapidly in the 1990s, and the development of new information and communication industries led to the formation of media capital by which new media spaces could be produced in Korea. The government's strong policies related to new information and communication industries through both the informationalisation of industries and the industrialisation of information, can be seen as attempts to rearticulate national and global techno-economic spaces. In addition, the government's policies focused not only on the construction of techno-economic conditions such as information and communication industries and networks, but also on the creation of socio-cultural conditions such as ideological discourses or cultural practices.

6-3-1 Fostering information technologies and industries

The development of information and communication technologies in Korea in the 1980s was so radical that the decade can be called the period of the 'Korean information and communication revolution' (Kim, J.S. 2000). In this way, transitional media spaces from mass media spaces to new media spaces were formed in Korea in the 1980s. The turn of the direction of the government's economic and industrial policies in the 1980s from light or heavy and chemical industries in the 1960s and 1970s, to information industries had crucial effects on changes in media spaces. This should be thought of in the context of technological, economic and institutional changes in global space.

New information and communication industries began to be developed as a technological fix for the economic crisis in Western societies in the late twentieth century (Schiller, 1986). Particularly, in the case of the USA, new information and communication technologies, developed in the military sector, began to be transferred into the private sector after the end of the Cold War. New information, communication and media industries, combined with such technologies, began to be rapidly globalised towards new global markets by a spatial fix through deregulation policies such as 'commercialisation', 'liberalisation', 'privatisation' and 'internationalisation' (Mosco, 1996). Such a techno-spatial fix in advanced capitalist societies became moments in which the Korean government should rethink and restructure Korea's economic systems based on 'semi-/peripheral Fordism' (Lipietz, 1987; Tickell and Peck, 1992) in 'the new international division of labour' (Fröbel, Heinrichs and Kreye, 1980). The Korean government considered that the national economy had to be newly geared to new global technological, economic and institutional environments under post-Fordist production systems in the 1980s.

In this situation, through the 'fifth master plan for economic and social development' (1982-1986) and the 'sixth master plan for economic and social development' (1987-1992), the Korean government began to conduct industrial restructuring, rationalising old industries which had connected national techno-economic spaces to global techno-economic spaces under Fordist systems until the 1970s and fostering new industries which could newly connect the two techno-economic spaces under post-Fordist systems in the 1980s. For example, the focus of the government's policy on the electronic industry was changed from domestic electronic appliances to industrial electronic appliances, especially focusing on the three key strategic items of semiconductors, computers and electronic exchangers (MIC, 2001a: 564). The development of these technologies contributed the construction of electronic networks in the 1980s. For example, 'national key computer networks' were possible through the development of computers and semiconductors, and 'nationwide telephone networks' through the development of electronic exchangers (MIC, 2001a: 564-5).

In an effort to foster new industries, the government symbolically named 1983, when the 'fifth master plan for economic and social development' (1982-1986) was largely revised in order to foster information and communication industries, an 'information industry year' and 1987, when the 'sixth master plan for economic and social development' (1987-1991) began, an 'information and communication year'. It seems that while the former was for fostering information and communication industries, the latter was for creating the demand for information and communication commodities (Kang, S.H., 1996: 235). Furthermore, these can be considered attempts to rearticulate national and global techno-economic spaces through forming techno-economic conditions.

6-3-2 Upgrading electronic systems and networks

In the 1980s, electronic systems and networks related to broadcasting or communications were still managed and controlled by the government or other national/public institutes. That is, private electronic spaces did not develop until the 1990s when public electronic spaces were privatised. However, this does not mean that there was no advance in electronic systems and networks. Rather, they were remarkably developed by the government and became technological conditions on which new media spaces in the 1990s could appear. In the 1980s, alongside the development of information technologies and industries, the government began to advance and upgrade electronic systems and networks through the establishment of related institutions or companies to facilitate the construction of infrastructures and facilities, the development of technologies and industries, and the diffusion of devices and services. For example, the government established the KTA [Korea Telecommunications Authority], the predecessor of the present KT [Korea Telecom], in 1982 for the more systematic construction of telecommunication networks and the more efficient management of telecommunication services, and admitted the establishment of DACOM [Korea Data Communication] in 1982, which is the first value-added communication business operator which provides computer-based communication services in Korea (MIC, 2001a: 411-416). In addition, there were two international sports events in Korea in the

1980s – the Asian Games in 1986 and the Olympic Games in 1988 held in Seoul – which were important moments in advancing domestic broadcasting and communication networks and connecting national networks to global networks in a technologically and institutionally more advanced way (MIC, 2001a: 447-458).

In addition, the Korean government began to extend and integrate information and communication backbone networks at a national level: for example, the extension and automation of 'nationwide telephone networks' for the integration of telephone networks across national space; the construction and integration of 'national key computer networks' for the speedy and efficient management of information and data within sectors (administration; finance; education & research; military; and public security); and the construction and integration of 'national key communication networks' for the systematic management of communication networks between sectors (telegraphy, telephone and broadcasting) (MIS, 2001a; KISDI, 1988a; Kim, J.S., 2000). In particular the project of 'national key computer networks' for the computerisation and on-line networking of public institutes and facilities dispersed geographically and the efficient management, storage and transportation of data and information was one of the most important national projects related to the construction of national information and communication networks in the 1980s (MIS, 2001a) and was fuelled mainly to foster domestic information and communication industries, to increase national competitiveness and to promote the efficiency of public services (Lee, S.S. and Kim, J. 1991).

The development of electronic systems and networks in the 1980s played a crucial role in constructing instantaneous, simultaneous and compressed national space, although some parts of national space are not connected to electronic networks. This point can be found typically in the case of telephone systems and networks. Although the first telephone in Korea was introduced in the late nineteenth century, there was no outstanding advance in telephone systems and networks until the 1980s. Even in the 1960s, it was difficult for ordinary people to possess telephones, because the price was as high as a third of that of a house and the government controlled the supply of telephones to people (Kim, J.S., 2000: 19 and 35), although such a situation was common to not only developing countries but also developed countries at that time.

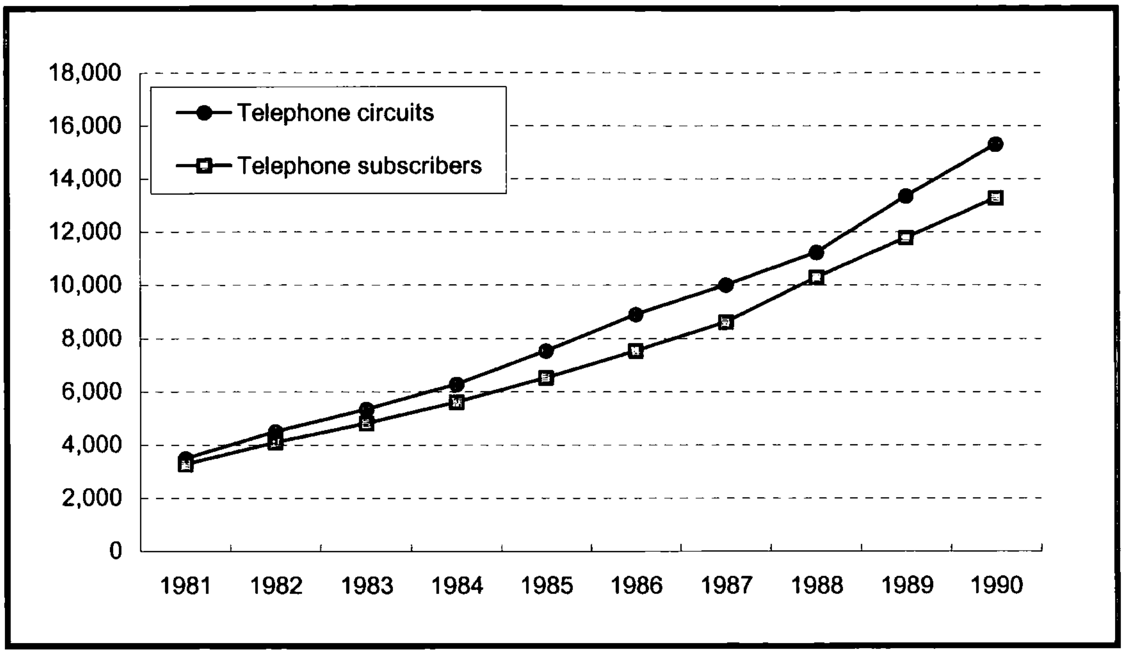

Figure 6-1 Changes in the numbers of telephone circuits and subscribers

Source: Adapted from MIC (2001a: 419)

Unit: × 1,000

Table 6-2 The growth of nationwide telephone networks

	The widening of local call zones	The automation of telephone offices' exchange systems	The extension of networks into villages in the depths	The automation of telephone systems in island villages
1981	9	162	-	-
1982	13	210	-	4
1983	19	404	-	28
1984	32	550	2,856	75
1985	72	908	13,040	187
1986	114	1,223	18,641	368
1987	147	1,496	24,711	491

Source: MIC (2001a: 430)

Many parts of Korea, particularly rural areas, were not wired to telephone networks, and even wired parts in urban areas were indirectly connected to other distant parts. The later 1970s and early 1980s' landscapes of telephones in rural areas can be found also in my memory of a village where I lived as a child. At that time, many people living in the village used a public community telephone. Only a few people in the village had their own home telephones, and they could only be connected to other people through telephone operators. By the late 1980s the village was no longer like this, and furthermore by the late 1990s the new landscapes of mobile phones began to appear. Telephone systems and networks in Korea began to be noticeably advanced, extended and integrated across national space during the 1980s through the 'fifth master plan for economic and social development' (1982-1986) and the project of 'nationwide telephone networks' (MIC, 2001a: 418). As a result, telephone facilities were supplied on a large scale to people, telephones could be nearly instantly installed in homes, the numbers of telephone circuits and subscribers began to increase (Figure 6-1). The spatial scales of local call zones were further widened, telephone exchange systems were technologically changed from manual to automatic mode, and telephone networks were spatially extended into rural villages and island villages (Table 6-2).

6-3-3 Diffusing cultural and ideological movements

It seems that the government knew that it is impossible to rearticulate global and national techno-economic spaces simply through the construction of techno-economic conditions. That is, the government attempted to create socio-cultural conditions through ideological discourses or cultural practices. This point is evident in the fact that the government established the ICCK [Information Culture Center of Korea] as an agency for enforcing the 'information culture movement' (*Jeongbo munwha woondong*) in 1988, which can be compared to the 'new village (community) movement' (*Saemaeul woondong*) as a kind of government-led economic, social and cultural modernisation movement in the 1970s for rebuilding rural villages or communities. The government also appointed June as a 'month of information culture' in which the ICCK has held various cultural events every year since 1988. These cultural practices were focused on the creation of people's consciousness and mentality appropriate to the so-called 'information society'. The government wanted the 'information culture movement' to be practiced at a local level. For example, the ICCK have held and supported various activities such as exhibitions, lectures, academic events, contests, publicity activities and so on at a local level, especially in June every year, and most of the activities have been conducted in association with various local public and private institutes (ICCK, 1996). Of course, this does not mean that local actors have spontaneously carried out such events in a bottom-up way, although the government wanted 'the information culture movement' to be perceived as practiced in such a way. 'The information culture movement' was closely combined with ideological discourses on a 'utopian information society'. This point clearly appears in the foreword to a research book on 'the information culture movement', which was written by the president of the KISDI [Korea Information Society Development Institute].

> "The remarkable development of science technologies in the 20th century has been suggesting us an innovative aspect of society, providing us with driving force to open a new age. Advanced nations in the world have had an increasing interest in the splendid image of it and have enormously and steadily endeavoured to achieve technological driving force. However, surprisingly, there have been only a few interests in the other driving force, that is, humans as subjects who actually lead a society. This situation has a risk to result in a dystopia where only technologies exist and humans are excluded, in contrast to an ideal information society as a human-centred and human-based welfare society" (KISDI, 1988b: xxi).

As expressed above, the 'information culture movement' seemingly stresses the construction of the '*ideal information society as a human-centred and human-based welfare society*'. Such a utopian ideological discourse on the information society was reinforced, while the 'information culture movement' was combined with the 'regional informatisation policy' in the 1980s which aimed at solving the problem of uneven regional informationalisation, that is, spatial digital divides (Figure 6-2).

Here we can ask a simple question: 'what does it mean to construct the *ideal information society as a human-centred and human-based welfare society*'? Seemingly, it can mean that many people become active and conscious subjects with mentality, knowledge and skills related to information technologies. Especially, given that "it is largely from education that we get the new technologies, processes and innovations which advance wealth by increasing productivity and generating business. At least as important, it is from education that 'knowledge workers' gain their most indispensable skill" (Webster, 2001: 31), it can be important to make people have such knowledge and skills through such an institutional and cultural movement. However, we can ask another blunt question: 'what relations do people's abilities to use information technologies have with the construction of the (utopian or ideal) information society'? Of course, their abilities could lead to quantitative changes in information technology use in their homes, workplaces, schools and so on, and their various activities can be assisted and supported by information technologies. However, 'what relations do such abilities have with the qualitative transformation of society into the (utopian or ideal) information society'? Webster's (1995) sceptical viewpoint of the 'information society' seems to be helpful perhaps in addressing this question.

> "The railway signalman must have a stock of knowledge about tracks and timetables, about roles and routines; he needs to communicate with other signalmen down the line, with station personnel and engine drivers, is required to 'know the block' of his own and other cabins, must keep a precise and comprehensive ledger of all traffic that moves through his area, and has little need of physical strength to pull levers since the advent of modern equipment. Yet the railway signalman is, doubtless, a manual worker of the 'industrial age'" (Webster, 1995: 15).

Utopian visions of the information society in Korea in the 1980s were much affected by future optimism or technological determinism suggested by Alvin Toffler's (1980) *The Third Wave* or Daniel Bell (1973) *The Coming of Post-Industrial Society*. Many people said as if information technologies could change Korea into the (utopian or ideal) information society, and the Korean government attempted to establish not only techno-economic but also socio-cultural conditions in order to develop new information technologies. However, the government's policies can be seen as strategies to facilitate the consumption of information and communication commodities and the development of information industries, and eventually to connect global and national techno-economic spaces.

Phase 1: 1993-1994 National government-led regional informatisation →	Phase 2: 1995-1997 Local government-led regional informatisation →	Phase 3: 1998-1999 Private sector-led regional informatisation
• The computerisation of local administration	• Regional informatisation project (supported by the national government)	• Value-added regional informatisation (e-commerce of regional special products)
• Access to regional public DB (data base) through PC-based communications	• The emergence and diffusion of locally autonomous entities' web sites	• The expansion of electronic public services by the Internet
• The construction of regional information DB by the national government	• The participation of the private sector in regional informatisation projects	• The expansion of private realm such as PC Bang (Internet cafés)

Figure 6-2 The regional informatisation policy
Source: NCA (1999: 476)

6-4 New media spaces in the 1990s

National media spaces began to be transformed from mass media spaces into new media spaces in the 1990. Here, I explain the formation of new media spaces with reference to four kinds of multimedia developed rapidly in Korea since the 1990s: the Internet, satellite TV, cable TV and mobile phones. These new media spaces need to be observed in two aspects: 'territorial scales' and 'relational networks'. Although such new media technologies have their distinctive territories at various spatial scales, their territories are intricately connected to one another through technological, economic, social and cultural networks. In addition, the formation of new media spaces needs to be seen in terms of the scalar fixes of techno-economic spaces in Korean capitalism. That is, there were limits in developing new technologies and industries through constructing media spaces at a national level, and thus this situation demanded new media spaces at multiple levels with new economic value-chains. This process has been facilitated by institutional or regulatory changes from the intervention of the government to the principle of market, and more accelerated since the Korean economic crisis in 1997. However, this does not mean that the role of the government in forming such new media spaces has been reduced. Rather, the government has still played a powerful role in planning and constructing them.

6-4-1 The Internet and cyber Korea

The Internet has been perceived as an important part of 'global networks' (Harasim, 1993a) in that it makes communications possible at a global level. In Korea, the development of the Internet can be divided into two stages: the first phase began in 1982, when the Internet was first introduced and gradually started to be used mainly at universities and institutes, and ends in 1993 when ISDN [Integrated Services Digital Network] began to be developed and used. The second phase dates from 1994 when the Internet began to be used by ordinary people (MIC, 2001a: 478-482). This process has been facilitated by the construction of the national information infrastructure [KII: Korean Information Infrastructure]. As soon as the USA declared the vision of the NII [National Information Infrastructure] in 1993, the Korean government promoted the construction of the KII through setting up the 'first master plan for national informatisation promotion' in 1996 which focused mainly on the establishment of material bases and environments for national informationalisation. Since 1998 there has been substantial growth in the diffusion and use of the Internet in Korea. This is because the government thought of the Internet as an important means to solve the economic crisis of 1997.

The KII has been constructed through three phases: the first phase (1995-1997) for founding the KII; the second phase (1998-2000) for extending it; and the final phase (2001-2005) for completing it (Table 6-3). At first, the government planned the KII to be completed in 2010, but because the demand for the Internet has increased much more rapidly than expected, the time of its completion was shifted five years ahead (MIC, 2001a: 486-7). In the course of the construction of the KII, Internet domains and Internet users have dramatically increased (Table 6-4), homes in Korea came to be more wired to the Internet via broadband than in any other country in the world (see OECD, 2001)[4] and Korean people came to spend a lot of time on the Web[5]. A large number of private digital spaces, constructed by Internet service providers or dot com firms, have been proliferated along with the construction of the KII. The government supported the formation of such private digital spaces for the circulation of capital and the creation of new jobs in digital spaces after the Korean economic crisis.

The construction of the KII means the enlargement of electronic spaces. More importantly, the process involves a change in perceiving space. Until now, existing (actual) space has been considered a barrier to prevent the flows and circuits of capital, people, materials and innovations and an object to be annihilated. However, new (virtual) space began to be considered a carrier to transport knowledge and information and as an object to be expanded for the creation of new economic value-chains. I would like to suggest here an example, 'Cyber Korea 21', another name of the 'second master plan for national informatisation promotion'. Cyber Korea 21 has the vision of 'building a creative, knowledge-based nation' and four basic objectives: (a) "early establishment of an information infrastructure for constructing a creative, knowledge-based nation"; (b) "increasing productivity and transparency of all economic agents such as the government, businesses and individuals through the utilization of a more advanced broadband telecommunications network and information technology"; (c) "promoting new businesses through the utilization of a information infrastructure and creating new jobs by facilitating the information and communications industry"; and (d) "designating competitive telecommunications products and services as key export products and thereby providing focused financial assistance for developing relevant technologies" (MIC, 1999).

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[4] NetValue (2 April 2001) *Korea leads world in broadband usage.* [http://www.netvalue.com]

[5] NetValue (16 January 2000) *NetValue releases global picture of Internet usage.* [http://www.netvalue.com]

Table 6-3 The strategies and phases of the KII

	KII – Government	KII – Public	KII – Testbed
Main user	Government	Home and Business	Research Institute
Investor	Government	Private sector	Government + Private sector
Main object	Backbone	Access	Testbed
Phase 1 (1995-1997)	Connect 80 call zones	Fiber to the big buildings	2.5 Gbps between seoul and Taeion
Phase 2 (1998-2000)	All connect 144 call zones with ATM service	30% of total house with ADSL and CATV	GigaPoPs
Phase 3 (2001-2005)	Upgrade to Terabps	-	All Optical net

Source: MIC (2001b)

Table 6-4 The growth of the Internet

Year	Domains (.kr)	Hosts	IP addresses	ISPs	Users*
1993	61	7,650	-	-	-
1994	192	13,856	-	-	138
1995	579	36,644	1,752,064	13	366
1996	2,664	73,191	2,062,784	15	731
1997	8,045	131,005	4,110,336	23	1,634
1998	26,166	202,510	5,027,840	25	3,103
1999	207,023	460,974	7,256,064	54	10,860
2000	517,354	484,700	18,921,984	83	19,040

Source: MIC (2001a: 484-5 and 491)

*Unit: × 1,000

In order to make sense of the vision and objectives of Cyber Korea 21, we need to know its economic and social background. Cyber Korea 21 was motivated by two interrelated changes in domestic and global situations: the emergence of the knowledge-based society; and the emergency of the Korean economy in 1997. After the collapse of economic systems based on 'economies of scale' in the 1970s, new economic systems based on 'economies of networks' – often called a 'new economy', 'digital economy' or 'knowledge-based economy' – has been suggested as an alternative strategy of post-Fordist and neo-liberalist capitalism in the 1980s and 1990s. Especially, in the new economic systems, "the focus is on 'information' (often elided into 'knowledge') ... as the key source of change" (Webster, 2000a: 75). In this situation, since the late 1990s, several other advanced counties have proposed their visions to create the knowledge-based economy in the global space of flows: for example, *Our Competitive Future: Building the Knowledge Driven Economy* (the UK in 1998); *Information Technology Research: Investment in Our Future* (the USA in 1999); *A Blueprint for New Beginnings* (the USA in 2001); e-Europe (EU in 2000); Infocomm 21 (Singapore in 2000); and e-Japan (Japan in 2001). Although the Korean government was also explicitly aware of the importance of the knowledge-based economy, Korea unfortunately became one of the targets of global financial capital and eventually came under the control of the IMF in 1997. Many companies went bankrupt and many people were laid off from work and became homeless, and young people could not get jobs. In this situation, the government suggested various policies to escape from the economic crisis (however, the negative causal effects of the rough and ready policies began to appear some years later and the aftermath of the shock has been felt until now). Cyber Korea 21 was suggested by the government at that time as a strategy to overcome the economic crisis through the exploitation and construction of 'second national territories' on the Internet.

As such, Cyber Korea 21 aims at overcoming the economic crisis through the construction of information infrastructures, the production of new information or cultural industries, the creation of new IT-related jobs for people, and eventually the formation of the knowledge-based economy (MIC, 1999). That is, it is the government's policy in order to ameliorate physical national space, suffering from the economic crisis, by constructing electronic national space for the knowledge-based economy. In this sense, I want to call Cyber Korea 21 a 'Cyber New Deal Policy' through a 'techno-spatial fix' of national space – mainly at a national level, not a local or global level – through the construction of the 'second layer' of electronic national space on the 'first layer' of physical national space. More recently, some planners and local governments in Korea are vigorously suggesting the construction of national territories or urban spaces through 'ubiquitous computing' technologies (Weiser, 1991, 1993) calling for the building of so-called 'u-Korea (ubiquitous Korea)', beyond Cyber Korea 21 (Ha, W.G., 2003). This also is nothing more than a 'techno-spatial fix' of national space by which to construct the 'third layer' of hybrid national space between the 'first layer' of physical national space and the 'second layer' of electronic national space.

However, we need to recognise that Cyber Korea 21 entails excessively technological determinism and optimism in that it is fundamentally based on the typical utopian vision that electronic spaces can ameliorate and solve economic and social problems in physical spaces, focusing mainly upon technological and economic strategies. Furthermore, we need to recognise that Cyber Korea 21 can result in other kinds of economic, social and spatial problems on physical national space in terms of 'spatial digital divides' at a national level, leading to the concentration of (private) information industries and networks in the capital city/region as the centre of physical national space. This is because the abstract electronic space of flows cannot be fully freed from the concrete physical space of places. As Jessop (2000a: 346, 2000b) states, "however much economic activity migrates into cyberspace, territorialization remains essential to capital", and thus "an emerging globalizing, knowledge-driven after-Fordism does not signal the final transcendence of spatial barriers but effects 'new and more complex articulations of the dynamics of mobility and fixity'". Sassen (2000) also stresses this point,

> "There is no purely digital economy and no completely virtual corporation. This means that power, contestation, inequality, in brief, hierarchy, inscribe electronic space. And although the digitalized portions of these industries, particularly finance, have the capacity to subvert the established hierarchies, new hierarchies are being formed, born out of the existing material conditions underlying power and the new conditions created by digital space" (Sassen, 2000: 28).

6-4-2 DBS and an imagined e-community

The satellite project in Korea was planned to solve some problems: the problem of TV blanket areas, regional cultural gaps, the spill-over problem of other countries' satellite broadcasting waves, the formation of the cultural community of the Korean Peninsula, the provision of broadcasting and communication services, the development of satellite-related industries and the achievement of space resources such as orbits and frequency, and so on (MIC, 2000a: 464-5 and 471). The establishment of DBS [Direct Broadcast Satellite or Direct Broadcasting by Satellite] in Korea can be divided into three phases: preparation (from the late 1980s to 1994); introduction (1995-1998); activation (since 1999) (MIC, 2000a: 464). The first satellite [Ksat 1] was launched in 1995, and the second and third satellites [Ksat 2 and Ksat 3] were launched in 1996 and 1999 respectively, making satellite networks denser. The first and second satellites' coverage area is the Korean Peninsula and the third satellite's coverage area is Asia as well as the Korean Peninsula (Table 6-5). The reason why the coverage area of the third satellite is the Asian region is in part related to the political and ideological problem between South Korea and North Korea. Since North Korea began to propagate her political systems across Asia, Europe, Australia and Africa through Thailand's Thaicom from July 1999, South Korea enlarged the coverage area of satellite broadcasting towards Asia (MIC, 2000a: 473-4).

Table 6-5 The capacities of Korean satellites

		Ksat 1 & Ksat 2	Ksat 3
Transponder	Communication (Ku-Band)	12 each (36MHz)	24 (36MHz)
	Broadcasting (Ku-Band)	3 each (27MHz)	6 (27MHz)
	Communication (Ka-Band)	-	3 (2000MHz)
Beam coverage (service area)		The Korean Peninsula	Asia

Source: MIC (2000a: 476)

Table 6-6 Foreign satellite channels spilling over into Korea

Satellite	Country/organisation	Channel name
AsiaSat 1	Hong Kong	STAR-PLUSE, CHINESE CHANNEL, V-CHANNEL, PRIME SPORT, CC-TV, STAR MOVIE, etc.
BS-3a/b	Japan	NHK1, NHK2, WOWOW.
Superbird A	Japan	TBS TOKYO, UNIVERSE JAPAN, FUJI TV, TEPCO TV.
Superbird B	Japan	GAORA, LET'S TRY, NCN, CSN, SPER CHANNEL, CNN, MTV, STAR CHANNEL, SEIRYO 1, ASAHI NEW STAR, FSTV.
JC-Sat2	Japan	JLC, NECO, SKY-A, SPORT-1, SHOWER-TV, BBC.
JC-Sat3	Japan	PERPECTV
PanAmSat-2	USA	CNN, ANBC, CMT
APStar	China-Hong Kong	CNN, CETV1, REUTER TV, ESPN, TNT, etc.
APStar	China-Hong Kong	CNN, TVB1, ESPN, HBO ASIA, TURNER-BROADCASTING.
Intelsat 501	Intelsat*	TV-YOKYO2, NBC, CNN.
Intelsat 508	Intelsat	ABC, CBS
Palapa B2P	Indonesia	DISCOVERY CHANNEL, RCTI RTM, CF1, ATVi, RTM (TV-3), ABN, TVT-11, ABS-CNB, CNN INTERNATIONAL, HBO, ANTEVE, PEOPLE'S NETWORK, TPI, ESPN, SCTV, GOLD NETWORK, RTM-SABAH, RTB, S1TV, GMA.
Thaicom	Thailand	CAMBODIA TV, THAI CHANNEL 3,5,7,9,11.

Source: KISDI (2000: 167)

* International Telecommunications Satellite Organization

One of the most important implications of satellite TV is that it can be seen as a technological means to maintain national electronic and cultural territories through nationwide networks in a situation where global media flows are increasingly eroding the cultural boundaries, territories and identities of national space. For example, in the case of Korea, given that foreign satellite broadcasting waves invisibly transgressed national boundaries and directly came into households through satellite dishes (Table 6-6), the Korean government needed to use domestic satellite networks to defend and maintain a national community and identity as well as to reduce the cultural gaps between centre and peripheries at a national level. In this sense, domestic satellite networks can be seen in terms of an 'imagined e-community'. However, there are paradoxical electronic and cultural landscapes. Satellite TV can act as electronic channels through which foreign satellite TV programmes can come into national cultural territories more easily than ever before, resulting in 'real-time' globalisation and 'hybrid' territories. Satellite TV enables "a 'technological extension' of social interaction across situational boundaries – helping to reconfigure the imaginative geography of culture and community" (Moores, 2000: 78; see also Moores, 1997).

6-4-3 CATV and global-local networks

In Korea, cable TV services were launched in 1995, forming another kind of mediascape. While satellite TV is based on national territories, cable TV focuses on local territories. While the Internet is seen as global networks, cable TV is regarded as local networks. In Korea, cable networks are constructed by three main actors, each having a different role: PPs [Programme Providers] offering programmes to system operators, SOs [System Operators] transmitting the programmes to households in their local zones, and NOs [Network Operators] connecting PPs, SOs and households through satellite and cable networks. In Korea, cable networks have been rapidly extended after the 'Broadcasting Act' in 2000 based on the principle of market. In fact, before the launch of cable TV services (based on SOs: System Operators called 'comprehensive cable broadcasting business operators') in 1995, there had been a large number of cable TV stations (based on ROs: Relay Operators called 'relay cable broadcasting business operators'), forming very trivial and independent cable networks in local areas since the late 1960s (Son, C.Y. and Yeo, H.C., 2003: 19). At the time, they relay-transmitted terrestrial TV programmes to blanket areas in urban and rural areas. However, along with the extension of terrestrial TV networks over national space, they began to transmit not only terrestrial TV programmes but also video movies and animations within their local areas through cable networks. With the appearance of SOs, they could no longer survive, and eventually, many of them were transformed into SOs in 2001 and 2002 through the government's admission. This is why the number of subscribers to SOs suddenly increased, while that of subscribers to ROs decreased in 2001-2, as Figure 6-3 indicates.

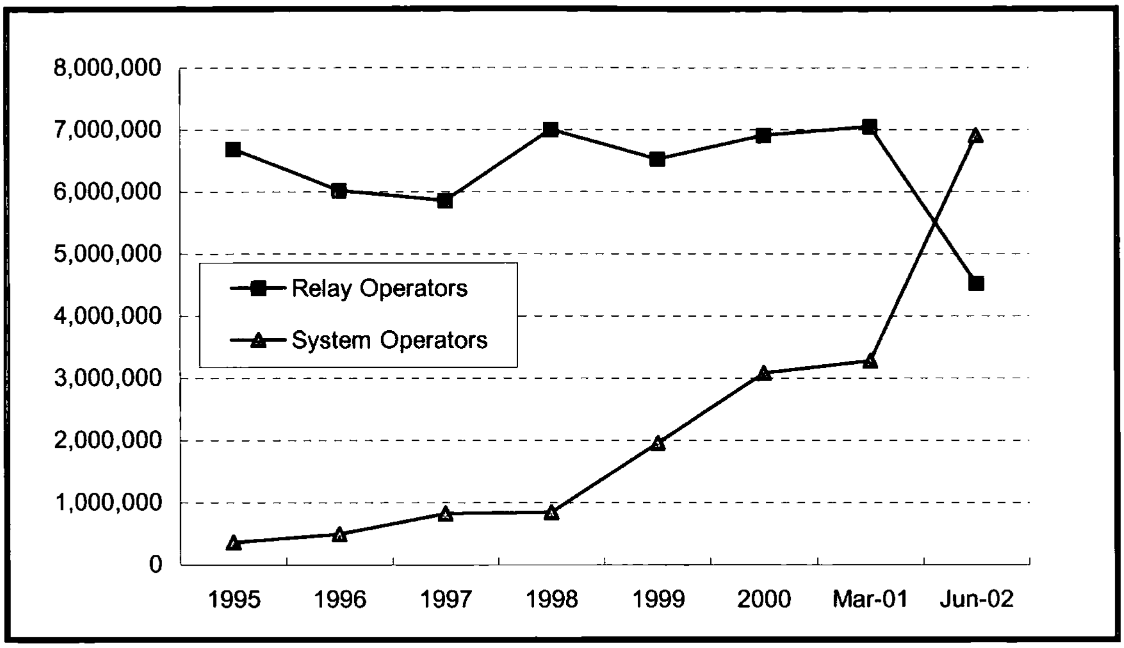


Figure 6-3 Change in the number of cable TV subscriber households
Source: Son, C.Y. and Yeo, H.C. (2003: 274)

In Korea, cable TV has had its distinctive media landscapes. First of all, cable TV penetrates homes with more than 50 channels, transmitting different programmes for twenty four hours a day. This means that the audience can be fragmented, for they do not watch the same programme on TV at the same time. More importantly, cable TV makes autonomous local media spaces with centrifugal, decentralised and heterarchical networks. This is because cable TV system operators are based on their own local zones, separated from each other, and have their own local channels, distinctive from other media, through which local information, news, opinions and so on can be delivered to local people. In fact, cable TV has had its traditional image as a local media based on localism or embedded in local communities (see Tate, 1971; Söderström, 1992; Doheny-Farina, 1996; Streeter 2004). Cable TV's image as a local media or a local community technology is being more greatly underlined at this time when local cultures and identities are increasingly eroded by global media flows. In the case of Korea, such a utopian image of cable TV has been put forward by the government and cable TV companies, in part because cable TV services started along with the beginning of the local autonomy system in 1995. However, we need to recognise that cable networks, combined with satellite networks, can be used as strategically localised channels through which local places can be more intensively connected to non-local flows, thus bringing about the 'deterritorialisation' (Tomlinson, 1999a) or 'delocalisation' (Thompson, 1995) of local places, cultures and identities. It seems then that seeing cable TV as a local media is not pertinent any more, and seeing cable TV as a 'global-local media' is more relevant. Furthermore, we need to recognise that cable networks are likely to be centripetal, centralised and hierarchical in that they tend to be concentrated in existing economic and cultural centres at national and global levels.

6-4-4 Mobile phones and the extensions of bodies

The mobile phone directly wires human bodies to electronic networks and act as nodes in mobile networks. Recently, one of the most outstanding characteristics of electronic landscapes has been that they are formed by personal, mobile or wearable technologies such as mobile phones, digital cameras, MP3 players, wireless game players and so on. Among the technological devices, it may be the mobile phone that has the most significant effects on our everyday lives. Especially, as the mobile phone is advanced from 1G through 2G to 3G, various multimedia functions are converged into the mobile phone through which mobile users can enter various electronic spaces. In Korea, the first mobile communication service began in the 1980s: car-phones in 1984 and analogue cellular phones in 1988 (1G mobile phone). Of course, very few people could possess mobile phones until the late 1990s when there were technological and institutional changes by the government. In the late 1990s, the government supported the development of new mobile technologies such as CDMA [Code Division Multiple Access] and changed the structure of mobile service markets from monopoly to competition systems. As a result, 2G mobile phones such as digital cellular phones (in 1996) and PCS [Personal Communications Services] (in 1997) began to be rapidly used, surpassing pagers and fixed telephones in 1999 (Figures 6-4 and 6-5). Furthermore, in the early 2000s, while 3G mobile phones (CDMA-2000), connected to the Internet or other media networks, began to be introduced, mobile landscapes began to be changed more rapidly.

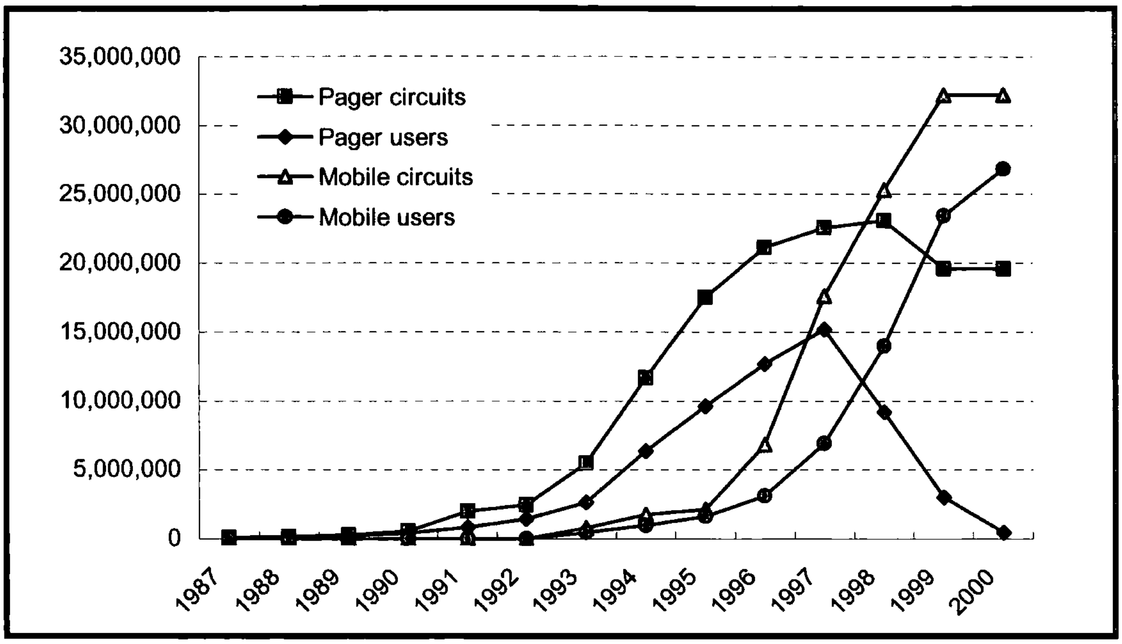


Figure 6-2 Changes in the numbers of pager and mobile users
Source: Adapted from MIC (2001a: 460-1)

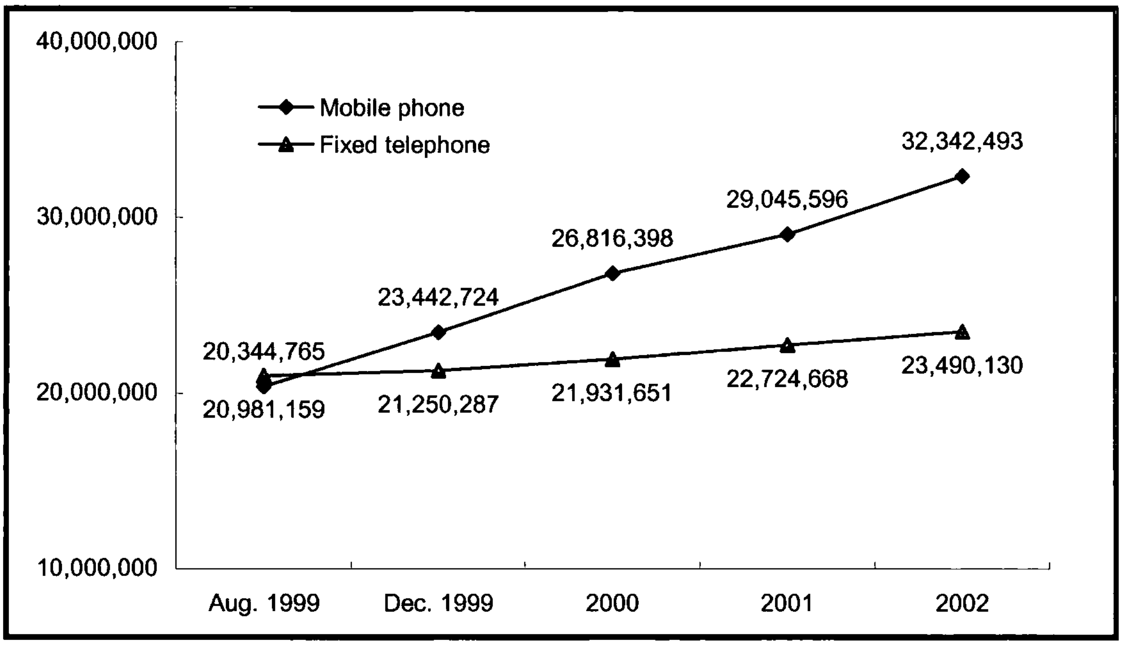


Figure 6-3 Changes in the numbers of mobile phone and fixed telephone subscribers
Source: Adapted from MIC (2003: 262)

The development of mobile networks effects changes in the city and the body. First, mobile networks can transform the city, producing the 'real-time city' where "system conditions can be monitored and reacted to instantaneously" (Townsend, 2000; see also Graham, 1997b), constructing the world of 'local intelligence' where "everyday spaces become saturated with computational capacities, thereby transforming more and more spaces into computationally active environments able to communicate within and with each other" (Thrift and French, 2002: 315) and changing 'the geography of calculation' where "from being centred and stable entities located at definite sites, through the medium of wireless computing, computing is moving out to inhabit all parts of the environment and users are able to be mobile" (Thrift, 2004a: 182). In addition, mobile networks can unsettle the boundaries between bodies and machines, resulting in post-human beings, often called 'cyborgs' as human-machine hybrids (Haraway, 1991). Here, mobile machines do not exist as pure objects, but rather as what are called 'quasi-objects', and the human bodies do not exist as pure subjects, but rather as what are called 'quasi-subjects' (Latour, 1993). In the city of cyborgs, mobile networks can involve not only extended and augmented body-landscapes in electronic spaces, resulting in the 'extensions of man' (McLuhan, 1964; see also Adams, 1995; Townsend 2000), but also in individualised and fragmented body-landscapes in physical spaces, while users are connected to absent/electronic spaces, and at the same time, are disconnected from present/physical spaces through relational networks formed by their mobile phones. Furthermore, mobile networks can shatter not only the boundaries between presence and absence (Gergen, 2000; Fortunati, 2002), but also the boundaries between public and private spaces (Green, 2002; see also Kopomaa, 2000; Ling, 2004). That is, public spaces can be instantly changed into private spaces through mobile networks, and vice versa. As such, mobile networks have the potential to blur the boundaries between binary territories in cities.

6-5 Conclusion: from territorialisation to deterritorialisation

We have seen the transformation of national media spaces in Korea from mass media space in the 1960s-70s through transitional media spaces in the 1980s to new media spaces since the 1990s. While the mass media spaces can be explained as media spaces integrated and territorialised at a national level, the new media spaces can be characterised as media spaces that are multiple and deterritorialised at global, national and local levels. There are two reasons why we need to see this transformation of national media spaces in terms of the techno-spatial fixes of capitalism, especially the scalar fixes of techno-economic spaces. The first is because the process can be seen in terms of the deterritorialisation of national media spaces from the single layer of national space into the multiple layers of local, national and global spaces. This multiplication of media space layers can be seen as the creation of new economic value-chains at a national level. The second is because the process can be seen in terms of the rearticulation of national techno-economic spaces with global techno-economic spaces. This rearticulation of the techno-economic spaces can be explained as incorporation into new economic value-chains at a global level.

Here, we need to think about the significance of the national government's role and power and the meaning of the nation-state's boundaries and territories in the process of the transformation of national media spaces. It has been argued that global technological networks such as global media flows or financial markets have eroded national authorities and boundaries through 'decentring the nation-state' (Luke, 1995a: 97). As Sassen (2000: 25) puts it, "most financial activity and other significant digital economic activities take place in private digital networks. ... The consequence has been that the global capital market now has the power to discipline national governments". Korea also experienced this nightmare in the financial crisis in 1997. It seems that national boundaries, territories and identities have been eroded in new media spaces to some degree. However, it is also true that their meanings are still effective, and at least are not likely to be erased in new media spaces in that the Korean government has played an important role in constructing new media spaces (Kim, 1999; Lee and Joe, 2000; Kim and Hong, 2001). We typically saw this point in the case of Cyber Korea 21.

Chapter 7

Recreating Centrality in New Media Spaces and the Network Politics of Dis/connections

In the previous chapter, we saw how national media spaces are transformed from mass media spaces integrated and territorialised at a national level into new media spaces multiple and deterritorialised at global, national and local levels. In this chapter, I argue that the multiple and deterritorialised media spaces are paralleled with centralised and reterritorialised media spaces. First, I explain how electronic spaces have been constructed mainly in the capital city/region as the centre of new media spaces, examining two properties: the spatial structure of electronic networks/speeds as a material condition; and the spatial distribution of electronic domains/territories as an immaterial condition. Then, I explain how the capital city Seoul located in the centre of the electronic spaces has produced itself as a digital city in order to maintain and reproduce its centrality and privilege in new media spaces, looking at two properties: the technological construction of digital urban space/place as a material condition through urban engineering; and the ideological creation of digital urban image/identity as an immaterial condition through urban imagineering. Finally, I conclude this chapter, explaining this urban strategy in terms of a network politics of dis/connections through which the city could emerge as a new node in global techno-economic spaces, and at the same time recreate its centrality in national techno-economic spaces involving new economic value-chains.

7-1 Spatial power shift or fix?

It has been argued that new media technologies have the potential to change existing spatial relations and power networks. Recently, as cities' competitiveness tend to depend on "their capacity to generate, process and exchange information" (Hall, 1997: 318), new information technologies and infrastructures are being perceived as important material bases for urban or regional growth (see Walcott and Wheeler, 2001; van den Berg and van Winden, 2002). For example, as a result of technological, economic and regional restructuring since the late twentieth century, a 'power shift' has appeared. For example, the new geographical contour of 'sunbelt versus frostbelt' arose from the 'deindustrialisation of America' and the growth of 'high technology' and the 'electronic revolution' in new 'silicon landscapes' (Soja, 1989: 160). In the global electronic space of the Internet, there are now appearing "new communications hubs such as San Francisco, Frankfurt, and Hong Kong that are emerging from the shadows of the great financial centers like New York, London, and Tokyo" (Townsend, 2001a). In addition, Singapore and Kuala Lumpur are emerging as Asian information hubs in a global network (Allen, 1999). These examples suggest how new technologies can induce changes in existing inter-urban spatial relations and power relations.

Although new media technologies have the potential to reshuffle spatial relations and power networks, we need to recognise that they can also be used to reproduce and reinforce the centralities of existing power centres. In a sense, this duality can be seen as a matter of spatial scales. For example, let's think of the centres of (semi-) peripheral regions newly emerging as new electronic, economic or cultural nodes in the global space of flows (e.g. Malaysia's Multimedia Super Corridor, see Bunnell, 2002, 2004a, 2004b). Obviously, they can be seen to change existing spatial relations and power networks at a global level. However, at the same time, they can be regarded to recreate their centralities at micro-levels such as a national or local level. In this sense, we need to recognise that the contours of new media spaces cannot be fully free from the inertia of existing physical spaces. In other words, there are 'circular' and 'accumulative' relations between electronic and physical spaces. This perspective attacks utopian discourse and rhetoric such as 'the demise of geography' (Toffler, 1970) or 'power shift' (Toffler, 1990) or the 'extensions of man' (McLuhan, 1994). These spatial processes can be understood more appropriately when it is explained as a 'spatial (power) fix' in Harvey's (1982, 1985) political-economic terms rather than as a '(spatial) power shift' in Toffler's (1990) neo-liberalist terms.

In the case of Korea where electronic spaces based new media technologies such as the Internet, satellite TV, cable TV and the mobile phone have been constructed since the 1990s, there have been utopian visions of information society. The Korean government and IT companies have acted as if new technologies could create a new kind of society and nation and ameliorate existing social and regional problems such as uneven regional development. For example, the government and the mass media suggested the ideological vision that '*Korea was late in industrialisation, but could be ahead in informationalisation*', and KT's [Korea Telecom], one of Korea's IT companies of Korea, has expanded its electronic territories under the utopian slogan of '*the nation becoming one through networks*'. They have all called for the construction of new national territories where anyone can access information anytime and anywhere through high-speed and ubiquitous IT networks. After the South Korean economic crisis in 1997, the Korean government suggested that the Internet could be a strategically crucial means through which Korea could establish the so-called knowledge-based economy or information society and furthermore become a new hub in Asian or global electronic and economic spaces. In addition, more recently, some local governments have proposed various projects for the establishment of local IT spaces based on the knowledge-based economy (of course, such local projects are fiscally and institutionally supported by the national government). For example, Seoul, the capital city of Korea, planned to build a digital media city.

However, we need to recognise that new media technologies can reproduce existing spatial relations and power networks in Korea, recreating the centrality of the capital city/region. To prove this point, in this chapter, I explore how new media spaces have been centralised and deterritorialised in the capital city/region in Korea. (a) First, I examine how electronic spaces in terms of the spatial structure of electronic networks/speeds as a material condition and the spatial distribution of electronic domains/territories as an immaterial condition have been constructed, concentrated and circulated in the capital city/region as the centre of new media spaces. (b) Second, I look at how the capital city Seoul located in the centre of the electronic spaces has produced itself as a digital city to maintain and reproduce its centrality in new media spaces through urban engineering, that is, the technological construction of digital urban space/place as a material condition, and urban imagineering, that is, the ideological creation of digital urban image/identity as an immaterial condition. I explain this urban strategy in terms of the 'network politics of dis/connections' through which the city attempts to recreate its centrality in national techno-economic spaces, and at the same time to emerge as a new node in global techno-economic spaces.

7-2 Electronic networks/speeds and domain/territories

7-2-1 Electronic networks and speeds

In order to understand how electronic spaces in Korea have been constructed in Korea, I first examine the spatial structure of electronic networks/speeds with reference to the national information infrastructure [KII: Korean Information Infrastructure]. This has been constructed through three phases since 1995 (the first phase: 1995-1997; the second phase: 1998-2000; and the third phase: 2001-2005). In fact, the KII is composed of various kinds of electronic networks such as optical networks, cable networks and satellite networks, and is structured in a very technologically complex way. Here, I analyse the basic blueprint of the KII according to which private Internet service providers' backbone networks are constructed.

Figure 7-1 shows the spatial structures of the KII: 'ATM [Asynchronous Transfer Mode] network' (the left map) and 'optical network' (the right map). In the case of 'ATM network', a technologically advanced network linking or switching high-speed information flows, we can see that the key nodes of the network are located in large cities such as Seoul, Busan, Daegu, Incheon, Gwangju and Daejeon which fall into main administrational centres in hierarchical urban systems. Such a concentrated and hierarchical spatial structure also appears in the case of the 'optical network' as the main backbone network of the KII. The network is composed of 12 nodes and 132 access points through which 144 call zones are integrated at a national scale. At large, the nodes are large cities and administrative centres such as Seoul, Busan, Daegu, Incheon, Gwangju, Daejeon, Jeonju, Cheongju, Wonju, Jeju, Suwon and Changwon, and the access points are middle-sized and small cities. Nodes and access points have different levels of speeds and different patterns of networks. Basically, the nodes are linked to each other through lines with the transmission speed of 622Mbps-10Gbps, and the access points are through lines with the transmission speed of 155Mbps-622Mbps. In addition, the networks among the nodes take on a 'full mesh' pattern for heavy Internet traffic, and the networks between the nodes and access points take on a 'ring' or 'star' pattern for less dense traffic (MIC, 1998: 29). At large, while the nodes are connected directly to each other and their access points, the access points are linked directly only to their high-order nodes, while being dependent on them, and indirectly to other nodes and access points only through their high-order nodes. That is, centre-hinterland relations appear between the nodes and access points. As such, the spatial structure of the KII is absolutely hierarchical, exactly following the spatial structure of administrative urban systems. This implies that the contours of electronic networks could not be separated from the conditions of physical spaces.

In addition, different networks and speeds appear between the nodes, as Table 7-1 shows. While the main nodes such as Seoul, Busan, Daegu, Daegeon and Gwangju are tightly connected to each other, the other nodes such as Incheon, Jeonju, Cheongju, Wonju, Jeju and Suwon are loosely connected to the main nodes and each other. The capital region where Seoul, Incheon and Suwon are located is much more wired to high-speed networks than any other region. Relatively, Wonju, a mountain region, and Jeju, an island region, are connected to slow-speed networks. In short, the whole structure of the KII takes on a Seoul-centred pattern. According to more empirical studies of the spatial structure of the Internet backbone networks of ISPs [Internet Service Providers] in Korea (Huh and Kim, 2003; Lee and Lee, 2002), their Internet networks show exactly such a capital city/region-centred hierarchical spatial structure.

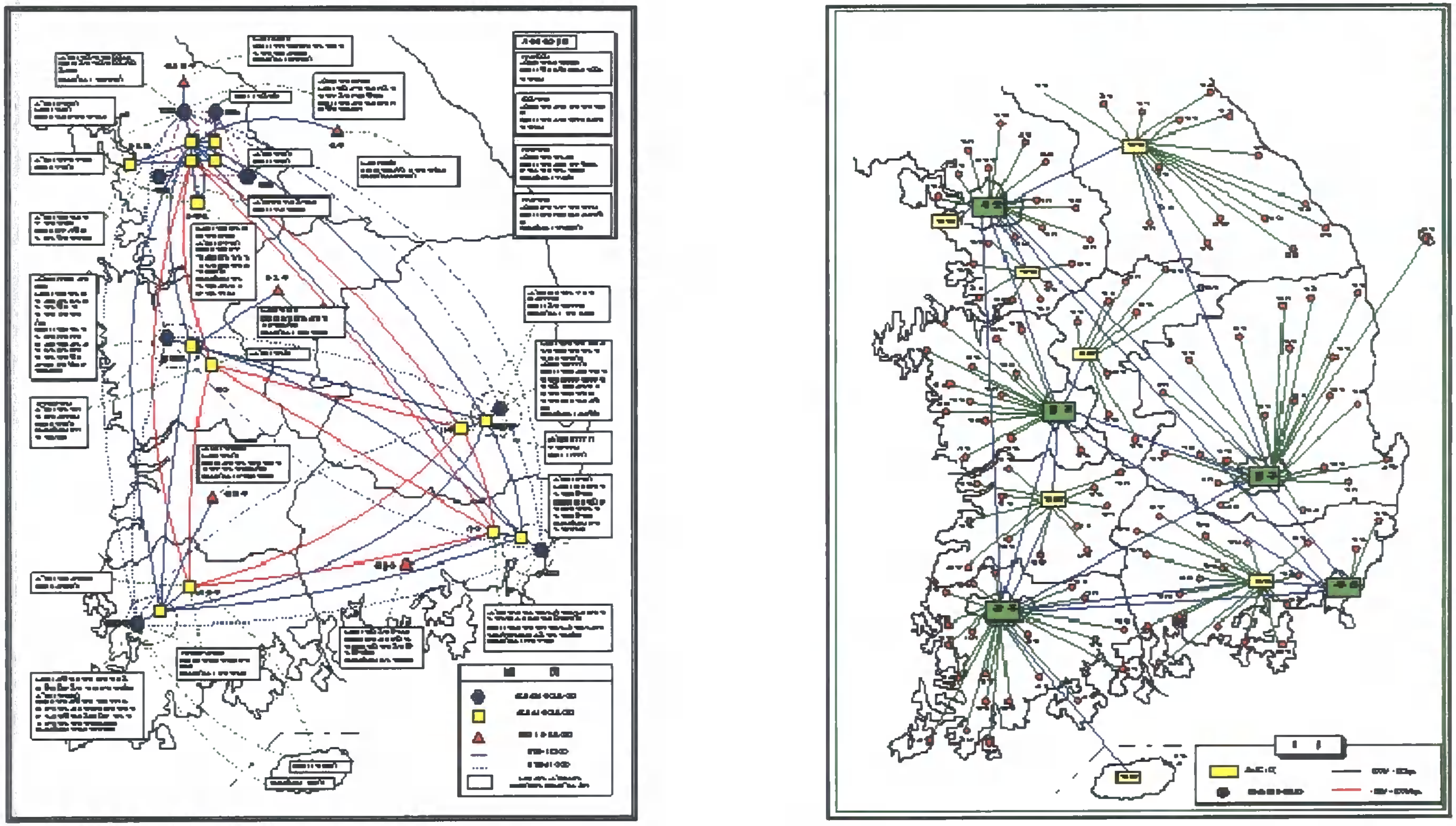


Figure 7-1 The backbone networks of the KII (the left: ATM network, the right: optical network)

Source: MIC (n. d.)

Table 7-1 Network speeds between node cities in the KII

City	S.L.	B.S.	D.G.	I.C.	G.J.	D.J.	J.J.	C.J.	W.J.	Jeju	S.W.	Year
Seoul		4860	4484	3670	3478	3927	812	57	317	50	2990	
Busan	31795		1883		155	180						
Daegu	26452	3377				337						
Incheon	22428										624	
Gwangju	22959	3500				163	763			82		
Daejeon	23435	290	2792		293		61	132				1999
Jeonju	5600				3802	101						
Cheongju	5135					1383						
Wonju	6598											
Jeju	90				1580							
Suwon	18242			2								
Year	2000											

Source: MIC (2000)
Unit: Mbps

The spatial concentration of ISPs' Internet backbone networks in Seoul is related to the spatial locations of ISPs. That is, they also tend to be concentrated in the capital city/region. As Table 7-2 indicates, about 72% are located in Seoul and 87% in the capital region. The spatial concentration of ISPs is also related to the spatial locations of IX (Internet eXchange) points by which different ISPs' networks are connected to each other and the Internet traffic between them is linked and interchanged. All IX nodes in Korea – there are four IX points in Korea: KIX which is a non-commercial IX point by which non-commercial ISP's networks are connected, and KTIX, DIX and KINX which are commercial IX points by which commercial ISP's networks are connected – are located in Seoul (Korean ISP Association and Korea Network Information Center, 2001; NCA, 2003: 120). After all, Seoul is located in the centre of electronic spaces in Korea not only topologically but also functionally.

Table 7-2 The number of ISPs by city/region

City/region	Non-commercial	Commercial	Total
Seoul	3	56	59
Busan	0	1	1
Daegu	0	1	1
Incheon	0	2	2
Gwangju	0	1	1
Daejeon	3	1	4
Ulsan	0	0	0
Gyeonggi-do	1	9	10
Gangwon-do	0	0	0
Chungcheonbuk-do	0	2	2
Chungcheongnam-do	0	1	1
Jeollabuk-do	0	0	0
Jeollanam-do	0	0	0
Gyeongsangbuk-do	0	0	0
Gyeongsangnam-do	0	1	1
Jeju-do	0	0	0
Total	7	75	82

Source: NCA (2003) (as of December 2002)

As a result of this concentration of electronic networks, Seoul is acting as not only the centre of electronic spaces in Korea, but is also emerging as one of the hubs of global electronic space at a time when most of the main hubs are located mainly in Europe and the United States and only a few are located in Asia (Table 7-3). According to Townsend (2001a), "in Asia, Singapore and Hong Kong are engaged in intense competition to become one of the region's primary Internet hubs, although they both already play this role. And Seoul rivals Tokyo as a major consumer of international transmission capacity". The Korean government and ISPs have constructed high-speed electronic networks in Seoul more than in any other city in Korea, and this accounts for the reason why Seoul has become the second hub of the Internet in Asia.

Table 7-3 International backbone hubs

Asia		Europe		United States	
City	Mbps	City	Mbps	City	Mbps
Tokyo	2,393	London	17,969	New York	13,205
Seoul	1,106	Amsterdam	10,874	Washington, DC	3,998
Hong Kong	541	Frankfurt	10,516	San Francisco	3,950
Singapore	497	Paris	9,687	Chicago	2,666
Taipei	324	Brussels	6,213	Seattle	2,607
Kuala Lumpur	188	Geneva	5,947	Los Angeles	740

Source: Telegeography (in Townsend, 2001a)

7-2-2 Electronic domains and territories

In order to understand how electronic spaces are concentrated in the capital city/region, we need to see the spatial distribution of electronic domains/territories as an immaterial condition. As paths to web sites in cyberspace or as literal symbols of numeral IP addresses, Internet domains imply geographic territories or identities in cyberspace (Wilson, 2001), and their spatial distribution indicates geographical variations in Internet activity (Townsend, 2001b). The spatial system of domain names is ordered hierarchically like a tree structure, thus it is impossible for Internet domains to have the same name. This means that although their electronic territories are connected with each other through hyperlinks, the territories cannot overlap with other territories and are completely divided by electronic boundaries, thus sometimes bringing about domain name issues (see Wilson, 2001). Internet domains can be categorised into three electronic territories: global, national and regional electronic territories. Internet domains as electronic territories are divided into two kinds of TLDs [Top Level Domains]: gTLD [Generic TLD] and ccTLD [Country Code TLD].[1] The former can be seen as 'global electronic territories' and the latter as 'national electronic territories'.

[1] For more information on domain name codes, see the website of the Internet Assigned Numbers Authority, [http://www.iana.org].

Table 7-4 The top 10 cities and countries in the number gTLD names

Rank	City*	Country*	In the USA**
1	Seoul	United Kingdom	New York
2	London	Canada	Los Angeles
3	Toronto	Korea	San Francisco/San Jose
4	Hong Kong	Germany	Washington, DC
5	Paris	France	Chicago
6	Tokyo	Italy	Boston
7	Vancouver	Japan	Dallas – Fort Worth
8	Madrid	Spain	Seattle
9	Singapore	Netherlands	Philadelphia
10	Calgary	China	Miami

Source: *Network Solutions (in KRNIC, 2001: 141, the USA is not included), **Townsend, (2001b: 51)

gTLD is again divided into the seven categories that were made when the Internet began – com, net, org, edu, gov, mil and int – and into seven new categories which were added in November 2000 – biz, name, info, pro, museum, coop and aero. Among them, .com domains account for 73.3 per cent, .net domains 14.0 per cent and .org domains 9.2 per cent of the total gTLDs (DNS BE Annual Report 2001, in NCA, 2003: 62). The spatial distribution of gTLDs can be seen as an index indicating where Internet domain centres are located in global electronic territories. Table 7-4 shows the top 10 cities and countries in the number of gTLDs outside the USA. At the top of countries is the UK, and at the top of cities is Seoul, called "the capital city for domain names".[2] That gTLDs as global electronic territories are concentrated in a city can mean that the city becomes the centre of global electronic territories. Just as Seoul acts as one of the global hubs of Internet backbone networks (Townsend, 2001a), so too the city acts as one of global cities in Internet domains (gTLDs) (Short and Kim, 1999).

[2] Nua (15 January 2001) *Seoul is the capital city for domain names*. [http://www.una.ie]

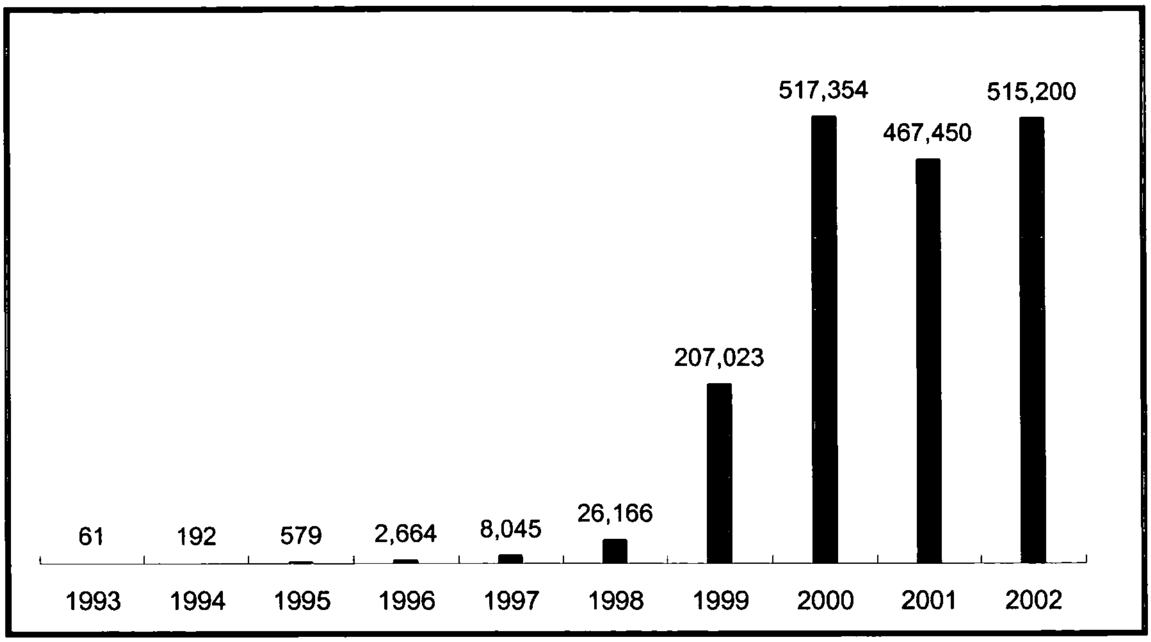


Figure 7-2 Change in the number of .kr domains
Source: NCA (2003: 71)

ccTLD is expressed in two alphabet letters meaning the names of countries like uk (the United Kingdom), nl (Netherlands), kr (Korea) etc (the USA does not have its ccTLD). Germany having about 5,200,000 .ge domains is first place in the world, followed by the UK having about 3,100,000 .uk domains, and Korea having about 460,000 is in the eighth position (DNS BE Annual Report 2001, in NCA, 2003: 62). In Korea, .kr domains as national electronic territories have dramatically increased since 1998, as Figure 7-2 indicates. However, they are not ubiquitous across national spaces, but highly concentrated in only a few cities or regions, especially, in the capital city/region. More than 50 per cent of the total .kr domains are concentrated in Seoul, and more than 70 per cent in the capital region (Table 7-5). The national electronic territories of .kr domains are divided into some categories such as co.kr (commercial, 85.5 per cent), pe.kr (personal, 6.1 per cent), or.kr (organisation, 4.5 per cent), ne.kr (network, 0.7 per cent), re.kr (research, 0.2 per cent), go.kr (government, 0.2 per cent) etc. That co.kr occupies most of the national electronic territories implies that the electronic territories are being used commercially for exchange value rather, and that their spatial locations are heavily affected by economic activities and conditions in physical territories. In the national electronic territories of .kr domains are 'regional domains' as 'regional electronic territories' such as seoul.kr, daegu.kr, gyeonggi.kr etc. Although regional domains account for 0.5 per cent of the total .kr domains, they are meaningful for they represent geographical and territorial identities and indicate regionally exclusive electronic territories in that only actors inhabiting or locating in Seoul can possess seoul.kr domains. The capital city/region (including seoul.kr, incheon.kr and gyeonggi.kr) is dominant even in regional domains, and in Seoul are about 40 per cent of the total regional domains.

Table 7-5 The distribution of .kr domains and regional domains by city/region

City/region	.kr domain (%)	Regional domain	
		Name	Number
Seoul	58%	seoul.kr	1,085
Busan	5%	busan.kr	252
Daegu	4%	daegu.kr	171
Incheon	3%	incheon.kr	115
Gwangju	2%	gwangju.kr	80
Daejeon	2%	daejeon.kr	175
Ulsan	1%	ulsan.kr	105
Gyeonggi-do	15%	gyeonggi.kr	82
Gangwon-do	1%	ganwon.kr	108
Chungcheonbuk-do	1%	chungbuk.kr	46
Chungcheongnam-do	1%	chungnam.kr	53
Jeollabuk-do	1%	jeonbuk.kr	57
Jeollanam-do	1%	jeonnam.kr	66
Gyeongsangbuk-do	-	gyeongbuk.kr	49
Gyeongsangnam-do	2%	gyeongnam.kr	41
Jeju-do	1%	jeju.kr	189
Total	100%		2,674

Source: NCA (2003: 71-2) (as of December 2002)

Table 7-6 The top 50 websites Korean people most visit

Rank	Website	City/region	Rank	Website	City/region
1	daum.net	Seoul	26	netmarble.net	Seoul
2	kr.yahoo.com	Seoul	27	hankooki.com	Seoul
3	naver.com	Seoul	28	buddybuddy.co.kr	Busan
4	dreamwiz.com	Seoul	29	new21.com	Seoul
5	hanafos.co.kr	Seoul	30	blueboard.co.kr	Seoul
6	netian.com	Seoul	31	kbstar.com	Seoul
7	hanmir.com	Seoul	32	cjmall.com	Seoul
8	bugsmusic.com	Seoul	33	simmani.com	Seoul
9	chol.net	Seoul	34	cgiworld.net	Seoul
10	lycos.co.kr	Seoul	35	korea.com	Seoul
11	empas.com	Seoul	36	joins.com	Seoul
12	hihome.com	Gyeonggi-do	37	megapass.net	Seoul
13	com.ne.kr	Seoul	38	lgeshop.com	Seoul
14	msn.co.kr	Daejeon	39	nexon.com	Seoul
15	nate.com	Seoul	40	okcashbg.com	Seoul
16	imbc.com	Seoul	41	soodiet.com	Seoul
17	maxmp3.co.kr	Seoul	42	siren24.com	Seoul
18	superboard.com	Seoul	43	nalsee.com	Gyeonggi-do
19	cafe24.com	Seoul	44	skdtod.com	Seoul
20	auction.co.kr	Seoul	45	songn.com	Seoul
21	kbs.co.kr	Seoul	46	sportsseoul.com	Seoul
22	sayclub.com	Seoul	47	donga.com	Seoul
23	chosun.com	Seoul	48	bccard.com	Seoul
24	freechal.com	Seoul	49	x-y.net	Seoul
25	sbs.co.kr	Seoul	50	stoo.com	Seoul

Source: The web site names are taken from KRNIC (2001). The geographical addresses of the web sites were identities in December 2002.

Finally, we need to know the locations of the web sites most visited by Koreans. This is because not only do the im/material conditions of electronic spaces have effects on human behaviours related to on-line activities in web sites, but also such human behaviours can have effects on the re/production of electronic spaces in terms of 'structuration theory'. For example, however many domains exist in a certain city, if people do not use the domains, then the domains cannot last and the city cannot act as the centre of electronic territories. Just as the capital city of a country where many people inhabit is the centre of the country, and the CBD of a city where many people access is the centre of the city, so the city with domains many people visit can be considered the centre of electronic territories. In this sense, we can know which city acts as the centre of electronic territories by identifying the locations of websites people usually visit. I identified the geographical locations of the top 50 websites Korean people usually visit (Table 7-6). The data of the websites' names (top 50 web sites – 39 gTLD and 11 ccTLD (.kr) domains which users visited most during the first half of 2001) were available at Korea Network Information Center (2001), and the data of the websites' locations could be identified through on-line Whois search services.[3] They show a spatial pattern of ultimately uneven distribution. 46 (92 per cent) of the 50 domains are located in Seoul, 48 (96 per cent) are located in the capital region (including Seoul and Gyeonggi-do), and only 2 domains are located in other cities (1 in Busan and 1 in Daejeon). It has been often argued that the Internet entails placeless territories and dispersed landscapes through 'the death of distance' for people can access Internet domains wherever they are or wherever the domains are. However, we can see that the centre of electronic territories is not different from that of physical territories (see Moss and Townsend, 2000a; Dodge and Shiode, 2000; Batty and Miller, 2000)

[3] At [http://domain.nic.or.kr] for domain names with ccTLD (.kr) and at [http://www.123registration.com] for domain names with gTLD.

7-3 Urban space/place and image/identity

7-3-1 Urban engineering: spreading urban networks into global space

With the beginning of the twenty-first century, the city of Seoul began to attempt to transform itself as a digital city with regard to its local government and economy. For example, the city of Seoul began to call itself 'e-Seoul' in 2001 which refers to the electronic local government, and has set up the 'informatization project' for the establishment of the e-local government and the execution of IT-based local governance. In the case of the informatization project in 2001, its objective was to make 'citizen-oriented and knowledge-based e-Seoul'. To achieve the objective, the city of Seoul suggested five basic directions of administrative and economic policies: (a) the establishment of Internet-based administrative and public service systems; (b) the provision of life-related information; (c) the activation of the local economy by informatization; (d) the realisation of knowledge-based administration; and (e) the advancement of information infrastructures (SMG, 2002a). These policies involve a kind of 'urban engineering' related to the construction and establishment of new electronic spaces, systems and networks. In order to activate the local economy, the city of Seoul suggested IT and cultural industries such as software, animation, and entertainment as new urban industries and prompted the construction of the DMC [Digital Media City] as a new urban industrial space.[4] Indeed, the DMC can be seen a typical strategy of urban boosterism or marketing or what Webster (2001: 27) calls the 'new urbanism' in which "cities are seen as the new drivers and switching centres of an emerging new economy which ... places a high premium on knowledge and information professionals".

[4] In fact, the DMC project was already introduced in 2000 as a core part of the 'Millennium City' project which aims at being a 'gateway city', an 'information city' and an 'eco-city' (SMG, 2000, see Figure 7-3). The DMC is a zone for digital media-based strategic development in the western part of Seoul. The MIT Media Lab-MIT Department of Architecture Consortium is participating in the 'Digital Media City' project.

Figure 7-3 The Millennium City and the Digital Media City in Seoul (planned landscape)

Source: Seoul metropolitan government [http://www.dmc.seoul.kr]

Table 7-7 IT complexes in Asia

	Software	Hardware	IT service	Media & Entertainment	Biotechnology (Others)
Cyberport, Hong Kong	◎	●	-	○	-
Cyberjaya, Malaysia	○	◎	◎	○	-
Singapore Science Park	●	-	◎	-	-
Taicang Science and Technology Park, China	◎	●	-	-	-
Hi-Tech Park Shanghai, China	◎	●	-	-	◎
Hong Kong Science Park	◎	●	-	-	◎
Hsinchu Science-based Industrial Park, Taiwan	-	●	-	-	◎
Nankang, Taiwan	●	-	-	-	-
Digital Media City, Korea	◎	○	○	●	-

Source: SMG (2001: 11)

Note: ● Primary core industry, ◎ Secondary core industry, ○ Tertiary core industry

In order to understand how the city of Seoul recreates its centrality in new media spaces and reshapes its new urban geographies through the DMC, it seems to be helpful to describe the whole outline of the DMC including its vision, objectives, strategies and spaces, although the DMC is now under construction. First, the vision of the DMC is "to become the world's leading innovative complex of digital multimedia companies and a cyber enterprise district that ensures economic, cultural, environmental prosperity in the new millennium" (SMG, 2001: 4). In addition, the objectives of the DMC are to "construct an exclusive information metropolis for local and global high-tech digital media corporations, which would serve as the high-tech hub of Northeast Asia" and to "create a futuristic, environment-friendly multi-purpose town to help the city of Seoul meet the challenges of information technology and globalization" (SMG, 2001: 1). The DMC is organised around four strategic concepts to realise the vision. (a) 'Innovation': DMC will create an innovative system that supports the entire process of technology creation, diffusion, and adoption in order to serve as a leading hub of multimedia industries. (b) 'Focused integration': DMC will strategically concentrate on key industry area and integrated related activities to gain maximum values out of synergies created around core activities. (c) 'Distinctiveness': DMC shall achieve its distinctiveness in the following dimensions: strategic concentration, service offered, and identity. By strategically concentrating on key industry sectors and providing a wide rage of both tangible and intangible services, DMC will gain its distinctiveness. Finally (d) 'economic viability': by creating the most appropriate business environment, DMC must ensure commercial viability of tenant companies in the core industry areas and satisfy the economic interests of those who are involved (SMG, 2001: 5).

Based on these strategic concepts, the DMC selected media and entertainment industries (for example, broadcasting, music, digital education, game and film & animation) as the primary sector, and software and IT service industries as the secondary one (Table 7-7) in order to "distinguish itself from other competing complexes in Asia by focusing on M&E and software industry as the primary and secondary core industry respectively" (SMG, 2001: 11). One of the characteristics of the cultural economies of contemporary cities is that the cities take on 'global-local' strategies (Scott, 2000: 13), especially acting as a 'neo-Marshallian node in global networks' (Amin and Thrift, 1992). The DMC is not an exception to such a 'global-local' strategy in that it takes advantage of existing geographical conditions at 'global' and 'local' levels, forming 'global-local' networks. At a global level, the city finds out a niche in the Asian market of the media sector, not occupied by other countries or cities, and expects that the DMC could be a key node in the Asian or global networks of media. [5] At a local level, the city wants to take advantage of its place-specific geographical conditions in Korea. That is, in Korea, most of the companies or institutes, related to the cultural industry such as films, animations, broadcasting, music, games and so on, are concentrated in the capital city/region including Seoul, Incheon and Gyeonggi-do (Table 7-8), and such geographical conditions can be used as the important industrial, cultural and social sources of the DMC.

Furthermore, the city of Seoul suggests the 'Information Network City' as a further developed form of the DMC: "to achieve distinctiveness and competitiveness vis-à-vis other competing information complexes, DMC must be developed just not as an IT Industrial Park that emphasizes the physical aspect and industry portfolio, but as the Information Network City where the citizens can share and exchange information and culture within the city's boundaries" (SMG, 2001: 19). The Information Network City can be characterised as "a system of information infrastructure and management process organized by the city's constituents, including the citizens, business people, and administrators"; "a multi-purpose complex which becomes home to multinational corporation in media & entertainment, software and related IT services"; and "a truly digital city with super speed information network where cyber education and e-commerce will be a part of daily life" (SMG, 2001: 19). In order to achieve such a vision, the Information Network City is composed of some spatial elements of information infrastructures as follows:

[5] Korea is now acting as the most important cultural exporter in Asian media markets such as films, TV dramas, music and so on, forming a new kind of cultural current in East and Southeast Asia, called the 'Korean Wave'. This point can also be found in the cultural networks of cable TV (see Chapter 10).

Table 7-8 The distribution of cultural industries by city/region

City/region	Film	Animation	Television & Radio *	Recorded music	Game
Seoul	462	153	9	236	330
Busan	9	2	3	4	10
Daegu	8	1	2	4	7
Incheon	2	1	1	2	11
Gwangju	8	1	2	0	3
Daejeon	6	0	2	0	7
Ulsan	0	0	2	1	1
Gyeonggi-do	25	8	1	39	29
Gangwon-do	2	2	4	2	1
Chungcheonbuk-do	5	0	3	1	0
Chungcheongnam-do	1	0	0	1	0
Jeollabuk-do	1	1	3	0	2
Jeollanam-do	1	0	2	2	1
Gyeongsangbuk-do	2	0	2	0	0
Gyeongsangnam-do	5	0	2	0	3
Jeju-do	1	0	2	0	0
Total	538	169	40	292	405

Source: MCT [Ministry of Culture and Tourism] (2001)

* Cable TV and satellite TV are not included.

(a) Information/communication network: In order to compete successfully with other complexes, DMC must construct the most advanced and distinctive information and communication infrastructure to attract global big players. The prerequisite for the continuous growth of tenant media and entertainment and software companies lies in information and communication foundations that ensure successful commercial utilization of related services. To create an ideal business environment, DMC information and communication network must build ground, wireless, and satellite communication infrastructure (SMG, 2001: 21).

Table 7-9 The digital town in the DMC

Division	Task Project
Home Information Network	• Digital apartment and home automation • Cyber shopping mall and delivery system • Cyber education system • Cyber hospital system • Integrated reservation system and cyber world (tourism, music, game etc.)
Industry Information Network	• E-Biz infra (EDI, e-sanction etc.) • DMC industrial information (manpower, product, service) system • On-line management and marketing support • E-Commerce
Administration Information Network	• Integrated administration information system • One-stop administration service • Cyber civil application service
Urban Infra Information Network	• Ultra high speed information network development • Comprehensive city information system • Intelligent transportation system (ITS)

Source: SMG (2001: 24)

(b) The Digital Town: Simplification of the information flow within DMC will promote the productivity and efficiency of the key players of the city, and build a cyber community where homes, companies and government can create and share new information values based on individual information networks (SMG, 2001: 23). The four key players of the city, namely, citizens, industry, administration and urban infrastructure, should form a self-completing information network [digitalization + system + interaction + marketing], in order to establish the entire network and produce information value (SMG, 2001: 24) (see Table 7-9).

(c) IDC [Internet Data Center]: IDC is a kind of integrated computer laboratory for lease where individual companies' network facilities are located taking advantage of the super-high speed Internet network. The role of IDC is to reduce initial investment and to enhance the management skills of computer systems through the promotion of efficiency in network traffic management and the provision of companies' computer system outsourcing (SMG, 2001: 27).

(d) Network with other international complexes: The objective of establishing networks is to emphasize the value of DMC as a pan-international hub and to secure the global competitiveness of tenant companies in the long run. The global network must be built to gain competitiveness in the globalization era. There is a need to acquire effective management and maintenance skills, up to the level of other international complexes, and to activate the international cooperation in research (SMG, 2001: 30).

Fundamentally, the DMC is based on global-local networks. However, we need to recognise that the urban strategy of the DMC needs more than global-local networks in that the DMC is not only connected to global networks, but also disconnected from other parts of urban and national spaces. On the one hand, the DMC can be seen as an urban strategy for connecting Seoul to global networks through global-local networks. Given that "city powers are mobilized through networks" (Allen, 1999: 199), and "the greater the concentration of flows, the more intense becomes the power of a city" (Pryke, 1999b: 333) in neo-liberalist global space where "increasingly, cities and regions are regarded as actors in their own right in the global economy (Thrift, 1999b: 274), entering global networks means being empowered, and remaining outside the networks implies being disempowered. In this sense, the DMC project can be thought of as an effort to shift Seoul from outside into inside global networks emerging newly in Asia.

Recently, among East and Southeast Asian cities such as Tokyo, Singapore, Hong Kong, Shanghai, Kuala Lumpur and Seoul, called 'extended metropolitan regions' (McGee, 1991; Smith 2001) or 'mega-urban regions' (McGee and Robinson, 1995; Douglass, 2000), there has been intensive competition for becoming Asian hubs or 'wannable' world cities (Short, 1999). Tokyo as a global city has done so to maintain and strengthen its privileged position, and NICs' [Newly Industrialised or Industrialising Countries] cities have done so to be new hubs in the global space of flows. In order to increase their attractiveness and competitiveness as Asian or global hubs, the major cities have competitively established built environments such as international hub airports (see Shin and Timberlake, 2000), information networks (see Wilson and Corey, 2000) and IT-based new industrial spaces. Jessop and Sum (2000: 2309) called this production of IT-landscapes in East and Southeast Asia 'siliconisation'. In this course, as we can see in Table 7-7, various 'technoscapes' and 'mediascapes' have appeared (Appadurai, 1990). In East and Southeast Asia, "intercity competition for world city status among these regions has intensified following the 1997 economic crisis" (Douglass, 2000: 2315), and also in Korea, "in the aftermath of the economic crisis, the need to enhance the global competitiveness of the major city-regions in Korea became apparent" (Kim, 2001: 272). In fact, before the economic crisis, the city of Seoul attempted to be a global city through the construction of local built environments for globalisation (Kim and Cha, 1996; Short and Kim, 1999). The DMC also can be seen in terms of an urban strategy whereby Seoul can be connected and incorporated into global networks.

On the other hand, the DMC entails disconnections from other parts of urban and national spaces. This point is obviously found in the following phrases: "Information Network City where the citizens can share and exchange information and culture *within the city's boundaries*" (SMG, 2001: 19); and "a *self-completing information network* [digitalization + system + interaction + marketing], in order to establish the entire network and produce information value" (SMG, 2001: 24). It seems that the city of Seoul wants the DMC to be seen as a kind of 'city of bits' (Mitchell, 1995, 2000; Horan, 2000), inhabited by a new kind of social class, called 'symbolic analysts' (Reich, 1992), 'digerati' (Brockman, 1996) or 'virtual classes' (Kroker and Weinstein, 1994) of which "historical interests are linked to hyperspace and its economic relations are (globally) coextensive with the world network of technocratic elites rather than bounded in local space" (Kroker, 1996: 171), and who are equipped with the so-called 'California ideology' (Barbrook and Cameron, 1996).[6] For this, the city needs to make

[6] According to Barbrook and Cameron (1996), the Californian Ideology has emerged from a bizarre fusion of the cultural bohemianism of San Francisco with the hi-tech industries of Silicon Valley, promiscuously combining the free-wheeling spirit of the hippies and the entrepreneurial zeal of the yuppies. Above all, they are passionate advocates of what appears to

the DMC connected to global networks with positive images for the production of the digital city, and simultaneously disconnected from other parts of urban and national spaces with negative images like dilapidated networks, horrendous traffic jams, polluted environments and so on.

Of course, there are the physical connections of the DMC with other main cities of Korea through national highway networks, high-speed train networks and domestic airline networks, or with other main parts of Seoul through urban highway networks and subway networks.[7] However, in this case, what the city of Seoul stresses are the connections of the DMC with Incheon International Airport, called the Winged City, through the Incheon International Airport Highway, the planned high-speed railroad and the planned Seoul-Incheon Canal, and the connections of the DMC with IT business and broadcasting quarters in Seoul. These are also all nodes linked to global networks. After all, the DMC appears to be a kind of digital island with its dual networks: 'global connections' and 'local disconnections' (Graham 2001a: 406), involving 'premium network spaces' (Graham, 2000) dividing the 'cash-poor/time-rich' and the 'cash-rich/time-poor' (Graham, 2001a: 407). This is a kind of 'urban politics of speed and slowness' (Hubbard and Lilley, 2004).

Contemporary cities are characterised by simultaneous dis/connected space-time networks in terms of 'relational approaches' (Allen, Massey and Pryke, 1999; Graham and Healey, 1999; Graham and Marvin, 2001; Amin and Graham, 1997, 1999; Amin, 2002; Amin and Thrift, 2002). That is, "any city may be understood not simply as a place, a fixed location connected almost rigidly to another fixed location" (Pryke, 1999a: 247), but rather "a city may have diverse and dynamic networks" (Healey, 2000: 56). As Amin and Thrift (2002: 82) put it, "from earliest times, the city has never been

be an impeccably libertarian form of politics – they want information technologies to be used to create a new 'Jeffersonian democracy' where all individuals will be able to express themselves freely within cyberspace. Despite the central role played by public intervention in developing hypermedia, the Californian ideologues preach an anti-statist gospel of hi-tech libertarianism: a bizarre mish-mash of hippie anarchism and economic liberalism beefed up with lots of technological determinism.

[7] Based on the website of Seoul Digital Media City, [http://www.dmc.seoul.kr] (accessed 11 September 2002).

able to be defined by definitive boundaries". However, what I want to argue is that such dis/connected networks of the DMC can be used as a kind of urban strategy through the 'network politics of dis/connections'. This urban strategy is nothing more than 'urban solipsism' in that the DMC represents itself as a self-completing and self-enclosed utopian digital city by selectively drawing boundaries between inside and outside.

7-3-2 Urban imagineering: inscribing digital urban images into local place

> Such would be the successive phases of the image:
> - It is the reflection of a profound reality;
> - It makes and denatures a profound reality;
> - It masks the absence of a profound reality;
> - It has no relation to any reality whatsoever: it is its own pure simulacrum.
>
> (Baudrillard, 1994: 6)

The production of the city as a digital city cannot be achieved only through 'urban engineering': the technological construction of digital urban space/place as a material condition. It also needs 'urban imagineering' (Rutheiser, 1996; Short et al., 2000): the ideological creation of digital urban image/identity as an immaterial condition. That is, it needs 'urban representation' (Short, 1999) as a 'collective imagination' (rather than 'collective memory') of the city through which "city identities are sanitized, commodified and distorted in accordance with the perceived demands of the global marketplace" (Doel and Hubbard, 2002: 360). Stressing the importance of 'symbolic capital' in the 'new urbanism', Webster (2001: 32) says that "it seems that place image is now a crucial part of the selling of the city, and that this is necessarily something which concentrates the minds of those who would have their own cities prosper". Especially, given that "ideology is indeed a system of representations. ... (These representations) are usually images and occasionally concepts" (Althusser, 1977: 233), "the naming of cities, the mapping of cities, the written and spoken descriptions of cities all constitute acts of urban representation" (Short, 1999: 38). For example, in the case of Seoul, terms such as e-Seoul, Digital Media City, Information City Seoul and so on can make people see the city of Seoul as a digital city through the ideological process of naming or calling. My concern here is with how the city of Seoul institutionally and ideologically creates its image as a digital city, using 'regimes of representation' which are "discourses of meaning that include whole sets of ideas, words, concepts, and practices" (Short, 1999: 38) or 'scopic regimes' which refer to "the ways in which both what is seen and how it is seen are culturally constructed" (Rose, 2001: 6). Such regimes include not only visual 'representations' or auditory 'discourses' of the city literally, but also institutionalised 'practices' or 'performances' in the city.

One of such practices or performances through which the city of Seoul want to create its image as a digital city is a series of festivals, named Media_City Seoul (or called Seoul International Media Art Biennale), which has been held every two years since 2000, associated with the DMC project. The festival includes media art exhibitions or performances and academic symposiums or conferences about media or urban cultures, not only at given exhibition halls but also at various parts of the city such as subway stations, streets, squares and so on. The subject of the 'Media_City Seoul 2000' was 'City: between 0 and 1.' It symbolises the re-birth of Seoul as the digital city of bits beyond the limits of physical time-space. The subject of 'Media_City Seoul 2002' was 'Luna's Flow' (see the statement introducing the Media_City Seoul 2002 below).

> **Media_City Seoul 2002: Luna's Flow**[8]
> Can we find a new significance of the moon in this digital era? The moon is still shining on us while we are seeking for digital destinations in virtual space. Media_City Seoul 2002 offers a journey to the virtual space starting from an intellectual speculation on new implications regarding the moon. The blue lights that are radiated from monitors and screens in a dark cyber space of the exhibition can be compared to the moonlight and the surface of the moon. This is to comprehend media in the cosmic context where the sun is the source of moonlight. The exhibition attempts to bring out the subtle vibrations underlying the 'tranquil' contemplation by means of such an epistemological comprehension of time and space. .... Fantasies of the Lunar Utopia, which had been long cherished by the humankind as

[8] From the website of Media_City Seoul 2002, [http://www.mediacityseoul.org].

> legend and romance enriching the human spirit with motivation and resources, were shattered in a sense with Neil Armstrong's first step to the moon in 1968. It was the moment that also revealed that what is actually seen as the moon is only a reflection of another source of light and we have been projecting our hopes and wishes onto this "illusion". In other words, Armstrong felt something beyond human words when he stepped on the moon (object of simulacra) where reality lacks in the endlessly spreading Universe, just as Simulacra as groundless images transfer into a huge Simulation that exceeds the Reality according to the explanation of French philosopher Jean Baudrillard. .... The aesthetic direction of Media_City Seoul 2002, "Cyber Sublime" seeks for the Sublime that can be found in the Cyber Space, a place of inscrutable mystery just as the other side of the moon that has never been exposed to our eyes. This is to bring up the idea of Neo-Transcendental Utopia as a main discourse in the Cyber Space that is compared to the Moon, and it differentiates itself from the Modernist concept of Sublime that began with Emmanuel Kant and descended to Jean-Francois Lyotard and Clement Greenberg as a strategy for Modernism. Rather, this can be better understood in the context of William Gibson "Neuromancer" in 1984 where he describes the world of virtual reality with dreams of transcendence. ....

It seems that through the festival, the city of Seoul wants to be recognised as a digital city (in 2000) or virtual city (in 2002) without physical, temporal and spatial constraints. Furthermore, the festival itself can be seen as a 'virtual reality', making the 'actual reality' of the city invisible to people. This urban strategy is based on technological determinism or utopianism, causing what Bingham (1999: 245-51) calls 'technological sublime' which is characterised by 'virtual totality', 'virtually determinism' and 'virtual mastery'. Ironically, Jean Baudrillard, who participated in the 'Media_City Seoul 2002', pointed to the violence of media, images and spectacles, which causes people's indifference to the real world. It seems to be misplaced that the city of Seoul invited him to the festival. The city of Seoul misunderstood the implications of his philosophy in the context of the festival. However, in a sense, what Baudrillard pointed out could be seen as what the ideological strategy of the city of Seoul wanted. That is, the Media_City Seoul Festival can be thought of as a process replacing the actual reality of the city with the virtual reality of the festival, making people see the city as a digital city. This process is supported by the mass media such as radio broadcasting. For instance, a series of local radio programs, titled 'Information City Seoul', began to be transmitted in Seoul in March 2000, dealing with various topics, issues or events related to the information city or society.[9] This institutionalised practice must also significantly affect the creation of an urban image as a digital city.

These processes have eventually made people see, perceive and represent the city as a digital city, having an effect on the 'way of seeing' the city. We can find this in the case of 'the Seoul image map contest 2001'. Figure 7-4 shows two image maps, proposed for the contest.[10] The image maps are neither exact representations nor pure imaginations of the city, but rather are representations of the city between objective and subjective spaces and between real and imagined spaces. We can see some differences between the two image maps. While *Digital Seoul* (the upper image map) represents Seoul as an electronic matrix or circuit space in which all parts of the city are connected together through electronic networks, *Specialties of Seoul* (the bottom image map) describes Seoul as a mosaic or assemblage of different cultural and historical places. In other words, while the former image map illustrates the 'space of flows' (with 'no sense of place'), the latter image map shows the 'space of places' (with the sense of belonging and nostalgia). Thus, while the former portrays abstract, integrated, disembodied and homogenous time-space landscapes, the latter depicts concrete, multiple, embodied and heterogeneous time-space landscapes. In fact, Seoul consists of pre-modern, modern and post-modern elements together, constituting different cultural or hybrid urban landscapes. As Shields (1998) says, "the significance of Seoul is that it is in the period of the 'synchronization of de-synchronisation,' or the coexistence of modern-postmodern, local-global, endogenous-exogenous elements of socialization, all fused into interactive sociality, or the 'flexible sociality' of Seoulites" (in Cho, 1999: 130). We need to recognise that even the real-time city involves multiple and heterogeneous

[9] For example, hacking (8, Mar. 2000), digital divide (19 April 2000), global communications (17 May 2000), urban informatisation (14 June 2000), Media_City Seoul (6 Sept. 2000), electronic government (3 Jan. 2001), wireless Internet (21, Mar. 2001), virtual reality (29 June 2001), mobile commerce (14 Sept 2001), the World Cup and IT (18, Jan. 2002), Seoul GIS 2002 Conference (8 Mar. 2002), ubiquitous IT revolution (14 June 2002) and so on (SMG, 2002b).

[10] *Digital Seoul* was made by Bon-Woo Gu and Sun-Tae Kim, and *Specialties of Seoul* by Jong-Min Park, Seong-Bum Park and Hyo-Jin Kim.

time-spaces, which are not captured by a single and homogeneous electronic time-space (Robins, 1997, 1999; Robins and Webster, 1999). The image map *Specialties of Seoul* represents well such different and multiple time-space landscapes of the city.

On the contrary, the image map *Digital Seoul*, which was selected as the best image map of Seoul by the Seoul metropolitan government, could make such multiple time-space landscapes invisible to people and make people oblivious to such multiple time-space landscapes. This implies that the image map could be used as another visual means to create an urban image as a digital city. We can think of this mechanism in terms of the 'circular' and 'reflexive' relations between the city and its image and between the city-maker (image-maker) and the city-viewer (image-viewer). First, the urban government as a city-maker or image-maker creates the image of the city as a digital city, making it visible and other images invisible to people. As a result, citizens as city-viewers or image-viewers come to see, perceive and represent the city as a digital city. Furthermore, the urban images (e.g. the image map *Digital Seoul*) represented by the viewers can function again as another means to represent the city as a digital city. As a result, the image of the city as a digital city could be reproduced and reinforced, while being combined with other related representations or practices. In a sense, the image map can be seen as a kind of signifier through which the reality and authenticity of the city comes to be shattered. As Crang (1999b: 242) puts it, "the signs that mark out what is to be looked at become as, or more, important than the sites themselves. The signifier slips free from the signified and it is the markers that create the experience, rather than any authentic engagement with the landscape". In this sense, the image map is a kind of simulacrum through which the reality of the city can be replaced by its map and image, like in Borges' fable of the map preceding its real territory which Baudrillard (1994) suggests in order to stress the power of simulacra superseding reality in his book *Simulacra and Simulation*. This implies 'the end of geography (the ontological reversal of geography)' (Smith, 1997: 307). In this sense, the image map produces a kind of 'imagined community' in which "a map anticipated spatial reality, not vice versa. In other words, a map was a model for, rather than a model of, what it purported to represent" (Thongchai, 1988: 310, in Anderson, 1991: 173). As Bridge and Watson (2001) put it,

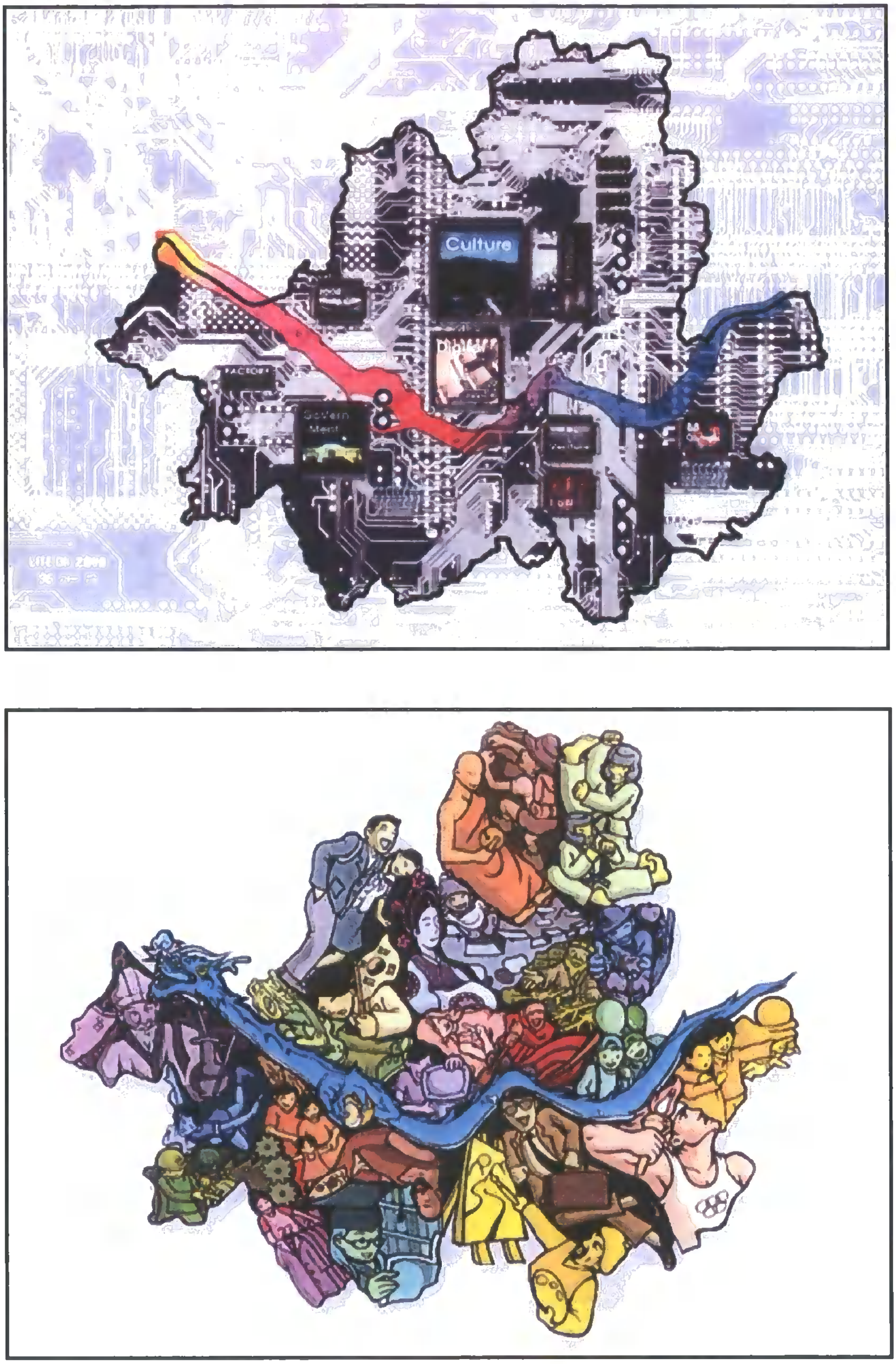


Figure 7-4 Image maps of Seoul (the upper: *Digital Seoul* and the bottom: *Specialties of Seoul*)

Source: Seoul metropolitan government [http://www.metro.seoul.kr]

> "Not only are cities constituted in imagination and different forms of representation they are also themselves sites of imagination and creativity. ...... Settled ways of thinking can be powerful acts of the imagination in themselves. Cities might act to constrain the imagination or to consolidate it in collective imagination as tradition and authority. Cities, like nations can be the locus for imagined communities" (Bridge and Watson, 2001: 351).

No-one can perceive or represent things through their transparent and transcendental imaginations and thoughts. People's pre-existing political, social and cultural consciousnesses, formed by institutional power, play an important role in the ways in which they see, perceive and represent the city or world. "The way we see things is affected by what we know or what we believe" (Berger, 1972: 8). Conversely, what we know and what we believe are also affected by the way we see things. We need to recognise the 'circular' and 'recursive' relations between the two processes. Zukin (2000) argues that "the production of space depends on decisions about what should be visible and what should not; concepts of order and disorder; and a strategic interplay between aesthetics and function" (p.81), and thus "legibility and identity are interdependent" (p.85). To put it another way, as Crang (1999a) says, "particular ways of creating images imply relationships between the viewer and the world (p.58). ...... Images do not just reflect reality but shape actions, experiences and beliefs" (p.60). That is, "images are not so much counterposed to reality as a route through which worlds are created" (Crang, 1997b: 362). Stressing the implications of Foucault's emphasis on institutions and power/knowledge for understanding the belief that photography pictures the real, Rose (2001: 168) argues that "visual images and visualities are ... articulations of institutional power". In this way, the image map *Digital Seoul* could act as a kind of institutional power by which Seoul can be made visible and perceived as a digital city.

7-4 Conclusion: from deterritorialisation to reterritorialisation

In Korea, electronic spaces in terms of electronic networks/speeds and domains/territories are constructed, concentrated and circulated mainly in the capital city/region as the centre of new media spaces. The capital city Seoul as the centre of electronic space as well as physical space in Korea has tried to transform itself into a digital city in order to become and act as a node in the global electronic, economic and cultural space of flows. This attempt has been carried out on the one hand, through technologically constructing digital urban space/place ('urban engineering') in order to spread urban networks into global space, and on the other hand, through ideologically creating digital urban image/identity ('urban imagineering') in order to inscribe digital urban images into local place. Such an attempt by the city of Seoul can be seen as an urban strategy whereby the city can be monopolistically or exclusively linked to newly emerging economic value-chains in national and global techno-economic spaces, on the one hand emerging as a new hub in global techno-economic spaces through a 'spatial power shift' in terms of Toffler (1990), and on the other hand recreating its centrality in national techno-economic spaces through a 'spatial power fix' in terms of Harvey (1982). At the heart of this urban strategy is the 'network politics of dis/connections'.

The DMC can be thought of as a typical urban strategy using the network politics of dis/connections in that on the one hand, its focus is on connections to global networks, and on the other hand, on the disconnection from other parts of local and national spaces which could have negative images and effects on the construction of the digital city. The emergences of new media technologies and spaces in Korea have been combined with utopian discourses of the information society and new visions of the knowledge-based economy based on neo-liberalism. Given that a large part of the population, capital, power and information are concentrated in the capital city/region, new media technologies have been seen as means which could ameliorate such social and spatial problems, making information accessible to anyone across national space. However, what is actually appearing in the new media spaces is the reproduction or reinforcement of the existing centralised structure of national space. Indeed, the reality seems to be far from KT's [Korea Telecom] utopian slogan of '*the nation becoming one through networks*'.

Chapter 8

The Paradoxical Landscapes of Internet Cafés and Bodies in Cities

This chapter explores the paradoxical landscapes of Internet cafés (called PC Bangs in Korea) as public electronic spaces in the city. After reviewing some studies of Internet cafés, I explain how Internet cafés in Korea have developed, producing an initial form of ubiquitous computing space in urban spaces through decreasing socio-economic and spatial constraints on access to the Internet. Then, I look at three kinds of electronic landscapes Internet cafes involve: spatio-temporal, socio-cultural, and human-machine landscapes. First, in the spatio-temporal landscapes, I focus on how Internet cafes shatter and deterritorialise the spatio-temporal boundaries between the actual and the virtual and between the diurnal and the nocturnal, making the city hypertextual and non-stop, on-line spaces. In the socio-cultural landscapes, I pay attention to how Internet cafes involve invisible social boundaries through which there appear male-centred gendered landscapes, and produce new urban consumption spaces for travelling into the virtual spaces of on-line games. Finally, in the human-machine landscapes, I look at how human-machine boundaries are blurred and deterritorialised towards each other, changing the sensory and social boundaries of the human body and producing non-places in the urban spaces of cyborgs. I conclude the chapter, by suggesting how Internet cafés produce various paradoxical landscapes in urban spaces, found in the three electronic landscapes.

8-1 Internet café landscapes: public electronic spaces

Internet cafés or cybercafés are relatively new phenomena, and their birth is often attributed to the opening of Cyberia in London in 1994 (Liff and Lægran, 2003). "To support those people without access to a machine there has been a growing number of cybercafes where users can log on at an hourly rate" (Kitchin, 1998b: 3). Until now, most of the studies of Internet cafés have been conducted largely by British researchers, and the landscapes of Internet cafés have been explained mainly in terms of 'public', 'gendered' and 'consumption' spaces. Sarah Lee (1999) explores the ways in which the Internet is perceived, used and gendered in the public space of an Internet café in Brighton, England, and argues that the public use of the Internet is not a transitional phenomenon which precedes home Internet adoption and that the Internet café provides a distinct and dedicated use space which is intimately bound up in the domestic and work routines of its users. In addition, Lee (1999) claims that public Internet use can be a key means for traveller Internet users to maintain their community across the world and can be more attractive for female Internet users than male users. Wakeford (1999) looks at the gendered landscapes of computing at the world's first Internet café in London in three aspects. The first is 'on-line landscapes' which are both visual and textual and are the spaces which are frequently described as cyberspace or the virtual. The second is 'translation landscapes' of computing where the Internet is produced and interpreted for ordinary people who consume time on the machines or food and drink. The last is 'specialist landscapes' of the machine which are presented by those who set up the network and ensure compatibility of hardware and software configurations. Interestingly, in the studies of Lee (1999) and Wakeford (1999), it is found that there are 'gendered' landscapes in Internet cafés in that male users are generally under half of the total users. That is, according to them, Internet cafés can be explained as 'female-centred' electronic spaces.

In the recent special issue on 'cybercafés' in *New Media & Society* (2003, Vol.5 No.3), some researchers suggest how Internet cafés in terms of the hybrid spaces between the actual and virtual, the human and the non-human, and the local and the global. Liff and Steward (2003) describe Internet cafés in terms of Foucault's (1997) 'heterotopia' (e.g. the mirror) in that the real and the unreal coexist. In addition, they explain Internet cafés in terms of Oldenburg's (1999) 'third places', characterised by the distinctive configuration of Granovetter's (1973) two kinds of 'social networks' (strong or weak ties), in that weak and strong ties coexist. Drawing on 'STS [Science, Technology and Society]' and 'ANT [Actor-network Theory]', Lægran and Stewart (2003) explore the ways in which the space of the Internet cafés is configured and translated through human and non-human actors at local and non-local levels. They define Internet cafés as 'technosocial spaces' in that "Internet cafés are not only places offering access to technology; they are also social spaces centred on a specific technology" (p.360), and explain the spatiality and sociality of the Internet café as an 'extender' in that the Internet blurs "the boundaries of the café space by including actors situated at other places in the local community, as well as in other villages, cities and counties" (p.360). In addition, Wakerford (2003) examines the ways in which both the local and the global are embedded into the Internet cultures of independent internet cafés in London through the interaction of 'technoscapes' and 'ethnoscapes' in Appadurai's (1990) cultural terms, and Uotinen (1993) investigates the ways in which the particular Internet café of a local community centre in Finland is combined with the various other activities of the local community centre.

The development of Internet cafés (PC Bangs) in Korea is explained as a characteristic technological and cultural phenomenon, which has led Korea to be a country with a high level of connection to the Internet (KRNIC, 2000; Department of Technology and Information Systems, Brunel University, 2002).[1] "PC Bangs played an important role in generating the nationwide Internet boom" (Lee et al., 2003: 88), and constructed a new layer of electronic landscape on the existing layers of urban landscapes. PC Bangs can be regarded as public electronic spaces that enable people to easily access to the Internet and to come and go between actual and virtual spaces. Urban electronic space is composed of various electronic cells such as homes, offices, schools/universities and so on. The most outstanding difference between PC Bangs and other locales seems to be that while other locales are typical private spaces or relatively

[1] See also the Guardian (17 October. 2002) *Miracle workers*, and the New York Times (29 October 2001) *In Korea, broadband is part of the culture.*

closed public electronic spaces, PC Bangs can be used as public electronic spaces which are open and available to all kinds of people.

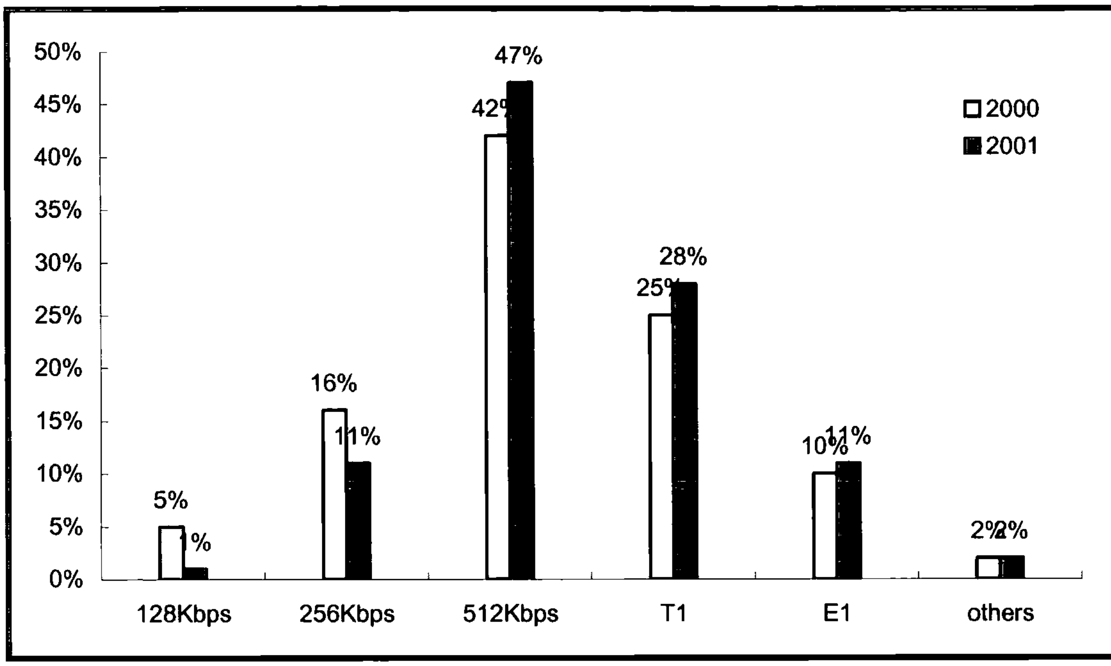
In addition, PC Bangs can be seen as 'intermediary' spaces, acting as gates/bridges between actual and virtual spaces, or as 'cyborg' spaces, existing in between actual/human spaces and virtual/machine spaces. That is, it can be said that PC Bangs make the city a kind of 'liminal' space (van Gennnep, 1960; Turner, 1982; Shields; 1991; Zukin, 1991), 'third' space (Bhabha, 1994; Soja, 1996) or 'heterotopia' (Foucault, 1997, Soja, 1996). It is argued that hybrid or liminal spaces, as borderlines or boundaries between two different kinds of spaces, themselves tend to show not only complex and multiple landscapes, but also contradictory and paradoxical landscapes, whether they are technological, architectural or social spaces (see Shields 1992; Hinchliffe, 1996; Woods, 1998). In this context, I look at three kinds of electronic landscapes Internet cafes involve: (a) spatio-temporal, (b) socio-cultural, and (c) human-machine landscapes, after explaining how Internet cafés in Korea have developed,

8-2 Internet cafés and cities

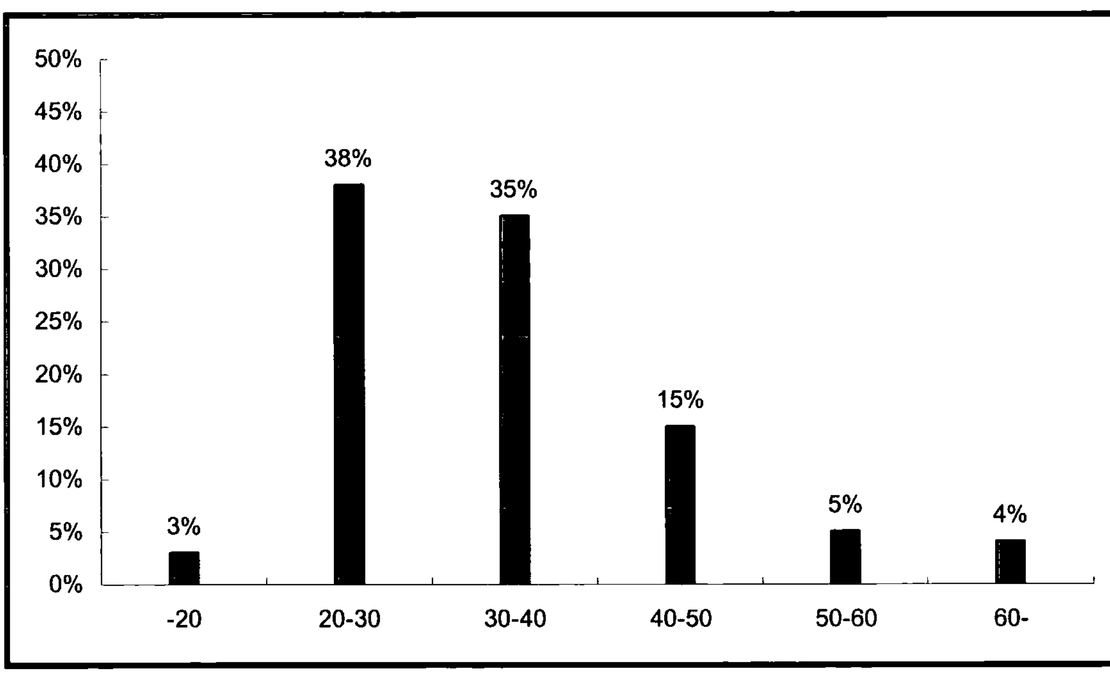
8-2-1 The development of Internet cafés

The development of PC Bangs in Korea can be divided into two phases: the first half and the second half of the 1990s.[2] The first PC Bang in Korea operated in Seoul in 1993 (or 1994), and by the mid-1990s, about 10 to 20 PC Bangs were in operation, usually in large cities. This primary type of PC Bangs took on the same form as Internet cafés, now found in Western countries. They were somewhat different from the Internet cafés now called PC Bangs. They were the urban consumption spaces of coffee, tea and foods, being equipped with various electronic devices such as audios, videos, printers, scanners, computers connected to communication networks via modem [modulator-demodulator] as primary communication networks and so on.

[2] The explanation of the early development of PC Bangs in Korea is based on an interview with business manager Mr. Young-Cheol Cho at the Internet PC Culture Association. He said that PC Bangs in Korea originated in England where the world' first Internet café appeared.



(a) The speed of networks in PC Bangs



(b) The number of computer terminals in PC Bangs

Figure 8-1 The technological environments of PC Bangs
Source: KGDPI (2002)

Table 8-1 The distribution of PC Bangs by city/region

City/Region	Population [A]	12. 1999 [B]	7. 2000 [B]	12. 2000 [B]	6. 2001 [B]	12.2001 [C]
Seoul	9,853,972	4,045	5,105	5,610	5,758	6,044
Busan	3,655,437	1,535	1,855	1,949	2,014	2,079
Daegu	2,473,990	970	1,412	1,400	1,497	1,638
Incheon	2,466,338	902	1,058	1,116	1,201	1,345
Gwangju	1,350,948	521	744	813	878	962
Daejeon	1,365,961	433	614	666	692	744
Ulsan	1,012,110	302	459	432	485	518
Gyeonggi-do	8,937,752	2,464	3,129	3,403	3,860	4,166
Gangwon-do	1,484,536	473	668	753	825	933
Chungcheonbuk-do	1,462,621	382	465	552	603	681
Chungcheongnam-do	1,840,410	417	574	659	730	810
Jeollabuk-do	1,887,239	566	814	929	1,013	1,020
Jeollanam-do	1,994,287	461	683	740	817	801
Gyeongsangbuk-do	2,716,218	721	997	1,112	1,252	1,249
Gyeongsangnam-do	2,970,929	742	1,021	1,127	1,200	1,304
Jeju-do	512,541	216	174	199	240	270
Total	45,985,289	15,150	19,772	21,460	23,065	24,564

Source: [A] Korea National Statistical Office [http://www.nso.go.kr] (as of 2000), [B] KGDPI (2002) and [C] data from the Korean Internet PC Culture Association

Table 8-2 The distribution of PC Bangs in Seoul

Sub-urban area	PC Bangs	Sub-urban area	PC Bangs
Songpa-gu	359	Eunpyeong-gu	246
Gwanak-gu	348	Yeongdeungpo-gu	233
Gangnam-gu	338	Seocho-gu	218
Dongjak-gu	290	Guro-gu	215
Seongbuk-gu	288	Yangcheon-gu	214
Gwangjin-gu	286	Gangbuk-gu	210
Dongdaemun-gu	277	Seongdong-gu	200
Jungnang-gu	277	Jongno-gu	187
Gangdong-gu	264	Geumcheon-gu	156
Nowon-gu	259	Yongsan-gu	151
Mapo-gu	254	Dobong-gu	147
Gangseo-gu	251	Jung-gu	127
Seodaemun-gu	249	Total	6,044

Source: Data from the Korean Internet PC Culture Association (as of December 2001)

In the late 1990s, a new type of PC Bang began to appear along with the technological development of the Internet and on-line/networked games, and PC Bangs have rapidly diffused across urban and national spaces since 1998. Some factors explain the reason why the number of PC Bangs has dramatically increased since 1998. First, Microsoft Windows 98 was released, so that people could enjoy on-line/networked gaming or on-line chatting without technological problems. Second, in 1998, the foreign on-line/networked game *StarCraft* began to be imported, and the domestic on-line/networked game *Lineage* came into the market. Both of which are the most popular on-line/networked games in Korea. Finally, the financial crisis in 1997 was another important factor. That is to say, many people who were unemployed and fired from their companies due to industrial restructuring and rationalisation since the economic crisis began to open and manage PC Bangs as their new jobs.

PC Bangs are equipped with computer terminals connected to the Internet via broadband (Figure 8-1). People in PC Bangs come to consume not material commodities such as food or drink, but digital commodities such as on-line/networked games. One of the characteristics of PC Bangs is that they act as new urban consumption spaces where people can consume visual images or as mediating/moving machines whereby people can travel into the virtual spaces of on-line/networked games (see Section 8-4). In 2001 there were more than 20,000 PC Bangs across Korea. They were found in almost all inhabited areas, but followed an uneven pattern of distribution which reflects the distribution of populations and cities as their market. As we can see in Tables 8-1 and 8-2, about 70 per cent of the total PC Bangs exist in the capital region including Seoul, Incheon and Gyeonggi-do, and other large cities such as Busan, Daegu, Gwangju, Daejeon and Ulsan. About 50 per cent of the total PC Bangs consist in the capital region, and almost 25 per cent are located in Seoul. Although the locations of PC Bangs could have some implications in terms of the location theory or economic geography of information industries or services, what is explained here is the implication of PC Bangs for the accessibility of the Internet to people in cities.

8-2-2 The expansion of virtual space

Although PC Bangs show the uneven pattern of distribution between/within cities, they can be seen as local electronic facilities which provide cheap and level access to the Internet (NCA, 1999: 481). While PC Bangs have rapidly mushroomed in urban spaces in Korea, people can easily and freely access the Internet. That is, the development of PC Bangs in urban spaces makes the Internet accessible to people in cities. This means that PC Bangs form an initial form of ubiquitous computing space in urban spaces. PC Bangs help people to easily access the Internet in cities through reducing two kinds of constraints in terms of time-geography: '(socio-economic) capability constraints' and '(human-machine) coupling constraints'.

First, PC Bangs reduces socio-economic capability constraints in cities, providing people with cheap access to the Internet. The price of using the Internet in PC Bangs is about 50 pence per hour. It is not easy to find places to enjoy oneself for one hour at that cost. In South Korea, the degree to which people access the Internet in their home is in direct proportion to the level of their incomes, and the degree that people use PC Bangs is in inverse proportion to the level of their income. First, 76.5 per cent of the people having a high level of income tend to access the Internet at their own homes, and only 6.1 per cent of them tend to access the Internet at PC Bangs. And, 65.1 per cent of the people having a medium level of income access the Internet at their own homes, and 6.8 per cent of them access the Internet at PC Bangs. Finally, 36.6 per cent of the people having a low level of income access the Internet at their own homes, and 12.9 per cent of them access the Internet at BC Bangs (KRNIC, 2001). In short, PC Bangs play an important role in reducing socio-economic capability constraints on access to the Internet.

Second, PC Bangs reduce human-machine coupling constraints in cities. In general, if we can divide the city into two kinds of territories: on-line territories connected and off-line territories disconnected with the Internet, PC Bangs extensively and intensively increase the scope of on-line territories by incorporating territories disconnected with the Internet into on-line territories. This means that PC Bangs can reduce a kind of coupling constraint on the connections between humans and machines. In urban spaces, gateways to virtual spaces in urban spaces are confined to private or public locales such as homes, works, schools/universities which are not accessible or available to anyone, anytime and anywhere. Compared with such locales, PC Bangs can be seen as different gateways to virtual spaces in that they provide people with spatially and temporally level access to the Internet, especially when their homes are not connected to the Internet or people are outside their homes connected to the Internet.[3]

[3] An American student (William, 22, male) said that whilst cybercafés in the US are mainly at large cities such as LA, New York, Chicago, Atlanta and Miami, only a few of computers are installed in there and the price of using is very high, PC Bangs in Korea are everywhere and the price is very low.

8-3 Spatio-temporal landscapes

8-3-1 The streetscapes of Internet cafés

Although the electronic landscapes of PC Bangs are found in many cities in Korea, I will examine Sinchon in Seoul. Sinchon is a quarter containing several universities/colleges and it is now one of the most typical urban spaces of/for consumption for young people, especially, university students, in Seoul. Sinchon has various political, economic, social and cultural landscapes. In a sense, it has been depicted as the space of freedom and desire and has been seen as a physically or cognitively bounded place with its own distinctive boundaries, territories and identities. In the 1980s, Sinchon was a locus where the political demonstrations of university students against the military government took place, and since the 1990s, it has played host to new urban consumption landscapes and electronic landscapes such as PC Bangs. Many PC Bangs are located in Sinchon, and many newspaper stories, discussing the immoral social issues related to PC Bangs, focus on this quarter. Because "streets are themselves sites of activity, of cultural practices, and part of our knowledge of the city" (Crouch, 1998: 160), I observed the physical, technological, symbolic and social landscapes of the high street of Sinchon, constructed by PC Bangs, in order to read and interpret the meanings and implications for urban place.

At the time of my research, about 30 PC Bangs could be observed along Sinchon's 500 metre high street of 500m (Figures 8-2 and 8-3). This means that if you walk along this street, you can see one PC Bang every 16m. In this street, PC Bangs are much more than public telephone boxes. The doors of PC Bangs displayed billboards or posters promoting the capacities of their electronic networks, computer terminals or visual graphics. Phrases used included "Nothing can be faster than this!" or "Fantastic experience!" Furthermore, the names of PC Bangs are imaginative enough to generate an urban image as virtual space: Cyber, Cyber4you, Nettopia, Come@joy, Log-in, Cyberland, Tech+, Netizen, PC Zone, Cyber-Q, Cyberia and so on (these were originally in English). In these technological and symbolic environments, PC Bangs appear to be mediating/moving machines by which people can travel into virtual spaces and enter an ecstatic world like Disneyland. Although "the meanings of the high street

… are not dictated by technology or determined by changes in the built environment" (Jackson, 1998: 188), in this kind of new urban space, we need to recognise that its cultural meanings cannot be separated from its technological environments. People's experience and use of the street and place are formed through technological locales or devices such as PC Bangs or mobile phones, combined with their technological and social practices.

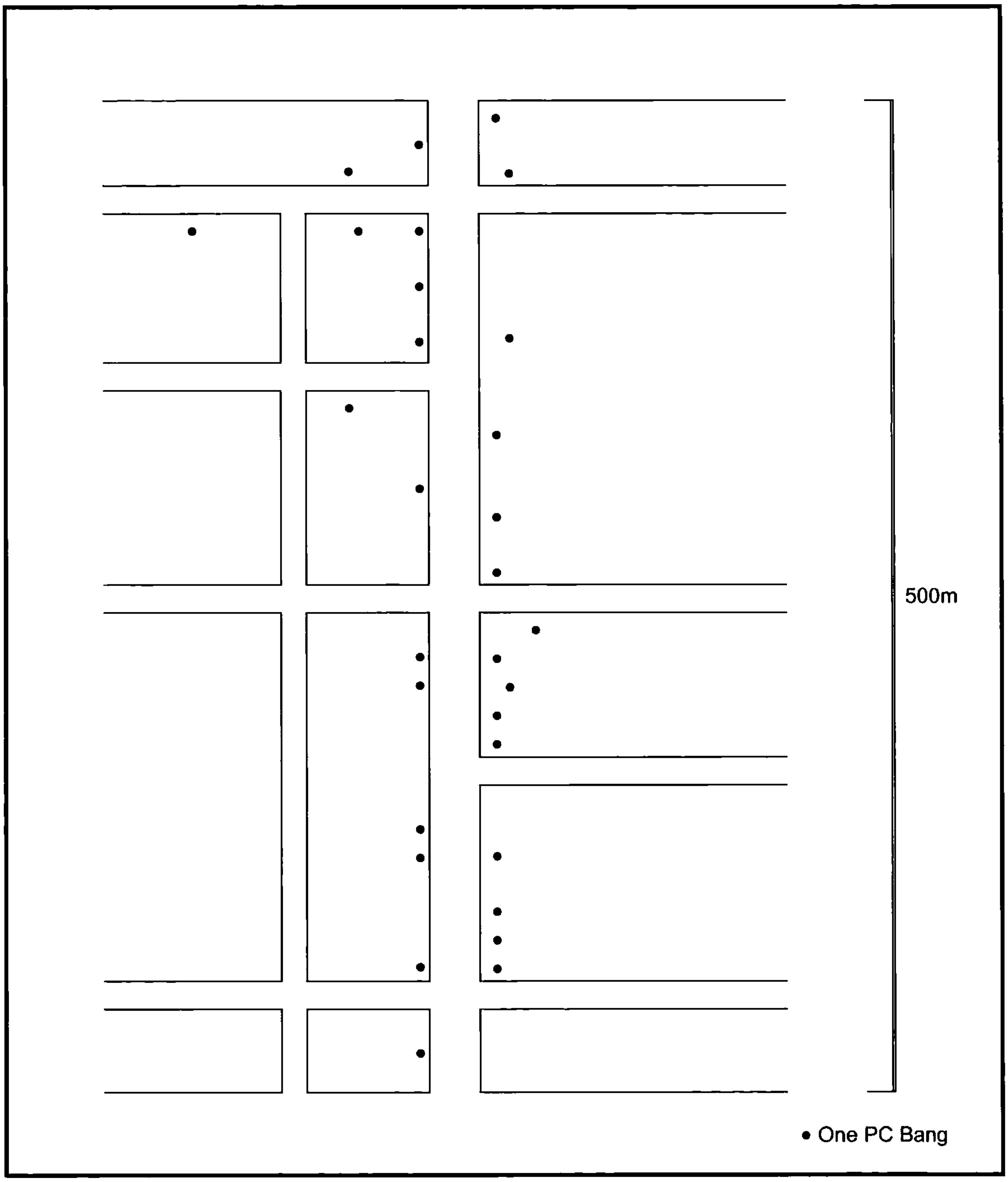


Figure 8-2 The locations of PC Bangs in Sinchon, Seoul (map by the author in 2002)

Figure 8-3 The landscapes of PC Bangs in Sinchon, Seoul (photography by the author in 2002)

In creating a layered technological and cultural landscape, PC Bangs make Sinchon a new kind of urban space that cannot be described only as actual space, but also needs to be expressed as a hybrid urban space. That is to say, as more PC Bangs are set up in Sinchon and the quarter's connection to electronic networks increases, it comes to be difficult to define it as a territorialised or bounded space. Rather it seems that Sinchon entails 'semi-detached (or semi-attached) images of the street' (Crouch, 1998: 171) in that it can be seen not as a bounded place, but as a porous place penetrated by PC Bangs and electronic networks. That is, it can be thought of as a hybrid and liminal space where actual/virtual and human/machine spaces coexist and young people come and go between the two spaces, no matter whether it is day or night. Just as Shields (1997) describes another street of Seoul – called Rodeo Street – as an exemplary Korean space of 'local-global tension, interconnection and liminality', so too we can see Sinchon as a kind of 'heterotopia' (Foucault, 1997; Soja 1996) or 'third space' (Bhabha, 1994; Soja, 1996) between imaginary-real spaces.

8-3-2 Smooth space and striated space

We can heuristically compare the networks of the national electronic space of the KII [Korea Information Infrastructure] and the networks of the urban electronic space of PC Bangs in various terms (Table 8-3). We can see the urban electronic space of PC Bangs as rhizomatic/smooth space and the national electronic space of the KII as arboreal/striated space in Deleuze and Guattari's terms. Here, while arboreal space means hierarchical networks like the structure of trees, rhizomatic space signifies heterarchical networks like the structure of n-1 without any central node. In order to understand this comparison, we need to draw on the 'maritime model' Deleuze and Guattari (1987: 478-482) suggest in order to draw a comparison between 'striated' and 'smooth' spaces: "in striated space, lines or trajectories tend to be subordinated to points: one goes from one point to another. In the smooth, it in the opposite: the points are subordinated to the trajectory" (Deleuze and Guattari, 1987: 478). In addition, we need to draw a distinction between two kinds of lines: the line of 'territorialisation' and 'stratification' and the line of 'deterritorialisation' and 'destratification':

Table 8-3 Comparison of national e-space and urban e-space

National e-space [the KII]	Urban e-space [PC Bang]
Macro	Micro
Government	Private
Top-down	Bottom-up
Planned	Random
Vertical	Horizontal
Centralised	Decentralised
Hierarchical	Heterarchical
Reterrirorialised	Deterritorialised
stratified	Destratified
Arboreal	Rhizomatic
Striated	Smooth

> "There are lines of articulation or segmentarity, strata and territories; but also lines of flight, movements of deterritorialization and destratification. Comparative rates of flow on these lines produce phenomena of relative slowness and viscosity, or, on the contrary, of acceleration and rupture. All this, lines and measurable speeds, constitutes an assemblage. ... One side of a machinic assemblage faces the strata, which doubtless make it a kind of organism, or signifying totality, or determination attributable to a subject; it also has a side facing a body without organs, which is continually dismantling the organism, causing asignifying particles or pure intensities to pass or circulate, and attributing to itself subjects that it leaves with nothing more than a name as the trace of an intensity" (Deleuze and Guattari, 1987: 3-4).

As we saw in Chapter 7, the KII, planned by the national government, has produced national electronic space which consists of two kinds of spaces of flows: a few of nodes as large cities (with higher connectivity and faster speeds) and a lot of access points as middle-sized or small cities (with lower connectivity and slow speeds). The nodes are directly linked to other each other through relatively high-speed networks, and each access point is directly linked to its node and is indirectly linked to other nodes or access points through relatively low-speed networks. In addition, the networks among the nodes take on a 'full mesh' pattern for heavy Internet traffic, and the networks between the nodes and access points take on a 'ring' or 'star' pattern for less dense traffic (MIC, 1998: 29). The technological and spatial patterns of the KII show that it has Seoul-centred hierarchical networks, and that Seoul can be seen as a point S in Chomsky's linguistic tree. In the sense that its networks reflect existing hierarchical urban systems (especially, administrative urban systems), it can be said that the national electronic space of the KII is constructed through the process of 'relative deterritorialization' in which "there can be no fluidity without ground and solidity: no streaming without banks or bed, gravitational mass or slope" (Doel, 1999: 16; see also Doel, 1995: 236-8). Flows in the national electronic space of the KII are formed according to the existing hierarchical spatial and functional pattern of cities. Furthermore, the national electronic space of the KII facilitates the process of 'reterritorialisation' in that its hierarchical networks not only reproduce but also reinforce the centrality of the central city in actual spaces. In this sense, it can be seen as 'the gravitational space of the state' (Menser, 1996: 297) in which "information is earth-bound; it has gravity!" (Luithlen, 1995: 65). This point implies that the national electronic space of the KII could be regarded as a kind of 'striated' space in that the lines of flows appear between existing points as cities in national territories and as the line of 'territorialisation' and 'stratification'. What is important here is that the locations and sizes of points determine the directions and speeds of flows, and this point is the important characteristic of 'striated' space.

By comparison, the urban electronic space of PC Bangs can be thought of as a kind of rhizomatic/smooth space and as the line of 'deterritorialisation' and 'destratification' in that their lines are not dependent on points in urban spaces and urban grids, although this does not mean that the locations of PC Bangs are purely random in urban spaces. That is, PC Bangs dislocate urban boundaries and displace urban territories. In other words, in contrast to the national electronic space of the KII with hierarchical networks, the urban electronic space of PC Bangs produces heterarchical networks. As Menser (1996: 306) points out, "heterarchy constructs spaces that make possible effects or emergent properties instead of signification bound to an abstract regime of overcoding characteristic of the sate and its cohorts". Here, the signification "is dis-placed – literally robbed of its place – as the individual follows a line of flight along a material-social plane that traverses the divided nature/culture, human/technological, and organic/inorganic life" (Menser, 1996: 306). This process could be seen as the metamorphosis of network systems in relation to spatial scales. That is to say, while electronic networks move from macro-level to micro-level, the spatial pattern of them could be transformed from hierarchical to heterarchical networks. As Deleuze and Guattari (1987: 15) put it, "a new rhizome may form in the heart of a tree, the hollow of a root, the crook of a branch. Or else it is a microscope element of the root-tree, a radicle, that gets rhizome production going. ... A microscopic event upsets the local balance of power".

The most important difference between the national electronic space of the KII and the urban electronic space of PC Bangs is that while the patterns, directions and speeds of the electronic space of the KII are pre-planned and pre-determined by the government and are based on existing urban systems, those of electronic space of PC Bangs are otherwise. This means that the urban electronic space of PC Bangs could be seen a kind of self-organising space in that it self-organises its patterns, directions and speeds, without strongly authorised control or planned order, although this does not mean that they are fully free from the government's interference. As Portugali (1997: 354; see also Portugali, 2000) puts it, "such cities are thus chaotic and unpredictable and they self-organize themselves independent of our scientific predictions and planning rules". However, this does not mean that the urban electronic space of PC Bangs is a closed system in the sense of classical systems theory. As Luhmann (1995: 447) puts it, "the 'self' or self-reference is never the totality of a closed system, it is never the referring itself. It is always merely an aspect of the constitutive nexus of open systems that carries its autopoiesis: elements, processes and the system itself". This point implies that there is a critical and paradoxical technological-spatial limit in that as PC Bangs can produce heterarchical electronic networks in cities as nodes or access points in the national electronic space of the KII, the cities come to be more dependent on the national electronic space of the KII and its central city. That is, the urban electronic space of PC Bangs as peripheral electronic nervous systems cannot be free from the national electronic space of the KII as central electronic nervous systems.

8-3-3 The city as hypertext

Many have explained electronic cities in various terms. For example, the 'digital city' (Ishida and Isbister, 2000), the 'virtual city' (Westwood and Williams, 1997), the 'technocity' (Downey and McGuigan, 1999), the 'cybercity' (Boyer, 1996; Graham, 2004a), the 'invisible city' (Batty, 1990; Boyer, 1996; Rajchman, 1988), the 'hidden city' (Woods, 1996), the 'overexposed city' (Virilio, 1997b), the 'infinite city' (Skeates, 1997), the 'transphysical city' (Novak, 1996), the 'transmissible city' (Crang, 2000b) and so on. Such cities, cannot be any more represented or mapped only as visible, ordered and linear landscapes as in Kevin Lynch's (1960) *The Image of the City*. As Rajchman (1999:153) puts it, "we are no longer in the nice world of the 'grammar' or orienting 'map' dreamt of by Kevin Lynch; in its place, we have a freer space in which many unexpected things can happen at once, without overarching story or program, involving rather different relationships between image and city". We need to recognise that "instead of a series of linear images that formed a sequence or a system of places, thought now appeared as a series of discontinuous states and combinatorial relays" (Boyer, 1996: 141).

We also need to reimagine the city in which "we already inhabit an invisible world of shapes, an architecture of latent information that is modulated by our every breath and transmission" (Novak, 1996), and "urban architecture has to work with the opening of a new 'technological space-time'" (Virilio, 1997b: 285). Novak (1991, 1996, 1998) calls such a actual-virtual hybrid architecture a 'liquid architecture' or a 'transarchitecture', which "outline the possibilities facing architecture and culture in the space-time vernacular of global communication and networked computation and which are part of a larger cultural phenomenon he terms 'transmodernity'" (Zellner, 1999: 128). The city composed of hybrid architectures cannot be represented and mapped any more as linear spaces like Euclidean geometrical space, but instead as curved spaces like hyperbolic geometrical space, and its time-space can be regarded not as "a frame of action through which people and things move – cites of motion", but rather as "a malleable field that itself is warped or in motion – cities in motion" (Crang, 2000b: 305).

If there were a term by which the electronic space of PC Bangs could be expressed properly, it perhaps might be Woods' 'freespace', which "provides unlimited free access to communications and to other, more esoteric, networks at present reserved for the major institutions of government and commerce – but also because interaction and dialogue are unrestricted by conventions of behavior enforced by these institutions" (Woods, 1996: 286). Such freespaces are 'useless and meaningless' spaces in that they have "no function that can be identified in advance, but only a set of potentials for occupation arising from material conditions" (Woods, 1996: 286), and in the freespaces, "buildings are no longer fixed monument of function, but 'injections' into an in-between, perhaps most overtly exemplified by those spaces and structures that have been destroyed or abandoned" (Menser, 1996: 302). Such freespaces have technological conditions and ideological implications. Technologically, "within each freespace are located instrument stations. These are electronic nodes containing computers and telecommunications devices for interaction with other freespaces and locations in the world, and with other inhabitants" (Woods, 1996: 287). Ideologically, "the concept of freespace is an assertion that 'emptiness' is just another word for 'freedom'. In free space, what is lost is the familiarity of architectural and social norms, the reassurance of control by stable authority, and of predictability, certainty, and the routinization of behavior" (Woods, 1996: 289-290). Freespaces produce the 'heterarchical city' in which "dialogue is an essential aspect of heterarchy, as are other forms of interaction between people, and between people and things, such as buildings and spaces for living and work, such as the city itself", as opposed to the 'hierarchical city' in which "dialogue is always overshadowed by the monologues of authority" (Woods, 1992: 11).

Cities cannot be envisioned any more only as urban spaces grounded only on fixed and solid territories with boundaries that are stable or durable. But rather they are based on fluid and liquid territories with boundaries made porous and permeable by electronic networks. In this sense, we can envision the urban electronic space of PC Bangs through some architectural, geometrical and geographical imaginations. First, if the city can be thought of as a kind of text written by various actors in different historical, social, ideological and technological situations (Duncan, 1990; Knox, 1994; Short, 1996; Barker, 2000), the urban electronic space of PC Bangs can be thought of as a 'hypertext city' in that every point within/between cities can be potentially linked to any other point through decentralised electronic networks, making other spaces present or absent in the cities. In terms of information systems, "a hypertext system consists of a collection of pages connected by links. The pages are analogous to places, and the links to paths between the places" (Colomb, 2002, 45), and "because of its general node/link relational structure, a hypertext system is nonlinear; that is, unlike the pages in a book, users can access different windows in different orders (Boechler, 2001: 25). This technological structure is like the property of post-modern texts in which the authors are dead (Landow, 1992, 1994).

In a similar vein, Lévy (1998; 2001) depicts hypertext spaces as 'the deterritorialisation of the text' or 'the universal without totality' In this sense, hypertext spaces can be compared to Luis Borges' place (the Aleph) 'where all places are' or James Joyce's hyperlink-like text (O'Dwyer, n.d.; see also Joyce, 1999; Landow, 1992) or Italo Calvino's invisible city as "a network much like the matrix of a hypertext, in which the reader can select multiple routes and draw a variety of conclusions" (Boyer, 1996: 142). Thus, hypertext spaces can be represented "as the logical endpoint of a tendency of proximity, the single interface between all bodies, all places, all points of the world" (Geyh, 2001: 109) and "we have the feeling that we are elsewhere, on another terrain" (Joyce, 1999: 231). Novak (1998: 25) describe such hypertext spaces through architectural imaginations: "whereas previously ordinary passage was the crossing of a single two-sided threshold plane, hyperlink passage replaces this plane with two laminae, a lamina of departure and a lamina of destination, allowing them to exist and act independently and opening up a previously unavailable space between them". This reminds us of the architecture of the Matrix in which doors are connected to different places (as the key maker explained in *Matrix Reloaded*). The hypertext city of PC Bangs can be described as exactly what Woods (1992: 27) calls 'a city of many centres, an unpredictable number of centres, overlapping, interpenetrating one another.' It can also be described by what Rajchman (1999: 155) calls "many cities at once, and always another city in the city".

That is, the hypertext city of PC Bangs could also be seen as an electronic labyrinth which open up in all directions, or as the 'rootless city' of n-1 (meaning the subtraction of the One as a centre), which Deleuze and Guattari (1987: 15) call a 'rhizome-city', in that the city comes to be composed of a enormous number of electronic gateways/bridges or entrances/exits, which open up in all direction and produce decentralised and heterarchical electronic networks. As Deleuze and Guattari (1987:12) put it, "perhaps one of the most important characteristics of the rhizome is that it is always has multiple entryways". This point is one of the most outstanding characteristics of the landscapes of PC Bangs, in that a large number of PC Bangs act as such multiple entryways between actual and virtual spaces. In addition, the rhizome-city of PC Bangs as 'actor-networks' rejects linear or binary spatial relations, based on the spatial concepts of surfaces and scales. This is because technological networks are "connected lines, not surfaces" (Latour, 1993: 118). In the rhizome-city, "the relationship between micro and macro spaces is not linear expansion, or inside and outside, but a series of knots and spirals. The urban wall, the boundary that made the city coherent, has been replaced by a range of imbricated spaces at different scales" (Crang, 2000a: 305).

Moreover, not only is the city composed of a large number of electronic gateways/bridges, but also the city itself can be seen as an intermediary electronic gateway/bridge, becoming a kind of 'hybrid city' with the 'a-parallel evolutions' of human and machine spaces (Deleuze and Guattari, 1987: 10), the 'Moebius effects' of actual and virtual spaces (Lévy, 1998: 33) or the 'dual reality' of actual and virtual spaces (Virilio, 1998a: 61). As the city is connected to a large number of electronic networks, it comes to be neither fully filled or terrestrial spaces nor purely void or ethereal spaces. It means that 'fractal' space appears (more than a line, less than a surface or more than a surface, less than a volume) between actual and virtual spaces, rendering physical urban spaces porous and permeable. In fact, the 'real' is composed of the 'actual' and the 'virtual' (see Deleuze, 1998; Lévy, 1998; Rajchman, 1998; Doel and Clarke, 1999; Shields, 2000, 2003).

In this sense, 'real space' is not the 'space of being', fixed within the frame of physical time-space, but the 'space of becoming' in motion between actual and virtual spaces. Architecture has been thought of as the space of being, as it is expressed as 'the art of space' (as opposed to music as 'the art of time') (in Hegel's perspective) and 'frozen music' (in Schelling's perspective) (Damisch, 1999). However, the space of becoming is far from such an image. "Living things, contrary to Aristotle's logical constrictions, not only are filled with contradictions, but thrive on them" (Woods, 2000). Furthermore, the 'fractal city' of PC Bangs means that it also can be seen as 'smooth spaces' which are opposed to 'striated spaces'. Deleuze and Guattari (1987: 488) compare the two spaces in mathematical terms: "we shall call striated or metric any aggregate with a whole number of dimensions, and for which it is possible to assign constant directions; nonmetric smooth space is constituted by the construction of a line with a fractional number of dimensions greater than one, or of a surface with a fractional number of dimensions greater than two". In this sense, Menser (1996: 302) equals Woods' freespaces with Deleuze and Guattari's smooth spaces in that "freespaces employ matrices rather than metrics. Matrix relations are forged in the time of the event (what Woods calls the 'present'): temporality not typology". That is, in the smooth space of PC Bangs, "rather than expressing a striated space such as the urban grid, by the introduction of a high level of complexity the striated is made to seem smooth" (Imperiale, 2000: 43).

8-3-4 Non-stop, on-line cities and nomadic/sedentary bodies

Recently, the temporal effects of new information and communication technologies have been increasingly highlighted. For example, Kwan (2002: 472) says that "as the increasing use of new information technologies (IT) leads to changes in the timing and location of people's activities, time will be a significant dimension for understanding the social and economic geographies of urban areas". In addition, Sui (2000: 117) argues that "since the Internet will impact significantly on the temporal rhythms of social life, we will need to pay more attention to 'the urbanization of time'". And, Harvey and Macnab (2000: 158) also stress the importance of studies on the relations between urban temporal patterns and Internet use patterns, saying that "time-use studies provide ample evidence of temporal variation in the city's social geography due to activity patterns and settings". In this sense, it seems to be meaningful to see what temporal landscapes are produced by PC Bangs in the city and what temporal effects they have on urban life.

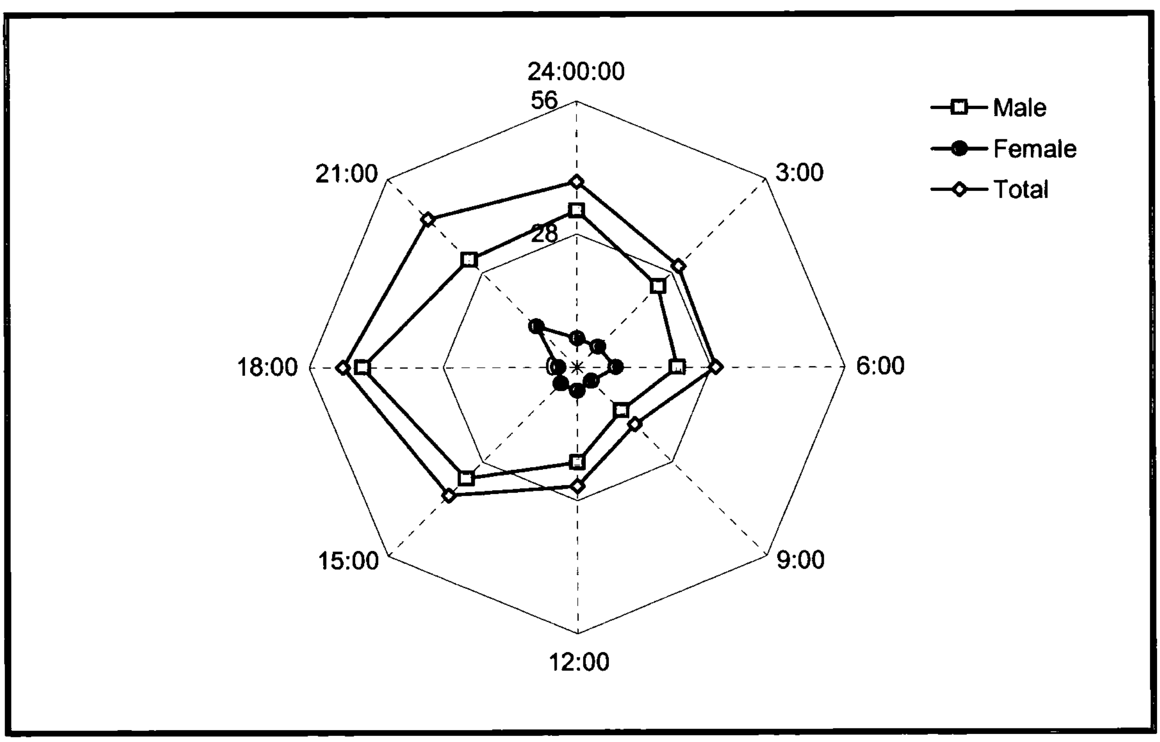


Figure 8-4 The non-stop and gendered temporal landscape of PC Bang

Source: Observation survey of the PC Bang *Lemon PC Zone*

Note: The total number of computer terminals is 56

Table 8-4-1 The temporal pattern of Internet use by locale (1)

Day	Time	Home		University		PC Bang	
		Male	Female	Male	Female	Male	Female
Weekday	00:00-06:00	12	8	0	0	2	7
	06:00-12:00	2	2	4	7	0	0
	12:00-18:00	2	3	87	76	16	10
	18:00-24:00	64	65	6	7	25	27
Weekend	00:00-06:00	0	4	0	0	2	8
	06:00-12:00	2	0	0	0	0	0
	12:00-18:00	2	4	2	3	8	4
	18:00-24:00	8	6	0	0	26	30
No use		8	8	1	7	21	14
Total		100	100	100	100	100	100

Source: Questionnaire survey of university students, Seoul

Table 8-4-2 The temporal pattern of Internet use by locale (2)

Day	Time	Home		University		PC Bang	
		Male	Female	Male	Female	Male	Female
Weekday	00:00-06:00	6	6	0	2	8	1
	06:00-12:00	3	1	2	7	2	3
	12:00-18:00	1	3	83	78	11	22
	18:00-24:00	43	41	9	12	15	20
Weekend	00:00-06:00	5	3	0	0	8	3
	06:00-12:00	3	2	0	0	2	1
	12:00-18:00	6	7	6	1	11	13
	18:00-24:00	22	29	0	0	36	29
No use		11	8	0	0	7	8
Total		100	100	100	100	100	100

Source: Questionnaire survey of university students, Daegu

About 54.6 per cent of Korean people tend to use PC Bangs mainly between 18:00-24:00 at weekdays (KRNIC, 2001), and about 42.0 per cent (56.3 per cent of the males and 17.4 per cent of the females) of the school/university students who have ever used PC Bangs have stayed all night at PC Bangs (ICCK, 2000). In the questionnaire survey of university students, it was also found that they tend to more use PC Bangs at night than at day (Tables 8-4-1 and 8-4-2). In the case of Seoul, 66.0 per cent of the males and 65.0 per cent of the females and in the case of Daegu, 55.0 per cent of the males and 55.0 per cent of the females use PC Bangs mainly from 18:00 to 24:00. On the contrary, from 06:00 to 12:00, in the case of Seoul, no one uses PC Bangs and in the case of Daegu, only 4.0 per cent of the males and 3.0 per cent of the females use PC Bangs. Compared with PC Bangs, homes usually are also most used from 18:00 to 24:00 and universities are most used from 12:00 to 18:00. Of course, these temporal patterns of using PC Bangs and homes reflect the time-space prisms of people's everyday lives in the cities. In a 24-hour observation survey of a PC Bang, called *Lemon PC Zone* in Sinchon, Seoul, it was found that most people use the PC Bang from around 18:00 to 24:00. From 18:00 to 06:00 in particular, more than 50 per cent of the total computer terminals (56) of the PC Bang were being operated. In contrast to such a night landscape, from 06:00 to 12:00, less than 50 per cent were on (Figure 8-4).

This temporal landscape of PC Bangs implies that they produce non-stop, on-line cities. The 24 hour on-line city of PC Bangs does not mean the city in which urban locales are repetitively switched on/off between home/night and work/day along the time-space prisms of people's everyday lives. It is also different from those of global cities such as London, New York, and Tokyo which become by turns on-line along time zones at a global level through "twenty-four-hour trading (as Tokyo closes, London opens, and some hours later New York picks up the baton)" (Massey, 1994: 159). The non-stop, on-line spaces of PC Bangs do not entail such temporal or spatial relays. In fact, the non-stop, on-line city is not a new phenomenon confined to recent electronic cities. Technological advances in transportation and telecommunication have facilitated the intensive use of time as well as the intensive use of space in cities. As a result, a new kind of city or society has appeared called a 'city around-the-clock', '24 hour city or society' and 'non-stop city or society' (Goodchild and Janelle, 1984; Thrift, 1997a;

Crang, 2001; Kreitzman, 1999; Held and Nutzinger, 1998). As Melbin (1978: 112) puts it, "the appearance and spread of extended-day and increased activities signal an evolutionary step in the growth of cities. They add the permanent colonization of time to the colonization of space and the ecological structure of human life is altered".

However, these are somewhat different from recent phenomena which appear through new media technologies. While the previous 24 hour city/society needs people's active movements and participation; the non-stop city/society induced by new media technologies demands people's passiveness and inactivity in unavoidable technological environments. New media technologies such as the Internet, satellite TV, cable TV, mobile phones and so on blur to an extreme degree both spatial and temporal boundaries and rapidly deterritorialise cities and bodies from physical into electronic time-space. This process has disturbing effects on human senses of time-space and interrupting impacts on urban ecology. As Cook (2003) puts it, "the alternation of day and night and our experience of it becomes a sign of the change in the way we are 'human'". In the case of PC Bangs, although their technological metabolism is not free from individual biological metabolism and collective social metabolism, we need to draw attention to the interrupting effects of PC Bangs on urban metabolism (see the articles below).

> **Miracle workers: in just five years, South Korea has shown the world what the broadband future looks like**
>
> PC bangs have a dark side. As one Singaporean newspaper headline put it: "S. Korean youths turning into broadband zombies". Teenagers are, it is said, becoming addicted to games, dropping out of school and traditional group activities, and becoming uncommunicative or even violent. Last week, a 24-year-old South Korean collapsed and died after spending 86 hours playing games in a PC bang without eating or sleeping properly. On the other hand, PC bangs provided crash courses in computer literacy for people who did not have access to a PC at school or at work, and kick-started the market for broadband content, albeit mostly for games. They also ensured that for millions of people, their first experience of the Internet was a broadband Internet. It meant the service providers did not have to sell them the idea. As Kolko says: "There was a lot of pent-up demand for broadband because people

who had already experienced it in PC bangs wanted to do the same things at home". (Source: *The Guardian*, 17 October 2002)

Where does fantasy end?: why all of South Korea is obsessed with an online game where ordinary folks can be arms dealers, murders ... and elves
In this wired nation, there are PC cafés on virtually every street, outfitted with the high-speed Internet connections that make interactive games crackle. Open 24 hours, and charging just $1 an hour to play, these game rooms are well stocked with cheese-whiz sausages, potato wafers and instant noodles. Many games are played here, but Lineage is the most addictive, authorities say. Two million people, out of a population of 46 million, have active Lineage accounts. And when day turns to evening, close to 100,000 Koreans can be found glued to computer terminals around the country, playing the game simultaneously. School kids in Seoul routinely doze through classes after playing all night. (Source: *TIME Asia*, 4 June 2001)

The non-stop, on-line city of PC Bangs involves a dual inertia: the synthesis of nomadic mobility and sedentary immobility. On the one hand, PC Bangs involve the nomadic characteristic of people in cities in that they are based on the flows of people in streets, and make people move constantly in virtual spaces. On the other hand, PC Bangs entail the sedentary characteristic of people in that people tend to stay in PC Bangs continuously, being immersed into virtual spaces, and they sometimes lose their senses of time-space between actual and virtual spaces. Such nomadic and sedentary landscapes coexist in PC Bangs. It seems then that PC Bangs, filled with computer terminals as 'vision machines' (Virilio, 1998d), produce what is called 'polar inertia' (Virilio, 1998c) through human-machine connections. This is "an illusion in which the body of the witness becomes the unique element of stability in a virtualized environment" (Virilio, 2000: 46). That is, "the age of the vision machine is the age of 'polar inertia', in the sense that the poles on a globe stand still as the globe spins. Thus bodies stand still as light is moving" (Lash, 2002: 58). The case of PC Bangs shows how temporal boundaries can be melted down and be blurred by speeded up machines and how human bodies can be immersed and absorbed into the machines.

8-4 Socio-cultural landscapes

8-4-1 Demographically territorialised social spaces

PC Bangs produce not only their spatio-temporal landscapes, but also their socio-cultural landscapes. In a sense, being based on paths in physical urban spaces and acting as gateways/bridges between actual and virtual spaces, PC Bangs can be seen as 'non-places' (Augé, 1995) (see Section 8-5). Although non-places are regarded as the transient and interstitial spaces of social life without inhabitants, they also involve various social relations and cultural implications with regard to class, gender or race relations (Crang, 2002a). In this sense, we can find out PC Bangs' socio-cultural landscapes, although PC Bangs can be described as a part of the landscapes of non-places in PC Bangs. There are two kinds of demographic landscapes which we can observe in PC Bangs: one relates to generations and the other to genders. As Table 8-5 indicates, the main demographic class who use PC Bangs as the primary locale to use the Internet are young people in their 10s-20s. According to the ICCK (2000), 94.2 per cent of school/university students have used PC Bangs (92.8 per cent of the lower/upper secondary school students and 95.4 per cent of the university students). In the case of *Lemon PC Zone* users were mainly people in their 20s and early 30s and most of them were university students.

In order to explain the particular and characteristic colour of life at a particular place and time, Williams (1961: 64) coined the term 'structure of feeling': "it is as firm and definite as 'structure' suggests, yet it operates in the most delicate and least tangible parts of our activity. In one sense, this structure of feeling is the culture of a period: it is the particular living result of all the elements in the general organization. The structure of feeling is generation-specific: "one generation may train its successor with reasonable success, in the social character or the general cultural pattern, but the new generation will have its own structure of feeling" (Williams, 1961: 65). Similarly, in order to suggest the affective and emotional effects of popular culture on people' practices, Grossberg (1992) coins the term 'sensibility'[4] which is similar in many ways

[4] In the glossary of his book *We Gotta Get Out of This Place*, Grossberg explains the term 'sensibility' as follows: "a logic of articulation which governs a specific formation or alliance. It

to Williams' 'structure of feeling'. It is said that with the development of new technologies, there has appeared a new kind of culture with a new kind of structure of 'feeling' or 'sensibility', which can be called 'digital culture', 'virtual culture' 'cyberculture' or 'technoculture'. This new kind of cultural formation is closely related to a series of developments of new media technologies, especially to the rise and diffusion of the Internet in the 1990s, which have brought about changes in the way of living or the structure of feeling. That is "it is possible to propose the existence of a distinctive digital culture, in that the term digital can stand a particular way of life of a group or props of people at a certain period in history, to invoke one of Raymond Williams's useful definitions of culture as a keyword" (Gere, 2002: 12), and especially "a distinctive technoculture emerged in the 1990s, fired with enthusiasm for what were perceived as the emancipatory possibilities of 'cyberspace' and 'virtual reality'" (Robins and Webster, 1999: 2).

Table 8-5 The demographic distribution of PC Bang users

		KRNIC	ICCK
Sex	Male	9.2	9.9
	Female	6.7	5.3
Age	7-13	10.5	4.6
	14-19		13.9
	20-29	12.2	14.6
	30-39	3.2	3.0
	40-49	1.4	0.9
	50-59	0.0	1.2
	60-	0.0	
Average		8.1	7.8

Source: KRNIC (2001) (as of June2001) and ICCK (2001) (as of April 2001)

Unit: % (people using PC Bangs as the primary local for Internet use)

defines what sorts of effects the formation produces and what sorts of activities and attitude people within the alliance can undertake. For example: the general sensibility of 'high culture' is cognitive, resulting in the fact that we always attempt to find its 'significance,' while the general sensibility of popular culture is more affective and emotional" (Grossberg, 1992: 397).

In general, young people in PC Bangs are closely associated with this new kind of culture. They are a social class who have been often called a 'digital generation' (Valentine, Holloway and Bingham, 2002), 'electronic generation' (Buckingham, 2001) or 'net generation' (Tapscott, 1999). In particular they have social and cultural desires to communicate in new ways, that is, from controlled and hierarchical one-way to free and heterarchical two-way communications, and to express their thoughts or desires in virtual spaces which could not be easily expressed in ordinary social life. In this sense, PC Bangs can act as alternative technological, social and cultural spaces in which their feelings, sensibilities and practices are formed and shared through the Internet. For such young people, PC Bangs could act as urban locales as deterritorialised electronic social spaces on the one hand, and territorialised physical social spaces on the other hand. Thus, this landscape of PC Bangs can be seen in terms of Grossberg's (1992: 107-8) 'structured mobility' which "defines the spaces and places, the stabilities and mobilities within which people live. Such a structured mobility is produced through a strategic interplay between lines of articulation (territorializing) and lines of flight of (deterritorializing)".

8-4-2 Gendered landscapes with invisible boundaries

The other aspect of demographic landscapes observed in PC Bangs is that PC Bangs are extremely gendered. First, we can see a gender gap in the number of users. PC Bangs are more used by males than by females (Table 8-5). According to the ICCK (2000), in the case of (secondary school/university) students, while 97.4 per cent of the males have used PC Bangs, 89.2 per cent of the females have used them. The result of the questionnaire survey of university students also shows this gendered landscape (Tables 8-4-1 and 8-4-2). However, these statistical results based on questionnaire surveys do not clearly show the gap between males and females in PC Bangs, which surely appears in PC Bangs. For example, in the case of *Lemon PC Zone*, males were more than 80 per cent of the total users (Figure 8-4). This gendered landscape of PC Bangs in Korea is different from that of Internet cafés in England where males are generally under half of the total users (Lee, 1999; Wakeford 1999).

Table 8-6 The temporal pattern of Internet use by gender

	Seoul						Daegu					
	Home		University		PC Bang		Home		University		PC Bang	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Frequency												
Every day	71	45	23	17	1	2	60	59	23	24	4	0
4-6 / week	8	24	24	19	3	1	19	22	24	25	12	4
1-3 / week	8	18	37	40	24	8	10	11	34	40	36	11
1-3 / month	4	3	10	10	30	11	0	0	15	11	19	15
1- /month	1	2	5	7	28	57	0	0	4	0	22	62
Time*												
6+ hours	5	1	1	2	1	0	1	0	0	2	1	0
4-6 hours	3	4	2	0	2	1	5	6	1	3	5	1
2-4 hours	13	10	10	4	5	2	20	21	3	5	11	4
1-2 hours	49	50	19	25	47	31	41	49	41	24	51	28
-1 hour	22	27	67	62	31	45	22	16	55	66	25	59
No use	8	8	1	7	14	21	11	8	0	0	7	8
Total	100	100	100	100	100	100	100	100	100	100	100	100

Source: Questionnaire survey of university students, Seoul and Daegu

* The time spent when users use PC Bangs once

Second, another gender gap appears in the frequency of PC Bang use and the time spent in PC Bangs. This is the reason why while the gender gap in the number of users is less obvious in the collective statistic surveys, but more obvious in the observation survey. Males tend to use PC Bangs more frequently and to spend more time in there, compared to females. According to the KRNIC (2001), while in the case of males, 61.3 per cent use daily PC Bangs and spend 11.37 hours per week, in the case of females, 51.9 per cent use daily PC Bangs and spend 8.50 hours per week. And according to the ICCK (2001), in the case of males, the amount of time spend per day in PC Bangs is about 109.2 minutes and in the case of females, the amount of time is about 85.7 minutes. The result of the questionnaire survey of university students also shows a similar tendency (Table 8-6). Males tend to use PC Bangs 1-3 times a week (Daegu) or 1-3 times a month (Seoul), and about half of them tend to spend 1-2 hours in PC Bangs. By comparison, females tend to use PC Bangs less than 1 time a month, and about half of them tend to spend less than 1 hour in PC Bangs. However, it is in their homes where people, whether males or female, use the Internet more frequently and for more time than in any other locale.

Third, there is a gender difference between the locations of PC Bangs which males use and those which female use. As Table 8-7 indicates, while males tend to use PC Bangs around universities, females tend to use those around their homes, although females in Daegu show a somewhat neutral tendency, and they tend to use PC Bangs located within 10-minutes' distance from their universities or homes. We can delineate two kinds of gendered clusterings of PC Bangs: one around universities by males; the other near homes by females. Of course, this does not mean that PC Bangs around homes are more used by females than males. Fourth, there is a gender difference in on-line interactions. While males tend to be relatively more engaged in on-line gaming in PC Bangs, females tend to be more engaged in on-line chatting. Finally, the structure of employees at PC Bangs is also a gendered landscape. Most employees at PC Bangs are males. For example, at *Lemon PC Zone* at Sinchon, three male employees and one female employee worked in turn during one day.

Table 8-7 The spatial pattern of PC Bang use by gender

	Seoul		Daegu	
	Male	Female	Male	Female
Near home	23 (26.7%)	47 (59.5%)	37 (39.8%)	42 (45.7%)
Inside 10 minutes' distance	19 (22.1%)	40 (50.6%)	31(33.3%)	40 (43.5%)
Outside 10 minutes' distance	4 (4.7%)	7 (8.9%)	6 (6.5%)	2 (2.2%)
Near university	50 (58.1%)	26 (32.9%)	44 (47.3%)	42 (45.7%)
Inside 10 minutes' distance	40 (46.5%)	20 (25.3%)	37 (39.8%)	39 (42.4%)
Outside 10 minutes' distance	10 (11.6%)	6 (7.6%)	7 (7.5%)	3 (3.3%)
Others	13 (15.1%)	6 (7.6%)	12 (12.9%)	8 (8.7%)
No use	14	21	7	8
Total	100	100	100	100

Source: Questionnaire survey of university students

PC Bangs can be seen as public electronic spaces which compared with other locales, have few social constraints and are relatively open to all kinds of people, whether they are old or young, males or females and rich or poor. For example, two female students in their early 20s entered the PC Bang *Lemon PC Zone* about 10:00 pm. One of them began to smoke, whilst engaged in on-line chatting. In patriarchal Korea, young females are not frequently seen smoking in public spaces. However, nobody in the PC Bang minded her behaviour. Nevertheless, we can see that there are invisible cultural, social or psychological boundaries between males and females, as a female university student said:

> "At first, PC Bangs seemed to be a good place to me, because in PC Bangs, I could use the computer for word-processing and could use the Internet to find out information. But, more recently, with increases in adult web sites, on-line chatting, on-line gaming and so on, PC Bangs have been changed into somewhat dark and gloomy places. Furthermore, because smoking is allowed at almost all PC Bangs, as soon as I open the door to enter the PC Bang, I sometimes encounter with cigarette smoke. It is these environments and situations that makes me have a negative feeling towards PC Bangs" (Bo-Yoon Choi, 24, female).

As such, not only between the young and the old, but also between males and females are invisible boundaries which produce male-centred landscapes from which females are excluded. In this sense, PC Bangs can be seen as gendered or masculine electronic spaces.

8-4-3 New urban consumption spaces for travels into virtual space

New information and communication technologies have effects on the networks and spaces of creativity, production, distribution and consumption, especially in the Internet, media or cultural industry (see Leyshon, 2001; Dodge, 1999b; Zook, 2000, 2001, 2002a, 2002b, 2003; Aoyama, 2001, 2003; Scott, 1997, 1999, 2000; Pratt, 2000; Cooke, 2002; Morgan, 2004). In the case of the on-line/networked game industry in Korea, PC Bangs also have symbiotic relationships with game companies and ISPs [Internet Service Provides]. Game companies act as the creators or producers of digital game images, ISPs act as the constructers of electronic networks through which the images are transmitted into computer screens, and PC Bangs act as the consumption spaces where the images are consumed. The production spaces of game companies and the consumption spaces of PC Bangs show different spatial patterns. That is, while the production spaces are concentrated in the capital city/region – 330 of the total 405 game companies are located in Seoul and 370 are in the capital regions as of 2001 (MCT, 2001: 319) – the consumption spaces are dispersed across national space. Given that "many new urban consumption spaces relate to new patterns of leisure, travel and culture" (Zukin, 1998: 825) and "the Internet would … function as a simulated territory we traverse via computer/modem roadster, the computer screen replacing the windscreen" (Nunes, 1997: 164), PC Bangs can be viewed as new urban consumption spaces where people can consume visual images or as mediating/moving machines whereby people can travel into virtual spaces.

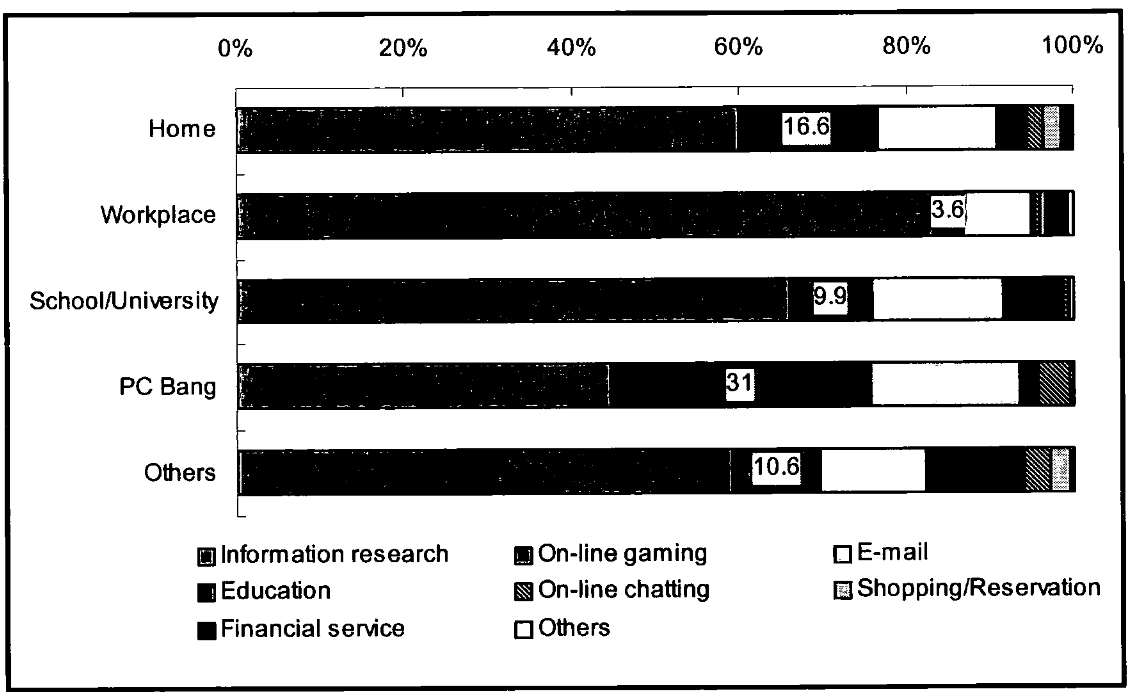


Figure 8-5 The primary Internet activity by locale
Source: Adapted from KRNIC (2001) (as of June 2001)

Table 8-8-1 Locale use by on-line interaction (1)

Sex	On-line interactions (The number of users)	Locales for on-line interactions			
		Home	University	PC Bang	Others
Male	E-mail (100)	74.0% (74)	23.0% (23)	1.0% (1)	2.0% (2)
	BBS (86)	75.6% (65)	20.9% (18)	1.5% (1)	2.3% (2)
	On-line chatting (58)	75.9% (44)	17.2% (10)	5.2% (3)	1.7% (1)
	On-line gaming (60)	66.7% (40)	13.3% (8)	20.0% (12)	0.0% (0)
Female	E-mail (100)	74.0% (74)	22.0% (22)	2.0% (2)	2.0% (2)
	BBS (73)	75.7% (56)	18.9% (14)	1.4% (1)	4.1% (3)
	On-line chatting (63)	82.5% (52)	11.1% (7)	4.8% (3)	1.6% (1)
	On-line gaming (31)	83.9% (26)	0.0% (0)	12.9% (4)	3.2% (1)

Source: Questionnaire survey of university students, Seoul

Table 8-8-2 Locale use by on-line interaction (2)

Sex	On-line interactions (The number of users)	Locales for on-line interactions			
		Home	University	PC Bang	Others
Male	E-mail (100)	73.0% (73)	24.0% (24)	2.0% (2)	1.0% (1)
	BBS (93)	67.7% (63)	30.0% (26)	2.2% (2)	2.2% (2)
	On-line chatting (90)	76.7% (69)	16.7% (15)	5.6% (5)	1.1% (1)
	On-line gaming (83)	63.9% (53)	12.0% (10)	21.7% (18)	2.4% (2)
Female	E-mail (100)	83.0% (83)	16.0% (16)	1.0% (1)	0.0% (0)
	BBS (78)	75.6% (59)	23.1% (18)	1.3% (1)	0.0% (0)
	On-line chatting (85)	85.9%(73)	9.4% (8)	4.7% (4)	0.0% (0)
	On-line gaming (67)	79.1% (53)	9.0% (6)	11.9% (8)	0.0% (0)

Source: Questionnaire survey of university students, Daegu

The most important consumption activity in PC Bangs is on-line/networked gaming. PC Bangs tend to be used for on-line gaming, compared to other locales (Figure 8-5). This landscape of on-line activities is clearly the product of young people like school/university students – on-line gaming: 47.1 per cent, information research: 21.0 per cent, e-mail: 14.6 per cent, on-line chatting: 11.4 per cent (ICCK, 2000: 65). This tendency was also found in the questionnaire survey of university students (Tables 8-8-1 and 8-8-2) according to which although they use their homes as the primary locale for all on-line interactions, they tend to use PC Bangs for on-line gaming.

However, such on-line activities in PC Bangs are not gender neutral, as explained above. There are gender differences in the landscapes of on-line activities in PC Bangs. According to the ICCK (2000: 65), for male school/university students, on-line gaming is their primary activity in PC Bangs – on-line gaming: 65.5 per cent, information research: 14.2 per cent, e-mail: 10.0 per cent, on-line chatting: 5.4 per cent. On the other hand, for female school/university students, information retrieval is their primary activity – information research: 32.9 per cent, e-mail: 22.9 per cent, on-line chatting: 21.1 per cent, on-line gaming: 15.5 per cent. Especially with regard to on-line gaming and chatting, while males tend to prefer on-line gaming, females tend to prefer on-line chatting. This gendered landscape in PC Bangs was also observed at *Lemon PC Zone* where among 44 users at 9 pm, 31 males and 8 females were playing on-line games, 1 male and 3 females were having on-line chats, and 1 female was doing word-processing.

8-5 Human-machine landscapes

8-5-1 Being-in-the-virtual-world: cognitive mapping and extended bodies?

This section looks at bodies in PC Bangs as 'beings-in-the-virtual-world', focusing on what effects human-machine connections in PC Bangs have on the boundaries of the human body which exists in the boundaries between actual and virtual spaces and the implications they have for social landscapes in cyborg cities. According to McBeath and Webb (1997),

> "Baudrillard writes of how one can disappear, 'leaving others prey to reality' (1990). Of course, one does not literally disappear, but becomes immersed and absorbed by the technical operation of the medium and the virtual world which one enters, and to which one is subject. Absorption is the collapse of indifference and the emergence of a gradually lost difference between self and cyberspace. To be absorbed is to become oneself inside a frame where boundaries do not matter. The more one becomes on the inside the less one is aware of an outside. In our view, becoming absorbed is the move into virtual space. It is a fascination with the spectacle or the play of the game that let us forget that we are fascinated" (McBeath and Webb, 1997: 258).

As such, playing on-line/networked games can be seen as the connections of human-machine spaces and the connections of actual-virtual spaces. Drawing on McLuhan's (1994) thesis of the 'extensions of man' in the 'global village', many researchers have said that transportation and communication technologies extend the boundaries of the human body (see Janelle, 1973; Adams, 1995, 2000; Kwan, 2000, 2002; Townsend, 2000; Zylinska, 2002). In a similar context, drawing on Haraway's (1991) concept of 'cyborg', Ted Friedman's (1995) also says of the transformation of the subject through computer games through work on the interactive relations of the computer game *SimCity* and its players.

> "It's very hard to describe what it feels like when one is 'lost' inside a computer game, precisely because at that moment one's sense of 'self' has been fundamentally transformed. Flowing through a continuous series of decisions made almost automatically, hardly aware of the passage of time, the player forms a symbiotic circuit with the computer, a version of the cyborgian consciousness described by Donna Haraway in her influential 'Manifesto for Cyborgs." The computer comes to feel like an organic extension of one's consciousness, and the player may feel like an extension of computer itself" (Friedman, 1995: 83).

In addition, Friedman (1995) underlines that the 'identification' and interactive 'processes' between the computer game and its players can produce a new type of subjectivity with fluid and flexible spatio-temporal senses by which the players can have the ability of 'cognitive mapping' in the contemporary society. That is, the computer game is explained as a means to overcome the crisis of representation by fluid and fragmented time-space in late capitalism, explained by Harvey (1989) and Jameson (1991). Furthermore, Friedman (1995) suggests a possibility for computer games to enable a more optimistic and interactive society not only between humans and machines but also between humans and humans through new technologies such as computer-mediated communication and so on.

> "The computer game traditions of thick textural description, playful role-playing, and persistent exploration remain powerful imaginative tools at MediaMOO for opening up computer-mediated communication beyond simply 'chatting' in real time. As data capacities increase and text-based virtual communities expand to include sound and graphics, it is likely that computer games will continue to have things to teach us about interacting both with software and with each other. Computer games, after all, are where we go to play with future"(Friedman, 1995: 87).

Friedman's (1995) explanation implies that the practices of playing computer games have positive effects in relation to the extension of players' spatial and social senses (see also Fuller and Jenkins, 1995). However, what I want to argue here is that people's practices of playing on-line/networked games in PC Bangs can affect their cognitive disorientation between actual and virtual time-spaces and their social individualisation and fragmentation in cities. Computer games are one of the 'new media' producing 'visual digital culture' with the 'culture of the depthless', the 'era of simulation' and the 'age of the signifier' (Darley, 2000: 192). Although the hyper-reality of virtual spaces itself can be seen as superficial and ephemeral, its effects on subject's spatial and social senses can be profound and serious through 'the experience of dislocation in time and space' (Wilber, 1997: 11; see also Rodaway, 1995).

8-5-2 The body on boundaries and the boundaries of the body

PC Bangs can also be thought of as machines through which the boundaries of the human body in actual spaces can be extended into virtual spaces through connections to computer screens and networks. However, when we think of the extension of the boundaries of the human body, we need to distinguish between two kinds of boundaries of the body: sensory boundaries and social boundaries. According to the ICCK (2000) which surveyed the effects of PC Bangs on (school/university) students, more than 30 per cent of the respondents think that PC Bangs tend to make them disoriented between actual and virtual spaces, and about 70 per cent say that PC Bangs tend to make them addicted to the virtual world of on-line/networked games (Table 8-9). It is found that females tend to be more vulnerable than males to the confusion between actual and virtual spaces. This implies that their sensory boundaries are extended and absorbed into virtual spaces beyond actual spaces. This process has disorienting and disturbing effects on them in the boundaries between actual and virtual spaces. In particular, in the case of some gamers addicted to the virtual world of on-line/networked games such as *Lineage*, their lives in actual spaces are seriously affected by virtual spaces. To them, there is no boundary between actual and virtual spaces (see the articles below).

South Korea wires up: overnight, the country has gone overboard for the Internet, kicking off a cultural revolution

Last year Internet gaming company Ncsoft found it had an embarrassing problem. The Seoul firm is the creator of *Lineage*, a medieval cyberworld in which players do battle with swords and shields, and use magical rings to change their identities. Players can swap weapons or buy and sell them using virtual assets. So popular is Lineage – and so competitive are its fans – that some players began buying and selling weapons with real money instead of virtual money. Identity rings were going for as much as $300 each. The barred players barged into NCsoft's office and demanded to be allowed back online. The company had to call the police. That's how it is today in South Korea: the Internet seems to have made not just Lineage fans but also the whole nation a little cybercrazy. (Source: *TIME*, 22 January 2001)

NCsoft seeks court battle to nullify Lineage's rating

Lineage, which draws about 180,000 concurrent users at its peak period, is a multi-player fantasy game set in a virtual medieval world. Players can either pay a monthly fee of $23 to play from home or can play on a pay-per-play basis at a PC bang for a fee of around $0.79. Despite its huge success over the past three years, *NCsoft*'s *Lineage* has been criticized for its high level of violence and its relationship with criminality. Game play is based on teams of players, or clans as they are called in cyberspace, and they need to be organized to fight effectively and win. Players can swap weapons or buy and sell those weapons using the game's cyber money. Some effective weapons are reportedly traded at real prices of 300,000 won. With *Lineage* addicts commonly trading the virtual weapons for real currency to better fight against other clans, the action has too often moved offline and the violence has sometimes moved from cyberspace to the real world. (Source: *The Korea Times*, 21 October 2002)

Furthermore, we need to recognise that while the sensory boundaries of the human body could be extended into virtual spaces beyond actual spaces through computer screens and networks, the social boundaries of the human body could be shrunk into a level of the body itself. As Heim's (1991: 74) puts it, "what technology gives with one hand, it often takes away with the other. Technology increasingly eliminates direct human interdependence. While our devices give us greater personal autonomy, at the same time they disrupt the familiar networks of direct association". In other words, "an isolated individual, cut loose from the sociality of urban life, separated from the world by the pixelated screen" (Crang, 2000a: 304). This is a solipsistic and narcissist electronic landscape. "Solipsism, or the extreme preoccupation with and indulgence of one's own inclinations, is potentially engendered in the technology. ... As the private becomes more all-encompassing and the image of one's own world view becomes more convincing, one can lose sight of the other altogether" (Foster, 1997: 26). As Robins (1995b: 144) puts it, "virtual empowerment is a solipsistic affair, encouraging a sense of self-containment and self-sufficiency, and involving denial of the need for external objects". As such, although PC Bangs can also enable the extension of the sensory boundaries of the human body, they can result in the contraction of the social boundaries of them. More than 50 per cent of the respondents think that PC Bangs make it possible to make one's world without the interruption of others, and about 65 per cent think that PC Bangs have negative effects on social relationships (Table 8-10). Furthermore, about one-quarter say that PC Bangs brings about even the severance of human relationship (ICCK, 2000).

Table 8-9 The personal effects of PC Bangs on users

	Disoriented between actual and virtual worlds			Addicted to on-line/networked games		
Degrees	Total	Male	Female	Total	Male	Female
Strongly agree	8.2	7.9	8.6	29.3	29.2	29.5
Agree	24.0	22.3	26.8	42.5	42.4	42.7
Disagree	38.7	36.4	42.8	17.4	17.5	17.3
Strongly disagree	29.1	33.4	21.8	10.7	10.8	10.5
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0

Source: ICCK (2000)

Table 8-10 The social effects of PC Bangs on users

	One's own world without interruption			Extension of social relationships		
Degrees	Total	Male	Female	Total	Male	Female
Strongly agree	20.1	19.8	20.7	7.7	8.2	6.8
Agree	32.5	31.7	33.9	26.0	25.4	26.9
Disagree	35.8	36.8	34.1	44.7	45.2	43.9
Strongly disagree	11.6	11.7	11.3	21.6	21.2	22.4
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0

Source: ICCK (2000)

8-5-3 Non-places in cyborg cities

In the city, "we are entering a built environment that is increasingly incorporating electronic communication devices everywhere" (Castells, 2002: 554) and "wherever we go, then, in modern urbanized spaces, we are directed by software" (Thrift and French, 2002: 323). As a result, the city increasingly comes to be what Amin and Thrift (2002) call a 'post-social' and 'post-human' community where "as software and other technological entities become more prominent in cities, so the notion of the relationship, and of sociality, needs to be disassociated from its fixation on human groups" or in terms of 'cyborg urbanisation' in the sense that "the contemporary territory-city seems to have been made for the cyborgs to come" (Chatzis, 2001: 910; see also Gandy 2005 and Graham and Marvin, 2001).

PC Bangs can be seen as a typical example of technological environment which produces 'post-human' or 'cyborg' cities in the point that they involve human-machine heterogeneous networks rather than human-human homogeneous networks. As Westwood and Williams (1997: 15) state, "William Gibson's cyberpunk scene is no longer a distant ream – though not yet science fact – as the increasing enthusiasm for the Internet and 'net relations' suggests. With every town now having its own cyber café ... the future looks good for sociological cyborgs". In such post-human or cyborg cities, PC Bangs produce the world of 'local intelligence' (or 'mechanosphere') in which "everyday spaces become saturated with computational capacities, thereby transforming more and more spaces into computationally active environments able to communicate within and with each other" (Thrift and French, 2002: 315). While mobile or wearable technologies produce the world of local intelligence, PC Bangs contribute to the formation of local intelligence in urban spaces through their relatively ubiquitous locations. To put it another way, while the world of local intelligence by mobile or wearable computing technologies can be possible because the technologies are portable and moveable along with moving human bodies, the world of local intelligence by PC Bangs can be possible because the locales are spatially ubiquitous and available in cities.

In general, many locales in cities such as homes, workplaces, schools/universities and so on, act as physical spaces in which people get together and have face-to-face interactions with each other on the one hand, and as electronic spaces in which people have tele-interactions with other people inhabiting other locales through electronic networks on the other hand. In other words, they are neither pure physical spaces, pure social spaces nor pure electronic spaces, but rather they need to be seen as the hybrid spaces of them, and especially of 'grounded' + virtual' (Hanson, 2000), or 'F2F (face to face) + IT' (Etzioni and Etizioni, 1998). Of course, PC Bangs can also be thought of as electronic locales in where people are connected to electronic machines and networks, and at the same time, as physical locales in which people get together. However, one of the characteristic landscapes of PC Bangs, somewhat different from those of other urban locales, is that human-machine interactions appear as more dominant landscapes than human-human interactions, making extremely individualised and fragmented human-machine landscapes and thus forming 'non-social' spaces in the city (Of course, this does not meant that there is no social interactions or landscapes in BC Bangs). That is, human-human homogeneous actors are disconnected from each other in PC Bang, even though they physically coexist within the same locale, and instead, human-machine heterogeneous actors are closely connected with each other.

Thus, PC Bangs can be characterised as urban locales with the internal landscape of proximity without interactions, and this is one of the paradoxical landscapes of PC Bangs. This is because PC Bangs act as mediating/moving machines through which people can easily come and go between actual and virtual spaces or can travel into virtual spaces, leaving their bodies in front of computer screens. In this sense, PC Bangs as 'new urban consumption spaces' (Zukin, 1998) can be seen in terms of Augé's (1995) 'non-places' in hyper-mobility or super-modernity societies, which "combine the characteristics of those spaces which people simply move through and of imposing a form of behaviour on their users that can be described as machine-like, reducing individuals to the status of operators" (Benko, 1997: 23; see also Bauman, 2000a: 102).

8-6 Conclusion: the paradoxical transformation of the public sphere

PC Bangs have been rapidly developed and diffused as public electronic spaces since the late 1990s in Korea, helping people to easily access the Internet cities through reducing both (socio-economic) capability constraints and (human-machine) coupling constraints and thus producing an initial form of ubiquitous computing space. I have examined how PC Bangs produce the electronic landscapes of paradox, looking at three kinds of landscapes appearing in this process: spatio-temporal, socio-cultural and human-machine landscapes. First, PC Bangs seem to deterritorialise spatio-temporal boundaries. Acting as an enormous number of electronic gateways/bridges or entrances/exits in urban spaces, PC Bangs produce 'hypertext-cities' or 'rhizome-cities' and 'non-stop, on-line cities'. Second, although PC Bangs deterritorialise spatio-temporal boundaries in cities, they also involve socio-cultural boundaries territorialised through invisible social boundaries. Even though PC Bangs act as public electronic spaces which can be make available to anyone, they appear as gendered, or masculine, new urban consumption spaces. Finally, PC Bangs as mediating/moving machines construct 'cyborg cities' where machines' electronic networks are combined with humans' sensory networks, making people's time-space senses disoriented between actual and virtual time-spaces and where human-machine network replace human-human networks, producing 'non-places' with individualised and fragmented urban landscapes.

I want to argue that PC Bangs produce not consistent and straightforward, but paradoxical and contradictory landscapes between actual and virtual spaces or between human and machine spaces. We can see some paradoxical landscapes in the three landscapes explained above. (a) Smooth and striated spaces: PC Bangs produce smooth space within/between cities located in the striated space of national electronic space. (b) Nomadic and sedentary landscapes: people in PC Bangs move in virtual spaces, being more static in actual spaces. (c) Open and closed spaces: although PC Bangs act as open electronic spaces, they involve invisible social boundaries. (d) Deterritorialised and re/territorialised spaces: thus, PC Bangs deterritorialise spatio-temporal boundaries through hypertext networks and socio-cultural boundaries re/territorialized through invisible boundaries. (e) Extended and shrunk human boundaries: while the sensory boundaries of the body in PC Bang are extended through electronic networks, their social boundaries are shrunk. (f) Social and non-social spaces: PC Bangs are both social spaces with gendered landscapes and non-social spaces with human-machine landscapes. Although PC Bangs have the potential to produce the urban electronic space Woods (1992; 1996) calls 'freespace', there are also technological and social limits. Technologically, PC Bangs make cities composed of hypertext-like networks, but at the same time, they make cities more dependent on the central nodes of national electronic space. Socially, PC Bangs entail the urban nightscapes of escapes and pleasures for young people (see Amin and Thrift, 2002: 119-20; Chatterston and Hollands, 2003). However, they also involve the gloomy landscapes of masculinism and patriarchism and the illusionary landscapes of solipsism and narcissism.

Chapter 9

Urban Penetration and Fragmentation by the Internet in the City on the Screen

Many have suggested that the fragmentation of social relations or cultural identities is one of the most outstanding effects of new media technologies on our everyday lives. The Internet in particular has been exemplified as one of the prime fragmentation causing technologies. This chapter explores how what have been regarded to be integrated and solid in the city have come to be made fragmented and fluid by the Internet. I address this question through investigating three kinds of fragmented and fluid landscapes of the city: the reshaping of the boundaries and images of the home by the Internet; the transformation of the time-space fabric of the city through on-line interactions; and the fluidity of bodies and identities in virtual spaces. First, I examine how the boundaries and images of the home, which has been thought of as the most fundamental social-spatial unit in the city, are penetrated and reshaped by the Internet. Then, I investigate how the time-space fabric of socio-spatial landscapes in cities is flawed and fractured though on-line interactions. Finally, I explore how bodies and identities can be multiple and fluid in virtual spaces on the screen, and how these processes bring about symbolic conflicts in the landscapes of symbolic/linguistic identities in virtual spaces. I conclude the chapter by suggesting that although the Internet can make the city porous and permeable to some degree, producing the fragmented and fluid landscapes of the city, such urban landscapes are still in the shadows of the conditions and influences of physical spaces in the city.

9-1 Internet landscapes: global-local networks and fragmentation

The recent development of new media technologies such as the Internet, cable TV, the mobile phone and on so has changed not only the technological landscapes but also the social landscapes. It is argued that one of the most outstanding effects of such new media technologies is the fragmentation of social relations, cultural identities or public spheres. We can easily see such fragmented landscapes in everyday life. Contemporary cities is where "different fluids spatially intersect in the 'empty meeting grounds' of the non-places of modernity, such as motels, airports, service stations, the internet, international hotels, cable television, expensive account restaurants and so on" (Urry, 2000a: 194), and "private conversations are increasingly occurring in various 'free spaces' that have been appropriated from the 'semipublic realm of streets, trains, stairwells, hallways, and stations" (Sheller, 2004: 45-6). Such fluid and mobile societies or cities can be characterised by social individualisation and fragmentation (see Bauman, 2000a: 102). For example, the Walkman, one of the technologies possessed and used individually, is different from other technologies used collectively like television. When one wears headphones or earphones, it can symbolise his/her desire to be disconnected from his/her present social space. "The person listening to a Walkman is transported somewhere else by artistic emotion – and is unplugged from the here and now" (Callon and Law 2004: 7). That is, "Walkman users construct their own privatised and intimate space of perception" (Bull, 2004: 111; see also Bull, 2000). As electronic devices are individually possessed and used, urban, social and cultural landscapes are increasingly individualised and fragmented.

The multiple channels of cable or satellite TV can also make the audience fragmented. "More channels mean more diverse content. More diverse content means more viewer options. More options mean that the audience will divide into narrower and narrower viewing groups, based on differences in their preferences" (Lull, 2000: 123). While being concerned with the fragmentation and end of the audience of television, McQuail (2000: 408-9) suggests four stages or models of audience fragmentation: from unitary model through pluralism model (diversity in unity) and core-periphery model (unity in diversity) to break-up model (fragmentation). The 'unitary model' implies a single audience more and less coextensive with the general public through a very limited choice of channels and the same media experience. The 'pluralism model' becomes possible by a pattern of limited internal diversification through an increase in content and channels. In the 'core-periphery model', the multiplication of channels undermines the unity of the framework, as a result of the VCR, cable and satellite transmission and other new media. In the 'break-up model', fragmentation accelerates and there is no longer any centre, just very many and very diverse sets of media users. Through this process, political communities, social relations and cultural identities can be more multiple and fragmented.

Here, there appears a kind of spatial dilemma. We tend to see such a process of fragmentation as a spatial process of disintegration from large to small spatial units: the disconnecting and shrinking process of networks. However, we need to recognise that fragmenting processes involve the other spatial process at the same time: the connecting and expanding process of networks, as van Dijk's (1999) model of the 'dual structure of networks' in the network society: the simultaneous 'scale extension' and 'scale reduction' of networks. That is, new media technologies make networks fractionised into smaller spatial units, and extended towards larger units at the same time, resulting in global-local networks. This landscape takes on what Urry (2000a: 194; see also Sheller and Urry, 2003: 117) calls 'global fluids' with "no clear point of departure or arrival, just de-territorialized movement or mobility (rhizomatic rather than arboreal)". In this process, national territories, boundaries and identities could be weakened. For example, as Sassi (2000: 94) argues, "the Net now seems to be responsible for even more intensified fragmentation" in that "the public, previously a national entity, is presently dispersed into smaller groups which reach across national borders and have casual relations to each other if any". Sheller and Urry (2003: 118) represent these global-local mediascapes as 'public screens', visible everywhere linked into global networks", and Luke (1995a) expresses them as 'glocal technoregions' with sovereignty-free neo-world orders. Among a large number of new media technologies, it may be the Internet that can be exemplified as the most typical media constructing 'global fluids', 'public screens' or 'global technoregions'.

However, again we encounter another kind of spatial dilemma. We tend to see the Internet as a global media in that it enables individuals to reach someone or somewhere across global spaces through instantaneous and simultaneous connections. This image of the Internet has been highlighted by those having an optimistic viewpoint of the effects of technologies on societies. For example, Cairncross (2001: 76) has argued the 'death of distance' by the Internet: "it (the Internet) offers a peek at the communications future: a world in which transmitting information costs almost nothing, in which distance is irrelevant, and in which any amount of content is instantly accessible". In fact, in human history, space has been perceived as a negative obstacle which should be eliminated by technologies. The Internet can be seen to Cairncross as a supreme technology to complete the mission. By comparison, some researchers like Castells (1996) or Virilio (1997) have stressed the disruptive effects of global electronic networks such as the Internet on local places. These perspectives, whether they see the effects of the Internet as positive or negative, assume that the Internet is global.

We need to recognise that the Internet entails different networks with different contexts and reaches: technological, economic, cultural and social networks. First, techno-functional networks can be global in that the Internet technologically works at a global level. Through such techno-functional networks, economic-transactional networks can be easily disembedded. For example, people living in most places of the globe can easily buy books or music CDs at amazon.com. In addition, cultural-symbolic networks could be disembedded to some degree through the Internet. That is, people could encounter non-local cultures at various websites. However, social-interactive networks are unlikely to be disembedded so easily, because people tend to communicate with people in the same city and it is not easy for people to have the chance to interact with others living different places. In some cases, the Internet is used to revitalise social networks or communities in local places. In this case, physical distances and boundaries can act as important factors in delimiting the boundaries of networks. After all, although the Internet can give us the possibility of McLuhan's (1994) 'extensions of man' in the 'global village', we need to recognise the inertia of local places. In this sense, Barry Wellman sees 'computer networks' as 'social networks' based on local territories (Wellman, 2001b; Wellman et al. 1996; cf. Harasim, 1993b).

Then, we need to see the Internet in terms of global-local networks rather than global networks, and think of the fragmenting effects of the Internet in relation to its global-local networks. In his recent work, Castells (2002) explains very systematically the process of 'multiple fragmentation' through the global-local networks of information and communication technologies in the city. Castells (2002) draws attention to the transformation of cities in the network society around three bipolar axes: the global and the local; individuation and communalism; and the space of flows and the space of places. As cities come to lie in the tensional and contradictory relations between such three axes, spatial territories, social relations, cultural identities and political-economic systems become disorganised and disintegrated. As a result, "we have a fragmentation of the spatial configuration of the metropolis, we have an individualisation of communication and we have a constellation of cultural subsets. Under such conditions, the notion of public sphere disappears". He sees the problem of 'multiple fragmentation' in the network society in terms of 'a crisis of the city as a communicative device': "we could be living in the paradox of an urbanised world without cities" (Castells, 2002: 555). One thing that we can learn from Castells' explanation is that the process of multiple fragmentations by the Internet needs to be understood in terms of the global-local networks of the Internet.

However, here again there appears another kind of spatial dilemma. When we think about the process of fragmentation through the global-local networks of the Internet, how can we perceive and define the local? Is it appropriate to see it as a city or place itself? As Savage et al. (2005: 2) state, "many globalisation theorists want to abolish the distinction between the global and the local, yet it is also clear that without some reference to the 'local', the meaning of the 'global' also becomes obscure".[1] The local is not an integrated entity, but it is composed of multiple units operating at smaller levels such as locales (homes, workplaces, schools, cafés and so on) and bodies (males/females, white/blue collars, white/black people, rich/poor people, young/old people and so on). As Harvey (1996: 51) puts it, "a city can be considered as a 'thing' in interaction with other cities, but it can also be broken down into neighborhoods or zones which can in turn be broken down into people, houses, schools, factories, etc. which can

[1] Savage et al. (2005: 4) suggest five distinct ways of construing the local: "firstly the local as context, secondly the local as the particular in opposition to the global universal; thirdly the local as historical residue, fourthly the local as hub in a network and fifthly the locality as bounded construction".

in turn broken down *ad infinitum*". Wellman and Gulia (1999) stress the global-local networks of the Internet in 'homes'.

> "Operating via the Net, virtual communities are glocalized. They are simultaneously more global and local, as worldwide connectivity and domestic matters intersect. Global connectivity de-emphasizes the importance of locality for community; online relationships may be more simulating than suburban neighborhoods. At the same time, people are usually based at their home, the most local environment imaginable, when they connect with their virtual communities. Their lives may become even more home-centered if they telework" (Wellman and Gulia, 1999: 187).

In fact, it seems to be more reasonable to say that 'the most local environment imaginable' is a body rather than the home. In this sense, we need to see the Internet not only as a 'global network' (Harasim, 1993a), but also as a 'personalised network' (Wellman, 2001a). As such, when we think of the urban and social fragmentation through the global-local networks of the Internet, we need to pay much attention to micro-levels such as urban locales or human bodies which are connected to the Internet.

As the city is increasingly connected to electronic networks such as the Internet and is more and more based on the screen, it is rendered penetrated, porous and permeable and what have been considered to be integrated and solid in the city come to be fragmented and fluid into the spaces of nets and bits. As Crang (2000a: 313) states, "(the real city) is a hole, a puncture, created through telematics as much as any other means". Furthermore, Novak (1998: 26), who calls for 'liquid architecture' and 'transarchitecture' which is the architecture of the Internet, proclaims that "all that is solid melts into information" and "all that is information melts into hyperspace", borrowing Marx or Berman's (1983) well-known phrase, 'all that is solid melts into air'. As such, as the city is connected to the Internet, it can be depicted as fluid and fractal in that their boundaries and territories cannot be represented as impermeable and solid.

While being concerned with this kind of geographical imagination of networked cities, this chapter explores how what have been regarded to be integrated and solid in the city come to be fragmented and fluid by the Internet. In order to address this question, I focus on three kinds of fragmented and fluid landscapes of the city: (a) the reshaping of the boundaries and images of the home by the Internet; (b) the transformation of the time-space fabric of the city through on-line interactions; and (c) the fluidity of bodies and identities in virtual spaces. However, this does not mean that these have always been integrated and solid always so far up to this point. On the contrary, none of them have ever been integrated in any society and in any age. In fact, even in the pre-industrial age in Western societies, homes were not static or stable, but dynamic and precarious (Laslett, 1971). Likewise, even in the same village or city in the pre-modern age, there were always multiple times (e.g. the multiple roles of church bells as devices of time between 1100 and 1300). As Crang (2001: 191) puts it, "contrary to Virilio and other theorists, we have not lost a unity of place with a unity of time, rather places have always had different temporalities orchestrated through them". In addition, in the case of bodies or identities, their essences are not unitary. For example, "Lacan has shown the plurality of registers – the Symbolic, the Real and the Imaginary – that penetrate any identity, and the place of the subject as the place of the lack which ... is the empty place that at the same time subverts and is the condition of the constitution of any identity" (Mouffe, 2005: 76). I examine these things because despite their not actually being so, they have all been considered to be integrated and stabilising parts of everyday life, and because the global-local networks of the Internet have made them more fragmented and fluid than ever before. Given that the "Internet itself is part of everyday life; it is part of the most banal aspects of social interaction" (Argyle and Shields, 1996: 58), it seems to be meaningful to see how the Internet has fragmenting or splintering effects on our cities and everyday lives.

9-2 Penetrated Homes and Splintered Cities

9-2-1 The penetration of home boundaries by the Internet

In this section, I look at how the boundaries and images of the home, which has been thought of as the most fundamental social-spatial unit, can be penetrated and reshaped by the Internet. The city is composed of multiple and various locales such as homes, workplaces, schools/universities, cafés, stores, etc. Recently, as human bodies have been more and more wired to electronic machines such as mobile phones, and urban locales are increasingly connected to electronic networks such as the Internet, the city itself has come to be the urban matrix of actual-virtual circuits, while being penetrated by such electronic machines and networks. In the urban matrix, urban locales act as not only physical cells where people in co-presence interact with each other but also electronic cells where people in tele-presence can interact with each other within/between cities. In order to know what urban locales play a key role in the urban matrix of actual-virtual circuits, we need to look at where people use the Internet in the city. As we can see in Table 9-1, in the demographical landscape of Internet use in Korea, almost all social classes primarily are in their homes when they access and use the Internet (68.7 per cent of the population of Korea tend to use the Internet in their homes), though there is a difference between males and females (that is, homes tend to be more used by females than males). It has been found that in recent years, the position of homes has risen, while that of Internet cafés (PC Bangs) has gradually fallen (Figure 9-1).

Table 9-1 The demographic landscape of Internet use

Sex / Age	Home	Workplace	School / University	PC Bang	No preference	Others	Total (%)
Male	62.1	22.9	4.4	9.2	0.2	1.2	100.0
7-19	79.4	0.0	7.0	11.3	0.2	2.0	100.0
20-29	52.3	23.5	7.2	15.8	0.3	0.9	100.0
30-39	50.2	45.0	0.1	3.6	0.1	1.0	100.0
40-49	60.9	37.4	0.0	1.4	0.0	0.2	100.0
50-59	56.6	42.0	0.0	0.0	0.3	1.1	100.0
60-	78.9	17.1	0.0	0.0	0.0	4.0	100.0
Female	77.5	8.9	4.6	6.7	0.1	2.2	100.0
7-19	81.1	0.4	7.5	9.5	0.1	1.5	100.0
20-29	65.4	18.3	5.4	7.9	0.3	2.7	100.0
30-39	83.8	10.0	0.3	2.7	0.0	3.3	100.0
40-49	88.4	9.4	0.0	1.3	0.0	0.9	100.0
50-59	83.3	13.3	0.0	0.0	0.0	3.3	100.0
60-	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Average (%)	68.7	16.9	4.5	8.1	0.2	1.6	100.0

Source: KRNIC (2001) (as of June 2001)

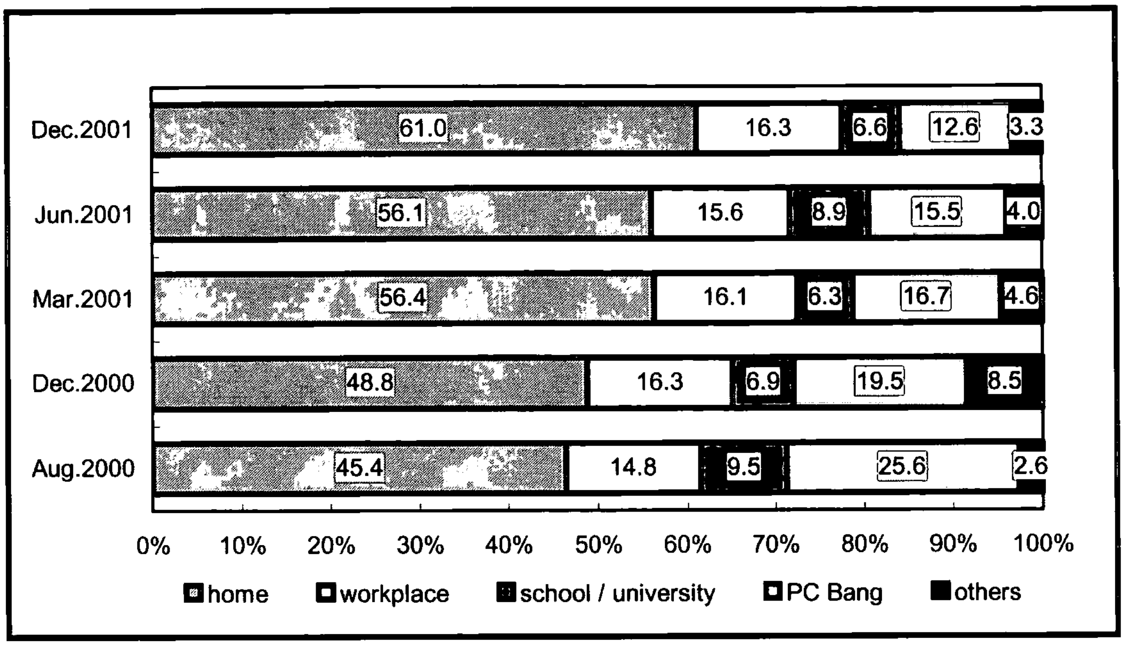


Figure 9-1 Change in the position of the primary locale for Internet use
Source: KRNIC (2001, 2002)

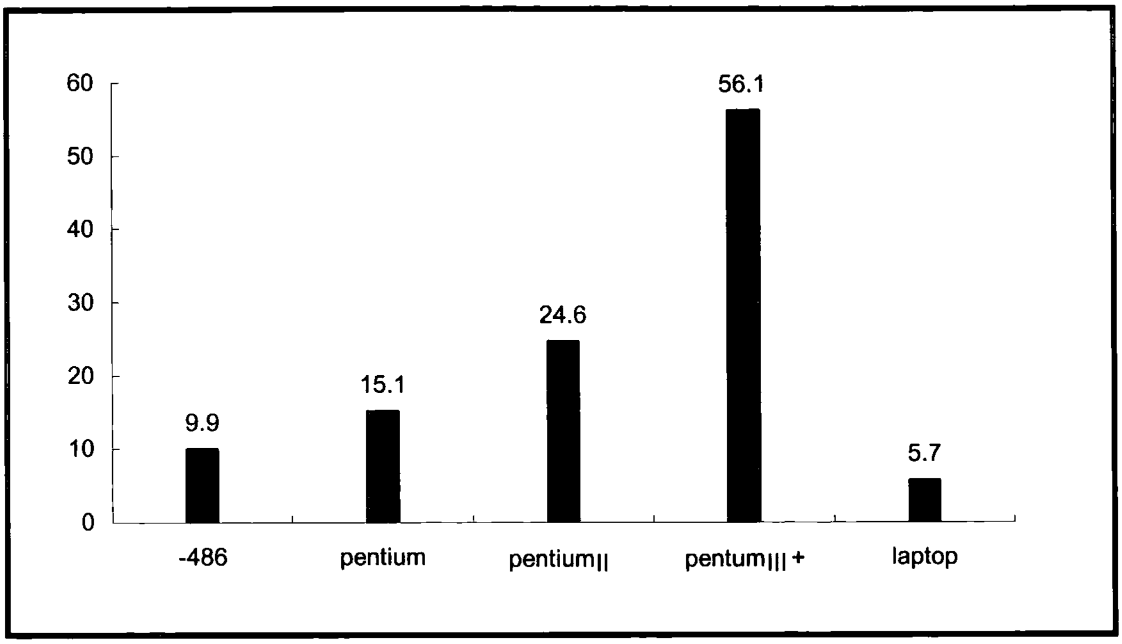
The role of the home as the main locale in urban spaces can be thought in relation to two technological processes at different spatial scales, which are interrelated to the geographical and cultural characteristics of Korea. One is the construction and expansion of the national information infrastructure (the KII: Korean Information Infrastructure) in national space through three stages (the first phase: 1995-7; the second phase: 1998-2000; and the third phase: 2001-5) by the government and ISPs [Internet Service Providers]. In this process, as Table 9-2 indicates, cities have been constructed as the electronic nodes (mainly, large cities) or as access points (generally, medium-sized and small cities) of the KII, and as a result, homes in large cities, medium-sized and small cities and rural areas have been increasingly connected to the Internet via broadband. Populations and houses in Korea are very intensively distributed in urban areas: 80 per cent of the population live in urban areas and nearly half of them live in large apartment blocks. This geographic and demographic condition could contribute to the reduction of the cost of rolling out the Internet across national space, and thus is explained as an important factor in explaining why homes in Korea are so highly and rapidly connected to the Internet via broadband (KRNIC, 2000; Department of Technology and Information Systems, Brunel University, 2002).

Table 9-2 Cities connected to the KII and households connected to the Internet

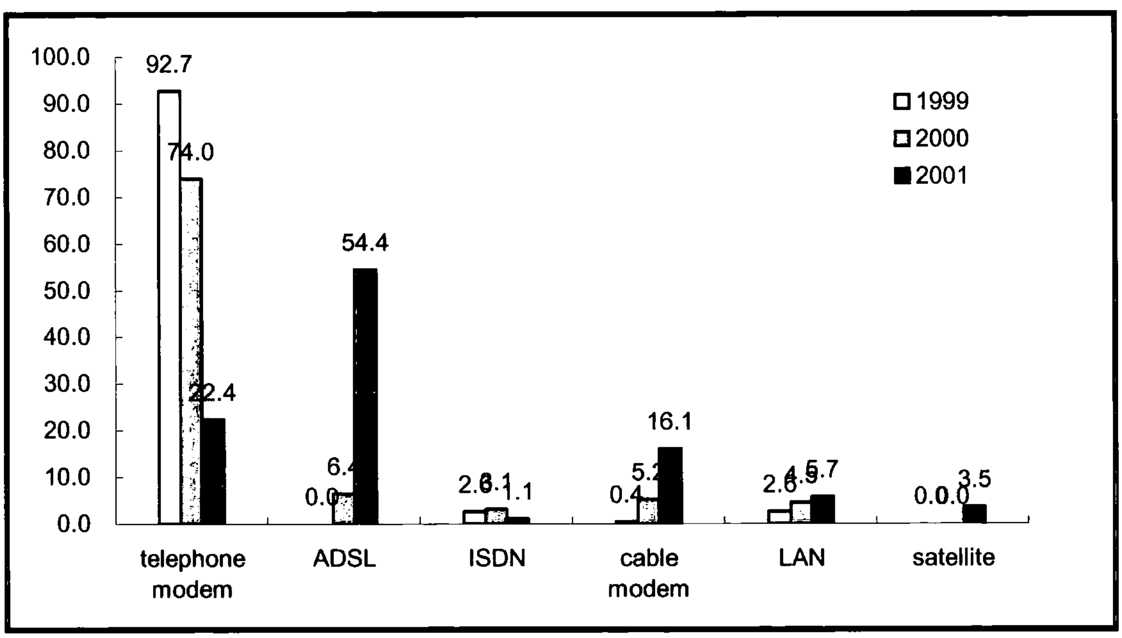
	The number of cities connected to the KII	The number of households connected to the superhigh-speed Internet (×10,000)
1997	80	-
1998	94	1.4
1999	107	37.4
2000	144	401
2001	144	781
2002	144	1,040

Source: MIC (2003: 123)

The other is an increase in the number of homes connected to the Internet. As Figures 9-2 and 9-3 indicate, since the late 1990s, homes have been increasingly equipped with state-of-the-art computers and rapidly connected to the Internet via broadband. This technological advance in homes needs to be considered alongside the particular culture of Koreans. Koreans are very sensitive to the term speed, and this so-called '*Bbali, Bbali*' (Quickly, Quickly) culture has been embedded deeply in the mentality of Koreans and can be found easily in their everyday lives. (The sensibility can be seen as a result of the process of compressed economic growth in the late twentieth century.) Koreans tend to think of the Internet as an indispensable facility such as landlines or water supply pipes, which should necessarily be equipped in their homes. They regard homes disconnected from the Internet as uncompleted ones or islands isolated from the world, and feel stable when the Internet penetrates their homes. For them, the faster the speed of the Internet in their homes is, the more the homes are completed and stable. This cultural factor has played an important role in facilitating the connections of homes to the Internet (KRNIC, 2000). On these technological, geographical or cultural conditions, homes have been increasingly connected to the Internet, and the number of Internet users has dramatically increased, drawing exactly an S-curve upwards, as in Figure 9-4. The number of Internet users had increased slowly until 1998, but has increased sharply since 1998. Especially, by 2001, Internet users were more than 50 per cent of the total population in Korea.



(a) The kinds of home computers



(b) The ways of home Internet connections

Figure 9-2 Computer and Internet capacities in homes
Source: ICCK (2001a: 14 and 57) (plural response)

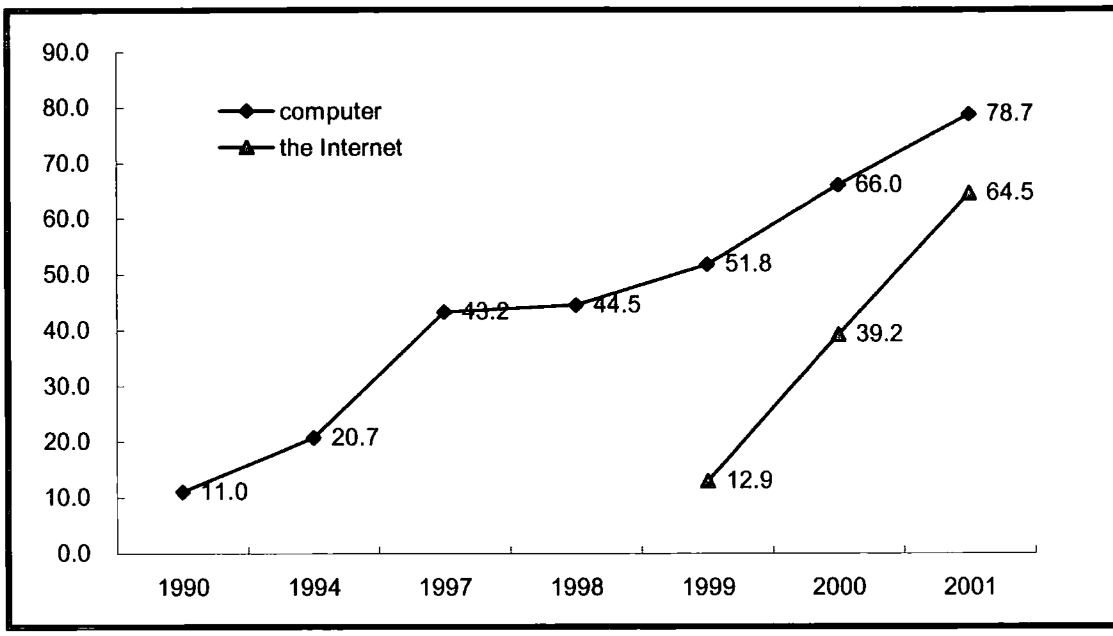


Figure 9-3 Changes in the percentages of homes possessing computers and connected to the Internet
Source: ICCK (2001a: 9 and 55)

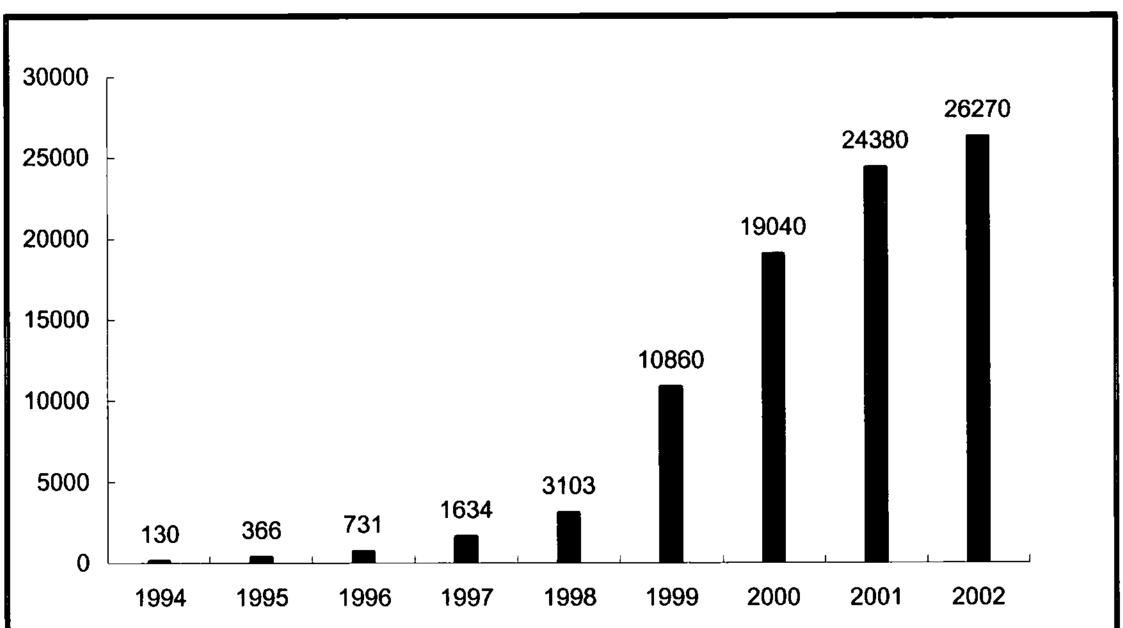


Figure 9-4 Change in the number of Internet users in Korea (unit: × 1,000)
Source: NCA (2003: 76)

9-2-2 Reshaping and rethinking the images of the home

When it comes to the effects of technologies on modern society, we are likely to think about the emergence and development of public spaces such as workplaces, offices, factories and so on. However, the development of household technology in the twentieth century has led to the 'Industrial revolution in the home' (Cowan, 1976). As Putnam (1993) puts it,

> "The near-completion today of great infrastructures of modern material culture: of hygiene, energy, transport and communication, has dramatically transformed what is possible and desirable in homes. The obvious aspect has been a qualitative transformation of the technical specification of houses and their redefinition as terminal of networks" (Putnam, 1993: 156).

Recently, many researchers have drawn a great deal of attention to the importance and transformation of the role and mode of the home in relation to the development of new media technologies. According to Lull (2000: 41), "the electronic media not only transmit ideological themes and prompt a rethinking and reorganization of time and space, they also influence our domestic sites – how we perceive, arrange, and use our living areas and how we interact with others who reside there". In a similar vein, Kneale (1999: 319) says about 'two geographies of media': "the household, because it tells us something about the way the media affect particular 'bounded' spaces; and second, some of the networks which connect these spaces together and flow across their boundaries".[2] Concerned with the emergence of the 'electronic cottage' and the 'home-centred society' based on electronic networks and telecommuters, some thinkers have proclaimed that homes will act as key nodes in electronic networks and communities (Toffler, 1980; see also Castells, 1996).

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[2] In general, the home has been viewed as the locus of female activity and private space (see Smith, 1993: 104). However, media technologies shatter this image of the home, bringing about not only boundary issues between public and private spaces around the home, but also gender issues between males and females within the home (see Morley, 1986; Haddon, 1992; Gray, 1997). While the former calls into question the binary distinction between the home = private space = female space and the work = public space = male space.

Before we think here about the effects of the penetration of home boundaries by the Internet on the existing images of the home, it seems to be helpful to review some explanations about how media technologies have effects on the boundaries, territories and identities of the home. First of all, they have made the home and its boundaries more dynamic, fluid and permeable. For example, Mumford (1938) thought of the home as a 'center of communication' as the result of the connections of the home and the early domestic media, and Williams (1974) referred to the transformation of homes by the development and diffusion of communication technologies as well as transportation ones in the early 1900 as 'mobile privatisation'.

> "With the return of entertainment to the house, through the phonograph, the radio and the motion picture – with the near-prospect of television – the modern house has gained in recreational facilities what it lost through the disappearance of many of the earlier household industries. The radio and the telephone, moreover, have made the house no less a center of communication than was the old market-place" (Mumford, 1938: 467).

> "This complex of developments included the motorcycle and motorcar, the box camera and its successors, home electronic appliances, and radio sets. Socially, this complex is characterised by the two apparently paradoxical yet deeply connected tendencies of modern urban industrial living: on the one hand mobility, on the other hand the more apparently self-sufficient family home. The earlier period of public technology, best exemplified by the railways and city lighting, was being replaced by a kind of technology for which no satisfactory name has yet been found: that which served an at once mobile and home-centred way of living: a form of 'mobile privatisation'" (Williams, 1974: 26).

This kind of perspective can be found in recent studies. For example, Silverstone, Hirsch and Morley (1992) also explain that media technologies such as the telephone or the computer on households could bring about the deconstruction or destabilisation of existing domestic social relations or home boundaries. In addition, Silverstone (1994) argued that electronic technologies, particularly television, as the 'box in the world theatre' change homes as the physical spaces of settlement into the technological spaces of movement

> "Information and communication technologies make the project of creating ontological security particularly problematic, for media disengage the location of action and meaning form experience. ... In deed, the media pose a whole set of control problems for the household, problems of regulation and of boundary maintenance" (Silverstone, Hirsch and Morley, 1992: 20).

> "Our interiors are not just physical spaces. They are social, economic, cultural and political spaces. And they are technological spaces. And in all these dimensions our domesticity is unsettled and vulnerable, expending beyond the physical spaces of the house, or the social relations of the family, into a world of change, of movement" (Silverstone, 1994: 51).

One of the things that have most often been described as the most outstanding effect of media technologies on homes may be the blurring of the boundaries between public and private spaces or times. Although the separation of public and private time-spaces was one of the key characteristics of the modern society (see Zerubavel 1990), the two time-spaces have been radically blurred through broadcasting and communication networks. That is, "the live, ongoing nature of most electronic communications makes it much more difficult (and at times, impossible) to separate the public thread of experience from the private one" (Meyrowitz, 1985: 114) and "there is no longer a clear distinction between public and private spaces, now that vector transgresses the boundaries of the private sphere" (Wark, 1994: 16). In fact, this is a fundamental effect the telephone in the late nineteenth century had on the home. For example, Marvin (1988: 67-8) examines the exposure of homes as private spaces to public spaces through telephones: "particular nervousness attached to protected areas of family life that might be exposed to public scrutiny by electrical communication".[3] The process of the blurring of the boundaries between public and private spaces has been accelerated more by the introduction of television in the twentieth century. For instance, Morley (1997) argues that television blurs public and private realms, having a

[3] Interestingly, in its early years, the telephone was used for broadcasting, not one-to-one communication (see Marvin, 1988: 222-231). In comparison with the telephone, the radio was used for point-to-point communication, not broadcasting (see Flichy, 1997).

simultaneously fragmenting and homogenizing effect on people in the sitting room as 'where the global meets the local'.

> "On the one hand, the audience for such national events is usually atomized, either attending individually or in small groups such as the family or peer group. On the other hand, each such group sits in front of a television set emitting the same representation of this 'central' event. The 'public' is thus experienced in the private (domestic) realm: it is 'domesticated'. But at the same time the 'private' itself is thus transformed or 'socialized'. The space (and experience) created is neither 'public' nor private in the traditional sense" (Morley, 1997: 380).

As such, electronic networks have affected and reshaped 'the micro-geography of the home' (Moores, 2000, 49; see also Holloway and Valentine, 2001b, 2003). Here, I discuss the reshaping effects of the Internet on the home, and rethink the existing images of the home. The home has been thought of as the most fundamental social-spatial unit, small, solid, static and private in the city. First, the Internet could weaken the image of the home as the smallest socio-spatial unit, with its boundaries making it fortified against the outer world, and shatter the linear spatial relations between outside- and inside-spaces. The speed of reaching from the home to other points at a global scale through the Internet could be faster than that of moving from a room to another within the home. It is relevant no longer to assume linear or nested spatial relations in which the home is in the local, which is contained in the nation in the global. Rather, local, national and global networks are included in the home through the Internet forming non-linear spatial relations and making home boundaries penetrated. Of course, the mass media such as radio or TV have unsettled the boundaries of the home for about fifty years, blurring the boundaries between private and public spaces. However, compared with the mass media, the Internet makes the boundaries unstable and unsettled through two-way flows. That is, while the mass media make the boundaries porous through only inwards flows from the outside to the inside of the home, the Internet can make the boundaries permeable through not only inwards flows from the outside to the inside of homes, but also outwards flows from the inside to the outside of homes. Of course, the telephone has also made the boundaries blurred for a long time. However, the Internet renders the boundaries more intensively and dynamically disturbed, as it transmits not only communication but also broadcasting flows.

Second, the Internet could make the home socially individualised and fragmented, shattering an image of the home as a unified and solid socio-spatial unit. As the Internet penetrates the home, people can spend time more often in on-line spaces with off-line spaces, reducing social interactions with their families. In the temporal patterns and rhythms of Internet use (Table 9-3), people tend to use the Internet at their homes from 6 pm to midnight and to use the Internet everyday and over 10 hours a week, while they tend to use the Internet at their works and schools/universities from 8 am to 6 pm. Of course, this time-space pattern of Internet use reflects the general time-space prism of everyday activity in everyday life. However, what matters here is that people tend to use the Internet in the time when their families get together in their homes. In terms of time-geography, "since there is a limit to the simultaneous involvement in multiple activities for a particular person, an important feature of time is its zero-sum property" (Kwan, 2002: 472; cf. Wellman and Gulia, 1999). This point means that the more people spend time in interacting with the Internet, the less they spend time in communicating with their family members in their homes. According to ICCK (2001b), about 34.3 per cent of Koreans think that they have spent less time with their families after using the computer (Figure 9-5).[4] Furthermore, the effect of the Internet on homes is different from that of TV. This is because "the Internet has much more isolating potential than TV. ... TV can easily retreat from the foreground of attention to background noise. ... Unlike TV, the Internet is necessarily user-driven. While interruptions can certainly still occur, it is much more difficult for the Internet to become a background activity" (Nie et al., 2002: 231). This point implies that people need to have no interruption from or communication with their family members when they use the Internet in their homes. Furthermore, while people are increasingly addicted to the Internet – about 39.8 per cent of Koreans are addicted to the Internet (ICCK, 2001b), they can feel more stable when they are connected to the Internet than they communicate with their family members, and as a result, their social relationships in homes can be more fragmented.

[4] This social effect of the Internet is observed also in the USA (SIQSS, 2000). In Korea, public campaign programmes to prevent the severance of conversations at home by the Internet were being broadcast on television (in 2003).

Table 9-3 The temporal landscape of Internet use

		Home	Workplace	School / University	PC Bang	Others
Weekday	08:00-18:00	23.9	84.2	70.9	21.2	57.0
	18:00-24:00	63.1	12.4	26.6	54.6	25.4
	24:00-08:00	3.1	0.9	0.3	3.2	0.0
Weekend	08:00-18:00	3.4	0.4	0.7	9.7	10.8
	18:00-24:00	6.1	1.9	1.5	10.6	6.8
	24:00-08:00	0.4	0.2	0.0	0.7	0.0
Total (%)		100.0	100.0	100.0	100.0	100.0
Frequency	Everyday	60.4	68.3	46.6	21.3	21.7
	3-4 / week	17.3	17.3	25.4	25.8	17.5
	1-2 / week	17.1	11.2	24.4	36.8	40.9
	3-4 / month	2.2	1.3	1.0	7.9	7.9
	1-2 /month	2.9	1.8	2.6	8.2	12.0
Total (%)		100.0	100.0	100.0	100.0	100.0
Time / week	Mean (hours)	9.62	14.48	8.97	7.06	5.66
	-1 hour	3.8	1.9	3.6	7.4	16.0
	1-2 hours	4.2	2.8	5.7	9.8	11.2
	2-4 hours	18.0	14.5	14.5	29.4	32.6
	4-10 hours	35.8	28.0	42.7	27.8	23.0
	10+ hours	38.1	52.8	33.4	25.6	17.2
Total (%)		100.0	100.0	100.0	100.0	100.0

Source: KRNIC (2001) (as of June 2001)

Third, the Internet could undermine a stable and static image of the home. The city is composed of two kinds of geometrical parts with regard to movements: static and fixed parts and dynamic and fluid parts. In terms of time-geography, while 'stations' as locales for face-to-face interactions can be seen as the former parts, 'paths' such as streets between stations can be seen as the latter parts. The home in particular can be thought of as much more static and fixed than any other locale. However, while being connected to the Internet and used as the primary and important locale for Internet use and on-line activities, the home can be transformed from static and fixed to dynamic and fluid, acting as a node in electronic networks.

Fourth and finally, the Internet could challenge an image of the home as a private space. Industrialisation caused work to move from the domestic environment to communal places of employment. This caused boundaries to appear between the home as private space and the workplace as public space (see Smith, 1993: 104). However, "this separation of home and work appears to be disappearing as new information technologies are becoming widely available" (Moss and Townsend, 2000c: 36) along with "a return to the work-living arrangements of the pre-industrial age or of the period industrial craft work" (Castells, 2002: 550). As homes are connected to electronic networks such as telephones, fax machines and the Internet, an image of the home as a private space can be no longer tenable (Salaff, 2002; Howard et al., 2002).[5] A typical example of this process is the emergence of telecommuting, which is being preferred by many Koreans as a new way of working and living (Figure 9-6).[6] As a result, the home can be depicted as a hybrid space between public and private spaces.

In short, the home connected to the Internet needs to be seen in terms of 'relational' networks which shatter the existing images of the home. The home has been thought of as the most fundamental social-spatial unit. It is imagined as small, solid, static and private in the city. In a relational perspective, the locations, boundaries and territories of homes are not fixed or absolute in Euclidean space, but rather they are extensible and permeable. Although this process has taken place since the age of the mass media, the recent development of new media technologies such as the Internet via broadband has far more accelerated the process of the home, consequently making the city, which is composed of networked urban locales such as homes, increasingly fluid and fractal.

[5] We need to recognise that electronic networks do not necessarily result in the demise of the boundaries between public and private spaces. For example, CCTV is used to broaden and strengthen invisible electronic boundaries in/between public and private spaces (see Davis, 1990).

[6] In Korea, compared to usual workers, telecommuting workers tend to work in their homes mainly from 9 pm (Cho, S.H., 1997: 75). This point implies that the boundaries between public and private spaces are more blurred at nighttime than at daytime.

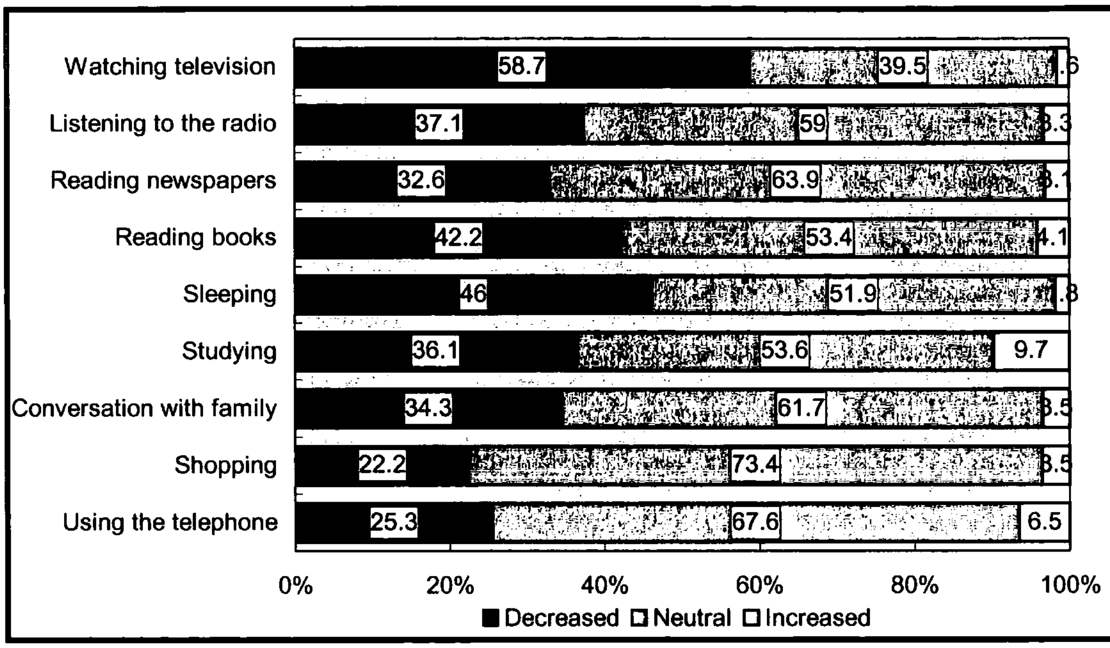

Figure 9-5 The effects of computer use on time use

Source: ICCK (2001a: 170) (as of April 2001)

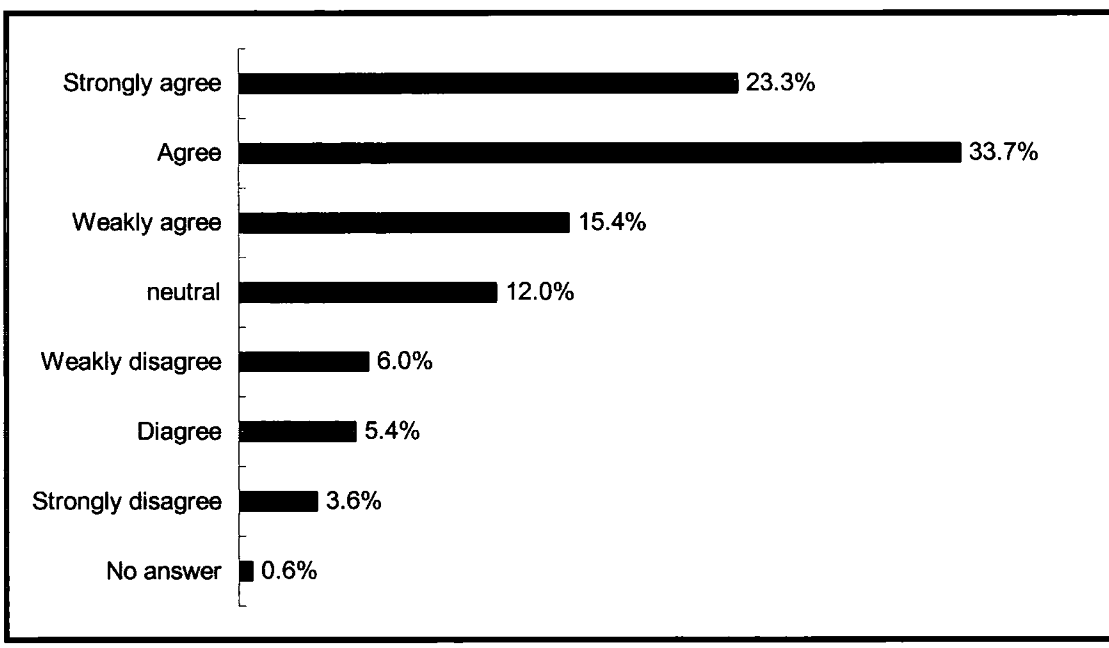

Figure 9-6 The degree of preference for telecommuting

Source: ICCK (2001a: 164) (as of April 2001)

9-2-3 Fast and slow cities

The modes in which homes are connected to the Internet cannot be homogenous within/between cities or regions. Here, I look at how cities can be divided or splintered into fast and slow cities according to the extent to and the way in which homes in the cities are connected to the Internet, and how such differentiated cities can entail differences in people's practices and behaviours in relation to Internet use. Of course, the speeds of homes and cities cannot be determined only by the Internet. However, given that the Internet itself is one of the most important technologies through which cities are connected and operated, it seems to be meaningful to see how the speeds of cities can be differentiated according to the modes in which homes in the cities are connected to the Internet. This can be seen in terms of 'splintering urbanism' (Graham and Marvin, 2001) of which practices "are closely related to the development of reconfiguration of infrastructure networks between cities" (p.35) and relate to "the dialectical and diverse sets of processes surrounding the parallel unbundling of infrastructure networks and the fragmentation of urban space" (p.382).

Table 9-4 Home Internet connections and Internet users by city size

	Home computer (%)	Home Internet (%)	Internet users (%)
Large city	77.2	62.1	54.2
Seoul	81.8	70.2	58.2
Busan	69.2	50.8	48.9
Daegu	64.3	46.5	45.2
Incheon	79.7	63.7	53.9
Gwangju	76.3	56.8	54.4
Daejeon	75.6	59.7	52.5
Ulsan	86.2	61.7	58.0
Middle-sized & small city	71.2	53.5	52.3
Rural area	62.1	41.3	38.7
Average (%)	73.0	56.1	51.6

Source: KRNIC (2001: 258-9 and 264-5) (as of June 2001)

First, the extent to which homes in cities are connected to the Internet is larger in large cities than middle-sized and small cities and rural areas. As Table 9-4 indicates, homes in large cites are more likely to be equipped with computers and are more connected to the Internet than homes in medium-sized or small cities and rural areas. Especially, while about 70 per cent of homes in Seoul are wired to the Internet, about 40 per cent of homes in rural areas are linked to the Internet. Second, the way to which homes in cities are connected to the Internet is also more advanced in large cities than middle-sized or small cities or rural areas. As Table 9-5 indicates, although about 50 per cent of the total homes in Korea are connected to the Internet through ADSL [Asymmetric Digital Subscriber Line], there are relative differences between large cities and the other cities and regions. While homes in large cities are connected to the Internet through advanced network such as cable modems or ADSL, those in regions composed of middle-sized and small cities and rural areas are connected to the Internet out-of-date networks such as telephone modems. For example, only 18.6 per cent of the households in large cities, but about 40.4 per cent in rural areas are connected the Internet through telephone modem (ICC K, 2001a: 58).

These two differences among cities lead to the different percentages of Internet users and the different positions of homes for Internet access in cities. As Table 9-4 indicates, people in large cities where homes are more connected to the Internet tend to more use the Internet than those in middle-sized and small cities or rural areas, and as Table 9-6 shows, homes in large cities tend to more be used by people for Internet access than in middle-sized and small cities or rural areas. Meanwhile, in rural areas, schools/universities or Internet cafés are relatively important, and in middle-sized or small cities, workplaces are so.

Here, we see that there is a kind of substitution relation between homes as private spaces and Internet cafés as public spaces. Homes and Internet cafés are somewhat competitive in relation to the time-space pattern of Internet use. That is, 63.1 per cent and 54.6 per cent of people tend to use the Internet at homes and Internet cafés respectively mainly at night from 18:00 to 24:00, and 84.2 per cent, and 70.9 per cent of people tend to use the Internet at workplaces and schools/universities respectively at day from 08:00 to 18:00 (Table 9-3). We have seen that as the Internet increasingly penetrates homes, the position of homes has risen in urban spaces, while that of Internet cafés has fallen (Figure 9-1). In addition, we can see here that in large cities where homes are more connected to the Internet, homes are more used and Internet cafés are less used than in rural areas where homes are less connected to the Internet (Table 9-6). This means that the connections of homes to the Internet is not neutral against other locales, but have effects on the behaviours of Internet users and the positions of other locales in cities.

Table 9-5 The ways of home Internet connections by city/region

City/region	Telephone modem	LAN	Cable modem	ISDN	ADSL	Satellite
Seoul	21.3	6.5	20.7	1.4	52.9	2.9
Busan	12.1	5.6	21.0	0.7	57.5	4.3
Daegu	15.5	8.2	22.0	0.1	55.7	1.1
Incheon	17.9	4.1	16.5	1.4	63.7	2.4
Gwangju	14.2	2.6	6.8	-	71.1	5.8
Daejeon	12.7	6.3	16.4	2.1	63.5	3.2
Ulsan	22.5	6.3	16.3	-	51.3	5.0
Gyeonggi-do	26.9	6.2	13.6	1.3	50.4	4.8
Gangwon-do	31.5	7.9	9.0	-	53.9	0.6
Chungcheonbuk-do	27.1	4.0	12.4	1.7	55.9	1.7
Chungcheongnam-do	30.7	3.4	5.5	-	58.4	2.5
Jeollabuk-do	27.6	2.5	14.6	2.1	50.6	5.0
Jeollanam-do	35.3	3.0	4.7	-	55.3	4.7
Gyeongsangbuk-do	25.0	6.0	19.0	0.8	45.6	3.0
Gyeongsangnam-do	23.8	4.9	14.0	1.5	51.8	5.2
Jeju-do	8.6	8.6	1.7	3.4	81.0	-
Average (%)	22.4	5.7	16.1	1.1	54.4	1.1

Source: ICCK (2001a: 236) (as of April 2001)

Table 9-6 The primary locale for Internet use by city size

	Home	Workplace	School /University	PC Bang	No preference	Others	Total (%)
Large city	71.1	15.6	3.7	7.9	0.3	1.5	100.0
Seoul	71.9	17.2	3.6	5.9	0.2	1.2	100.0
Busan	70.6	13.3	3.5	10.0	0.4	2.2	100.0
Daegu	64.2	13.3	4.8	15.5	0.2	1.9	100.0
Incheon	74.1	15.2	1.8	7.1	0.0	1.8	100.0
Gwangju	70.7	11.8	6.9	8.2	0.4	2.0	100.0
Daejeon	74.0	14.5	3.3	7.7	0.0	0.5	100.0
Ulsan	67.3	18.7	2.8	9.1	0.8	1.2	100.0
Middle-sized & small city	66.8	18.5	5.0	8.0	0.0	1.6	100.0
Rural area	64.1	16.4	6.6	9.9	0.1	2.8	100.0
Average (%)	68.7	16.9	4.5	8.1	0.2	1.6	100.0

Source: KRNIC (2001: 302 and 304) (as of June 2001)

This tendency is found even between larges cities: Seoul and Daegu. In all the seven large cities of Korea, the home is used as the primary locales to access the Internet. For all that, we can find out some relative variations among the large cities (Table 9-6). Home access is used most in Incheon, a gateway city to Korea and least in Daegu. Workplaces are used most in Ulsan, the largest industrial city in Korea and the hometown of automobile company Hyundai, and least in Gwangju. Schools/universities are used most in Gwangju, and least in Incheon. Internet cafés are used most in Daegu, and least in the capital city Seoul. Busan, the second largest and largest harbour city in Korea, and Daejeon, a science and technology city, show a relatively flat pattern. The reason why Internet cafés are used least and homes are used relatively more in Seoul not only among the seven large cities but also in Korea can be because Seoul has the highest percentage of home Internet penetration (70.2%) in Korea (Table 9-4). In the same way, it is possible to think that the reason why Internet cafés are used most and homes are used least in Daegu among the seven large cities can be because Daegu has the lowest percentage of home Internet penetration (46.5%) among the seven large cities.

9-3 On-line interactions and the time-space fabric of the city

9-3-1 Cities, genders and on-line interactions

In this section, I investigate how the time-space fabric of socio-spatial landscapes in cities can be flawed and fractured through on-line interactions. For this, it is necessary to select and categorise on-line interactions. Four on-line interactions can be selected which can be usually practiced by people in virtual spaces: e-mail, BBS [Bulletin Board System], on-line chatting and on-line gaming. They can be categorised into two kinds of temporal modes. The former two are asynchronous and the latter two are synchronous. In addition, in the degree of virtuality, the former two are on-line interactions based on less virtuality, and the latter two are on-line interactions based on are more virtuality.

Before explaining how on-line interactions transform the time-space fabric of the city, I want to describe briefly how on-line interactions are practiced differently between Seoul and Daegu and between males and females. Unexpectedly, university students in Daegu tend to be more active or engaged in all kinds of on-line interactions than university students in Seoul, except the case of e-mail which all males and females in both Daegu and Seoul use commonly (Tables 9-7-1 and 9-7-2). Of course, this result could be contingent or specific. According to the Korea Network Information Center (2001), overall the percentage of Internet users is higher in Seoul than in Daegu. Nevertheless, this unexpected result can be explained in relation to im/material cultural conditions. That is, in the aspect of a material cultural condition, whilst Seoul has much more cultural space where young people can spend time, Daegu has much less such cultural spaces. In addition, in the aspect of an immaterial cultural condition, Daegu is one of the most conservative and patriarchal cities in Korea. In these different im/material cultural conditions, virtual spaces can be seen as more alternative and attractive cultural and social spaces to young people in Daegu than Seoul. Of course, it cannot be reasonable to apply this assumption to other cities or classes, and I also do not want to generalise these results or reasons. However, we need to recognise that such im/material cultural conditions in cities could affect the degree of on-line activities in the cities.

Table 9-7-1 The temporal-spatial dimensions of on-line interactions (1)

Sex	On-line interaction (the number of users)	Momentary	Constant			
			Local	Capital region	National	Global
Male	E-mail (100)	53.0% (53)	32.0% (32)	6.0% (6)	5.0% (5)	4.0% (4)
	BBS (86)	58.1% (50)	37.2% (32)	1.2% (1)	2.3% (2)	1.2% (1)
	Chatting (58)	75.9% (44)	20.7% (12)	1.7% (1)	0.0% (0)	1.7% (1)
	Gaming (60)	91.7% (55)	6.7% (4)	1.7% (1)	0.0% (0)	0.0% (0)
Female	E-mail (100)	57.0% (57)	31.0% (31)	1.0% (1)	7.0% (7)	4.0% (4)
	BBS (74)	64.9% (48)	31.1% (23)	1.4% (1)	2.7% (2)	0.0% (0)
	Chatting (63)	54.0% (34)	38.1% (24)	1.6% (1)	3.2% (2)	3.2% (2)
	Gaming (31)	80.6% (25)	19.4% (6)	0.0% (0)	0.0% (0)	0.0% (0)

Source: Questionnaire survey of university students, Seoul (100 males and 100 females)

Table 9-7-2 The temporal-spatial dimensions of on-line interactions (2)

Sex	On-line interaction (the number of users)	Momentary	Constant		
			Local	National	Global
Male	E-mail (100)	57.0% (57)	28.0% (28)	14.0% (14)	1.0% (1)
	BBS (93)	73.1% (68)	18.3% (17)	7.5% (7)	1.1% (1)
	Chatting (90)	57.8% (52)	34.4% (31)	7.8% (7)	0.0% (0)
	Gaming (83)	85.5% (71)	8.4% (7)	6.0% (5)	0.0% (0)
Female	E-mail (100)	41.0% (41)	45.0% (45)	12.0% (12)	2.0% (2)
	BBS (78)	67.9% (53)	23.1% (18)	7.7% (6)	1.3% (1)
	Chatting (85)	65.9% (56)	24.7% (21)	7.1% (6)	2.4% (2)
	Gaming (67)	86.6% (58)	11.9% (8)	1.5% (1)	0.0% (0)

Source: Questionnaire survey of university students, Daegu (100 males and 100 females)

Not surprisingly, it was found that on-line interactions tend to be more practiced by males than by females both in Seoul and Daegu. We can put four gender-city combinations in order of the degree of on-line interactions: males in Daegu > males in Seoul > females in Daegu > females in Seoul. The largest gap between males and females appears in on-line gaming, and the smallest gender gap appears in on-line chatting. On-line interactions are not gender-neutral, but involve gendered electronic landscapes. Of course, here it is difficult to find to gendered electronic landscapes in the case of e-mail which both males and females use commonly, even though there may be gendered electronic landscapes in more micro-levels (see Boneva and Kraut, 2002). Interestingly, although males tend to do on-line chatting and gaming more than females, it was found that while males tend to be more engaged in on-line gaming than on-line chatting, females tend to be more engaged in on-line chatting than on-line gaming. It seems that females tend to produce more 'text-based' electronic landscapes in on-line interactions. This point can be found also in the cases of Internet cafés (see Chapter 8) and mobile phones (SMS: Short Message Service) (see Chapter 11).

9-3-2 Dis/continuous networks

Here, I examine two temporal dimensions of on-line interactions: one is the temporal modes of on-line interactions and the other is the temporal duration of on-line interactions. The temporal modes of on-line interactions could be again divided into two types: asynchronous (non-sequential time) on-line interactions and synchronous (real-time) ones (Graham and Marvin, 1996; Mitchell, 1999a, 1999b; Janelle, 1995; Harvey and Macnab, 2000, Dodge and Kitchin, 2001a; Castells, 1996), and the temporal duration of on-line interactions also can be again divided into two types: momentary on-line interactions and constant ones. Here, the asynchronous and momentary on-line interactions can be regarded as discontinuous temporal networks, and the synchronous and constant on-line interactions can be thought of as continuous temporal networks.

In the temporal modes of on-line interactions, asynchronous on-line interactions such as e-mail and BBS tend to be more practised than synchronous on-line interaction such as on-line chatting and on-line gaming, except the case of the use of BBS by females in Daegu (Tables 9-7-1 and 9-7-2). And in the temporal duration of on-line interactions, on-line interactions tend to be more practised momentarily than constantly.[7] In particular, people tend to have momentary on-line interactions in the virtual spaces of on-line gaming more than any other on-line interaction. This perhaps would be because the properties of on-line gaming are different from those of the other on-line interactions practiced mainly for communications. That is, people can play on-line games not only through communicating with other people but also with computer machines.

The point that on-line interactions are practised momentarily more than constantly in the city is very important in helping us understand how on-line interactions have effects on social relations. It means the possibility that social relations can be fragmented in that they could result in transient and ephemeral social relations and contingent and anonymous social relations with someone living elsewhere. Interactions with others in on-line virtual spaces are often characterised by their anonymous, transient and ephemeral nature. Just as a person can log in and out of the Internet, they are able to easily disconnect from these on-line social interactions. In interviews with off-line and on-line people, interviewees frequently said that in comparison with off-line relationships, on-line meetings and relationships tend not to last for a long time. (However, they all said that on-line networks enable them to meet people in various social positions and different geographical locations.) Thus, many people feel 'nihilism' as well as 'solipsism' in virtual spaces in which social relations are characterised as 'spatially extensive, temporally ephemeral and socially superficial'.

[7] When questioning interviewees about the constancy of their on-line interactions I did not suggest a quantitative standard of measurement. Therefore their answers are subjective. If the interviewee believed that his or her on-line interactions with particular people were constant I considered their interactions to be constant. In order to find out the spatial dimensions of on-line interactions I followed this by asking them where their on-line counterparts lived.

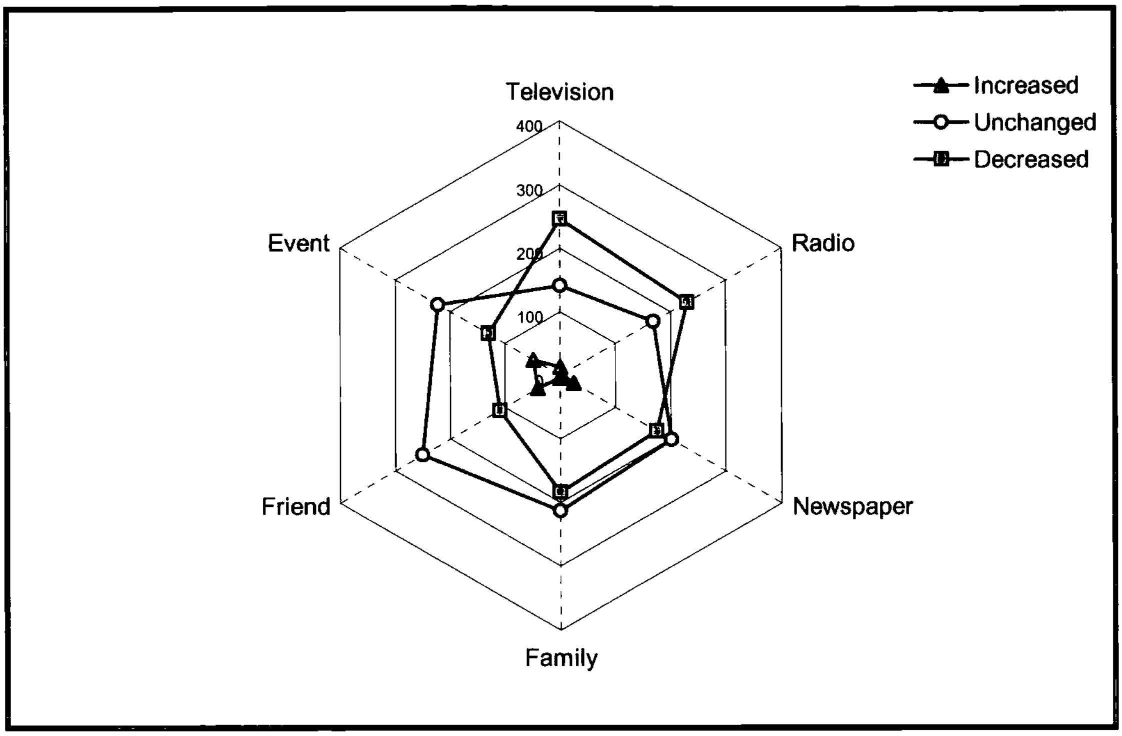

Figure 9-7 Changes in time use after using the Internet
Source: Questionnaire survey of university students, Seoul and Daegu (n=400)

9-3-3 Localised networks

Many people have momentary on-line interactions and do not know who their counterparts are and where they live. However, if they have constant on-line interactions, and know who their counterparts are and where they live, we can see the spatial dimensions and structures of their on-line interactions. It was found that the most outstanding spatial characteristic of their on-line interactions was that there are localised spatial networks with distance decay in all cases of e-mail, BBS, on-line chatting and on-line gaming (see Tables 9-7-1 and 9-7-2). Most of the users tend to have on-line interactions with those who live in the same city, and only a few people have on-line interactions at a global scale: mainly East Asia such as Japan, China and Taiwan or sometimes North America such as the USA and Canada, but not European countries. It is interesting to note that there appears to be distance decay at a global level. In this sense, as Graham (1997b: 47) puts it, "distance decay and the frictional effects of distance are still critical in influencing the vast majority of social interactions and physical flows", as Batty and Miller's (2000: 140) statement that "any casual examination of your email log will reveal distance decay around your local site that is obvious enough in that most email deals with human activity through a virtual medium in a local physical space". Thus, on-line interactions through the Internet can be characterised by 'distance decay without the friction of distance' or as 'global-local networks' in that although the Internet enables technologically-induced global networks without the friction of distance, it entails socially-constructed local networks.

The locally-based spatial networks of on-line interactions entail somewhat paradoxical spatial implications. First, the Internet has been seen as a 'global network' (Harasim, 1993a) resulting in 'the death of distance' (Cairncross, 1998, 2001). However, when it is socially constructed, it can be represented not as a global network, but as a local network. To some extent, we need to admit that the Internet extends our lives and activities into non-local spaces. However, we also need to understand that existing physical territories or social networks have effects on the spatial scales of on-line interactions. Second, we need to recognise that such localised networks cannot be equalised with social integration in local places. Rather it seems to be more reasonable to think that such localised networks can lead to the fragmentation of social relations in local places. In this sense, we can say that if the 'space of flows' replaces the 'space of places', if the space of flows are local, not global. This is because the more people spend time in on-line spaces, the less they spend time in off-line spaces, and as a result, off-line interactions can be replaced by on-line interactions, whether local or non-local. At least, it cannot be said that on-line interactions increases off-line interactions. For instance, as Figure 9-7 indicates, the Internet tends to make them spend less time not only in using the mass media such as television or radio, but also in communicating with their families or friends. While people are more and more absorbed and immersed into the on-line world, they come to be individualised and their social relations in the off-line world come to be fragmented.

I suggest two cases of such social spaces fragmented by the Internet. The first is the appearance of those extremely absorbed and addicted to the on-line world and separated and divorced from the off-line world. In Korea, they are called '*cyber faein*' (or cyber lumpen), metaphorically referring to people who are disabled by their addiction to the on-line world because it interferes with normal and ordinary life patterns in the off-line world. Although they are able to meet various people in the on-line world, it is doubtful whether they do so also in the off-line world. The second is the appearance of a new kind of meeting, motivated in on-line spaces such as on-line chat rooms or communities and practiced in off-line spaces. In Korea, this kind of meeting is called '*Bungae*', metaphorically meaning 'lighting' in the sense that people have (sudden and unexpected) meetings with unacquainted or unfamiliar people like a flash of lightning.

It seems that people tend to have such meetings in order to get out of the routine of their everyday lives. On-line chat rooms or communities are divided into diverse categories: ages, cities/regions, themes/hobbies and so on. People are likely to be interested in geographically categorised ones. In other words, they tend to enter on-line spaces where other people living in the same city can get together. *Bungae* meetings tend to take place in large cities because small cities or towns in rural areas are too small for people to have meetings with other unknown people, and regions are too large for people to have instant meetings. That is, large cities entail both geographical closeness and social distance, which enable people to have instant and immediate meetings with new and unknown people. However, it is a mistake to think that such meetings proliferate and reinforce social or human relations in the off-line world. People know that such meetings are contingent, momentary and ephemeral. Moreover, it is the very point that makes people have such meetings.

9-4 Virtual bodies, identities and spaces

9-4-1 Pseudonyms and opaque spaces

In this section, I examine how people have, use and represent their virtual bodies and identities on the screen. In order to address this question, I investigate three cases which can be usually observed in virtual spaces: pseudonyms as nominal and social identities (in this subsection); gender swapping in relation to gender and biological identities (in Subsection 9-4-2); and e-mail addresses as spatial and geographical identities (in Subsection 9-4-3). These three kinds of personal identity have become some of the most important personal ID information in our lives today. Through examining these three personal identities on the screen, I argue that virtual spaces can be explained as opaque, puzzle and floating spaces where virtual bodies and identities come to be increasingly fluid. To know how the three symbolic identities in actual spaces can be changed in virtual spaces is important for understanding how what have been thought of as solid in actual spaces can be penetrated, fragmented and fluid in virtual spaces. However, we need to be conscious of the point that this process is not neutral and natural in the sense that it involves the symbolic conflicts in the landscapes of symbolic/linguistic identities, which will be explained in Section 9-5.

One of the most fundamental signifiers indicating one's identity perhaps may be his/her name as his/her 'nominal and social identity'. In order to know the degree to which people conceal or reveal their nominal identities in virtual spaces, I divide the method of their participations into on-line interactions such as e-mail, BBS, on-line chatting and into three types: participating with real name, participating with pseudonym and just watching others' activities. As Tables 9-8-1 and 9-8-2 indicate, people tend to use pseudonyms more in on-line chatting (51.7 per cent of males and 34.9 per cent of females in Seoul and 55.6 per cent of males and 70.6 per cent of females in Daegu), and on-line gaming (41.7 per cent of males and 67.7 per cent of females in Seoul and 54.2 per cent of males and 73.1 per cent of female in Daegu) than in e-mail (4.0 per cent of males and 5.0 per cent of females in Seoul and 6.0 per cent of males and 3.0 per cent of females in Daegu) and BBS (17.4 per cent of males and 20.3 per cent of females in Seoul and 23.7 per cent of males and 29.5 per cent of females in Daegu). Although there could be various institutional and personal reasons for these differences, we can think of the differences in the use of pseudonyms in virtual spaces in relation to the degrees of virtuality. That is, e-mail and BBS, both of which are based on asynchronous on-line interactions, are more embedded in actual reality than on-line chatting and on-line gaming, both of which are based on synchronous on-line interactions. After all, while people tend to use their real names in the less virtual world of e-mail or BBS, they tend to use their pseudonyms in the more virtual world of on-line chatting or on-line gaming.

Table 9-8-1 Pseudonym and gender swapping in on-line interactions (1)

Sex	On-line interaction (the number of users)	Type of participation in on-line interaction			Gender swapping	
		With real name	With pseudonym	Just watching	Yes	No
Male	E-mail (100)	96.0% (96)	4.0% (4)	–	–	–
	BBS (86)	47.7% (41)	17.4% (15)	34.9% (30)	–	–
	Chatting (58)	39.7% (23)	51.7% (30)	8.6% (5)	23.1% (14)	75.9% (44)
	Gaming (60)	53.3% (32)	41.7% (25)	5.5% (3)	–	–
Female	E-mail (100)	95.5% (95)	5.0% (5)	–	–	–
	BBS (74)	39.2% (29)	20.3% (15)	40.5% (30)	–	–
	Chatting (63)	60.3% (38)	34.9% (22)	4.8% (3)	9.5% (6)	90.5% (57)
	Gaming (31)	29.0% (9)	67.7% (21)	3.2% (1)	–	–

Source: Questionnaire survey of university students, Seoul (100 males and 100 females)

Table 9-8-2 Pseudonym and gender swapping in on-line interactions (2)

Sex	On-line interaction (the number of users)	Type of participation in on-line interaction			Gender swapping	
		With real name	With pseudonym	Just watching	Yes	No
Male	E-mail (100)	94.4% (94)	6.0% (6)	–	–	–
	BBS (93)	45.2% (42)	23.7% (22)	31.2% (29)	–	–
	Chatting (90)	37.8% (34)	55.6% (50)	6.7% (6)	30.0% (27)	70.0% (63)
	Gaming (83)	42.2% (35)	54.2% (45)	3.6% (3)	–	–
Female	E-mail (100)	97.7% (97)	3.0% (3)	–	–	–
	BBS (78)	34.6% (27)	29.5% (23)	35.9% (28)	–	–
	Chatting (85)	23.5% (20)	70.6% (60)	5.9% (5)	23.5% (20)	76.5% (65)
	Gaming (67)	25.4% (17)	73.1% (49)	1.5% (1)	–	–

Source: Questionnaire survey of university students, Daegu (100 males and 100 females)

I want to argue that using pseudonyms in the virtual spaces of on-line chatting tends to make the boundaries between the two kinds of social spaces Goffman (1959) calls 'back regions' and 'front regions'. According to Goffman (1959), "a region may be defined as any place that is bounded to some degree by barriers to perception" (p.109), and "accentuated facts make their appearance in what I have called a front region. ... There may be another region – a 'back region' or 'backstage' – where the suppressed facts make an appearance" (p.114). People tend to have different behaviours or attitudes in their everyday lives according to whether they are in front or back regions. In actual spaces, the boundaries between front and back regions appear to be more or less clear. However, such boundaries seem to be blurred in virtual spaces. On the one hand, virtual spaces can be seen as front regions where we communicate with one another, just as they do so in actual public spaces. On the other hand, people can express behaviours or desires that are suppressed in front regions in virtual spaces as back regions because of 'anonymity'.

Using pseudonyms in virtual spaces makes the spaces anonymous, obscure and opaque (Danet, 1998; Mark, 1999), sometimes bringing about social issues and disputes, and furthermore inducing the government's institutional intervention in virtual spaces like in the case of Korea. In a sense, the control of the government over virtual spaces can be seen as an attempt to maintain the boundaries between front regions and back regions. As people's behaviours in front regions are different from those in back regions, so people's behaviours and attitudes in cases where people should use their real names can be quite different from those in cases where they can use their pseudonyms. For example, in the virtual spaces of BBS as a typical electronic 'public space', people tend to be silent or mute just as spectators or 'lurkers'[8] rather than actively participate or express their opinions and thoughts (Tables 9-8-1 and 9-8-2). This is partly because people are sometimes required to use their real names when they write up their opinions on BBS.

[8] "Many virtual communities contain a large group of people that are known as 'lurkers', users that are not really active but prefer to read along (or watch/listen along in more advanced environments) with the ongoing events without actually joining or commenting" (Schalken, 2000: 162).

9-4-2 Gender swapping and puzzle spaces

Gender swapping (or gender bending) as a scene of 'on-line landscapes' (Wakeford, 1999) is a way for one to conceal his/her real 'gender and biological identity' and to experience the opposite gender. There have been some attentions to the implications of gender swapping in on-line chatting not only for anonymity but also for gender relations in terms of the 'social construction of gender' (Turkle, 1996; Danet, 1998; Wakeford, 1999). Turkle (1996: 216) compares gender swapping in virtual spaces to Shakespeare's play '*As You Like It*', and Danet (1998: 129) compares it to a 'masquerade' in that "the typed text provides the mask" (p.129) and "in cyberspace it is always 'night'" (p.131). The night in virtual spaces is formed not only by texts, but also by images called 'avatars' (see Kolko, 1999; Webb, 2001). Interestingly, "men are more likely than women to experiment with alternate gender roles" (Wakeford, 1999: 183) for "men are curious about what it is like to be a woman or seek the attention that female-presenting individuals typically receive" (Danet, 1998: 129-30). For example, in Korea, in the case of the on-line game '*Lineage*', one of the most popular games in Korea, although 96 per cent of the gamers are males, 71.2 per cent use female characters.[9] In this research (Tables 9-8-1 and 9-8-2), it was found that 30 per cent of the males and 23.5 per cent of the females in Daegu, and 23.1 per cent of the males and 9.5 per cent of the females in Seoul have experienced gender swapping in on-line chatting.

> "When I do on-line chatting with women, pretending a male, I become very popular among them because I well know about their psychology and what they like to talk about. ... It is also very interesting to do on-line chatting with males, pretending a male. Through chatting with them, I can know about their way of thinking and what they usually talk about. ... But, when they talk about their military service and experiences, I feel embarrassed because I have no idea about that" (ID: simplepuzzle, 23, female).

> "Because there are much more males than females in on-line chat rooms, while females' value rises, males' value falls in there. So, usually, males send messages to females or make chat rooms in order to have chats with women. ... Occasionally,

[9] The Hankyoreh 21 (28 February 2002) *Communicate with a game generation!*

when I enter chat rooms with a female avatar, a large number of males send me messages. Some tens of messages appear on the screen almost at once. Such responses themselves appear to be very funny to me" (Young-Soo Ha, 24, male).

The responses from on-line and off-line interviewees suggest that they take pleasure from the deception of their gender swapping when they see that their on-line counterparts believe them. They can obtain such pleasure by concealing their real gender identities in front of the screen, showing their false identities on the screen and seeing others' deceived responses beyond the screen. In a sense, this can be understood in terms of 'visual pleasure' (Mulvey, 1989; see also Rose, 2001: 106-116). One of the most interesting phenomena observed in on-line chat rooms is that people tend to take for granted their counterparts' gender identities presented as avatars. [10] The most frequent questions in the course of on-line chatting are about counterparts' appearances, ages, locations or jobs. However, it is difficult to find questions such as "are you really a woman/man?" if their counterparts do not appear as genderless avatars.[11] The female interviewee (with her nickname 'simplepuzzle' above) might be a man, not a woman. Indeed, it is not a simple puzzle but rather a difficult puzzle to know whether participants in on-line chatting are really men or women.

9-4-3 E-mail addresses and floating spaces

In traditional mail systems, mail addresses as symbolic 'signifiers' are fixed to physical sites as material 'referents'. Furthermore, the referents have their own materiality and visibility. For example, place images printed on postcards or stamps attached to letter envelopes could remind receivers of the geographical and historical visual images of the cities or countries which senders live in. In addition, generally, a person has an address (at most two ones) as his/her 'spatial and geographical identity'

[10] Based on on-line observations in on-line chat rooms at [http://www.sayclub.com], the most popular site for on-line chatting in Korea.

[11] Participants can conceal their gender identities through genderless avatars. Females in particular tend to use the genderless avatar in order to avoid being harassed sexually or receiving interruptive and unwanted messages from male users. However, such genderless avatars tend not to be welcome in most chat rooms.

indicating a site where he/she lives in actual space. That is, in traditional mail systems, a human body is combined with a mail address fixed to a physical site in geographical space. For example, in order to send letters to a certain receiver, the sender should send the letters to the exact mail address of the site in which the receiver inhabits, and the receiver should be in the site which his/her mail address indicates in order to get the letters. In short, in the case of traditional mail systems, a mail address as a symbolic signifier, a physical site as a material referent and a human body as a receiver should be linked together to a point on geographical space for communications.

The spatiality of e-mail systems is obviously different from that of traditional mail addresses. E-mail addresses as symbolic signifiers are separated from physical sites as their material referents and lose their materiality and visibility on the electronic matrix. Rather their referents become human bodies as receivers who do not need to wait or exist any more in certain physical sites in order to receive messages from others. This means the separation and emancipation of the human body from its material and spatial constraints. This also means that people come to have individualised and fragmented spatial and geographical identities in that individuals cannot have the same address in e-mail systems, while several people can be located simultaneously in the same address in traditional mail systems. Furthermore, even the same person can have different, multiple and unlimited e-mail addresses. After all, this urban landscape implies that the city becomes the urban matrix of actual-virtual circuits in which the spatial trinity of human bodies, mail addresses and physical sites comes to be shattered, as both human bodies and mail addresses are separated from physical sites as existing spatial or material referents, and furthermore human bodies as new spatial referents can be connected to multiple mail addresses at the same time.

Therefore, e-mail addresses are both nowhere and everywhere in that they are not fixed to their spatial coordinates in Cartesian space, but floating in Castellsian space of flows, producing 'the dispersed geography of cyberspace' (Kolko and Reid, 1998: 220) or 'the radically decentered non-place of metroscape' (Boyer, 1996: 139). This spatiality of e-mail addresses is related to what Negroponte (1995: 165) calls a 'place without space' or Mitchell (1995: 8) calls 'antispatial'.[12] We cannot know where our e-mail addresses are located. Many Koreans tend to have and use their e-mail address with gTLD [Generic Top Level Domains] than with ccTLD [Country Code Top Level Domains]. That is, most of the e-mail addresses which Koreans usually have and use are not marked by the sign of .kr. As Negroponte (1995) states,

> "In the post-information age, since you may live and work at one or many location, the concept of an 'address' now takes on new meaning. When you have an account with America Online, Compu-Serve, or Prodigy, you know your own e-mail address, but you do not know where it physically exists. ... The address becomes much more like a Social Security number than a street coordinate. It is a virtual address" (Negroponte, 1995: 166).

Interestingly, these characteristics of e-mail addresses have effects on and are reflected in users' behaviours related to the use of their e-mail addresses. Here, I want to suggest briefly two cases. First, people tend to use their e-mails in order to store their own electronic files as well as communicate with other people. This behaviour is related to the separation of addresses from certain physical sites and the possibility that users can access their e-mail addresses anywhere. This point is illuminated at the interview below.

> "It is not necessary any more and rather inconvenient to carry diskettes, because it is possible to store files in my e-mails. After storing files in my own e-mail address at the university, I can open again the files at my home. ... Besides, to use e-mails is much safer than to use diskettes, because there is no possibility to lose files. ... I use e-mails as a means of storage rather than communications" (Young-Soo Ha, 24, male).

[12] It seems that instead of 'place without space' and 'antispace', 'space without place' and 'antiplace' seem to be more reasonable.

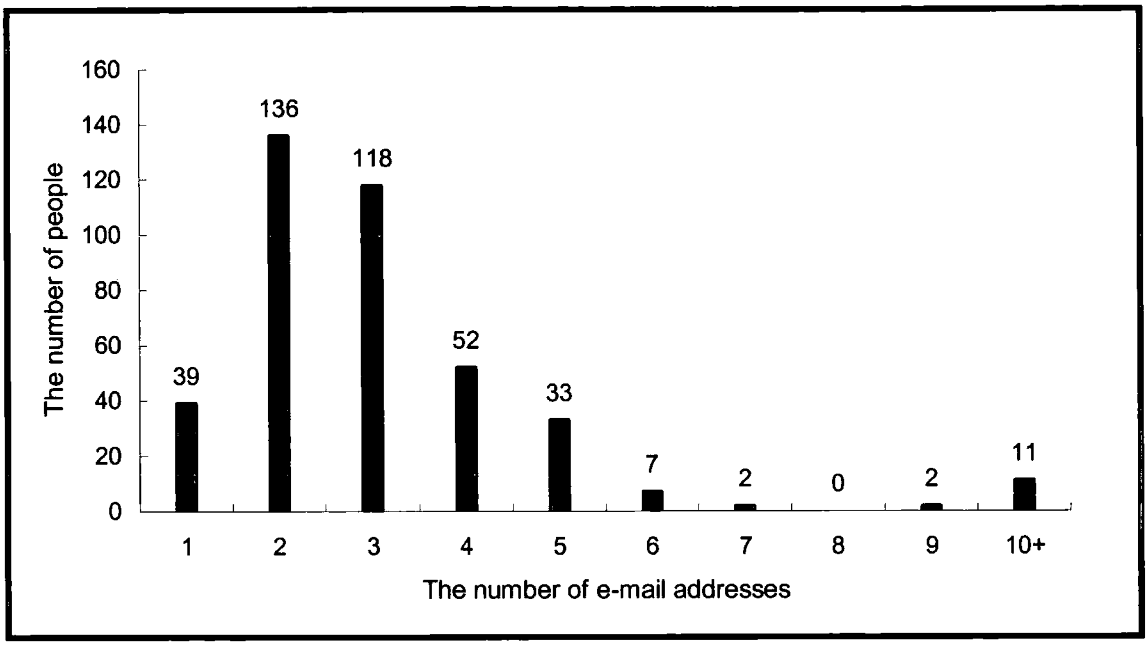

Figure 9-8 The number of e-mail addresses

Source: Questionnaire survey of university students, Seoul and Daegu (n=400)

Second, people tend to have multiple e-mail addresses to store electronic files, though there are different reasons to use multiple e-mail addresses and some of the e-mail addresses may be used. As Figure 9-8 indicates, many people have their multiple e-mail addresses: less than 10 per cent of them have one e-mail address and more than 60 per cent of them have 2 to 3 e-mail addresses. This behaviour is related to the separation of the body from an address and implies the possibility that users can access their multiple addresses at the same time.

9-5 Symbolic/linguistic spaces, identities and conflicts

> "Not only is space seen as linguistic but language is seen as spatial" (Crang and Thrift, 2000: 4).

> "The word and the world represented in it enter into the real world and enrich it, and the real world enters into the work and its world as part of a continual process of its creation" (Bakhtin, 1981: 253).

"(In) this signifying game between metonymy and metaphor, ... I think where I am not, therefore I am where I do not think (Lacan, 1977: 183).

"The limits of my language mean the limits of my world" (Wittgenstein, 2004: #5.6).

9-5-1 Physical skin, digital masks and virtual carnivals

Concerned with the crisis of boundaries through spatial deterritorialisation from actual spaces to virtual spaces and the crisis of identities through symbolic deterritorialisation in virtual spaces, I interpret the processes in terms of Mikhail Bakhtin's first/second world (in this subsection), and then translate them in terms of Jaques Lacan's Imaginary/Symbolic world (in Subsection 9-5-2). In doing so, I argue that virtual spaces can be seen in terms of the spaces of virtual carnivals where the symbolic order of actual spaces can be undermined. However, I also claim that virtual spaces as the second or Imaginary world are still under the power and control of actual spaces as the first or Symbolic world of officialdom or authority, and that symbolic conflicts between the two worlds do appear. For this, (in Subsection 9-5-3) I look at how such symbolic tensions and conflicts take place in the landscapes of symbolic/linguistic identities in relation to nominal and social identities at an individual level (e.g. pseudonym/real name) and linguistic and cultural identities at a collective level (e.g. cyber language/standard language).

The city is composed of multiple spaces such as 'physical', 'social' and 'mental' spaces interconnected to each other (Soja, 1989: 120). Recently, as electronic networks such as the Internet have increasingly penetrated the city, the social and mental spaces of the city are not confined to only its physical spaces, but also related to its electronic spaces. As a result, the city comes to be a kind of 'third space' (Soja, 1996) or 'heterotopia' (Foucault, 1997) where real and imaginary spaces coexist, shaping and reshaping each other. As people's bodies/identities come to be increasingly multiple and fluid in the urban matrix of actual-virtual circuits as third or hybrid space, we need to attend to 'the psychogeography experienced by any truly wired person' and 'a mental map of the city of his or her situational experiences' (Novak, 1998: 23). What image of virtual spaces do people come to have in the city of actual-virtual circuits? Compared with that of actual spaces, what is the most important characteristic of virtual spaces and lives? Globalised life? Networked life? Speeded up life? In the interview survey of this research, when people are asked to say about the most outstanding characteristic of life in virtual spaces, one of the terms they most commented on was the term 'anonymity'. Indeed, this point reminds us of the caption of a well-known New Yorker cartoon: "*On the Internet no one knows you're a dog*", as the interviewees below said.

> "In virtual space, I can conceal information about me and appear as an avatar without face-to-face contact. ... I think of virtual space as a space where anonymity is guaranteed and I can frankly express what is suppressed in actual space" (Jae-Won Lee, 22, male).

> "I can hide myself in the space of the Internet due to anonymity. So, I can say my thoughts or opinions I could not express at everyday life. In fact, it is difficult to express fully in actual space what I have opinions or desires. But I'm able to express them in virtual space" (Hae-Min Lee, 22, female).

> "In virtual space, I can get what I cannot do so in actual space. ... Virtual space makes me forget my powerlessness for a while. For example, in on-line games, I can be a superior or god who governs thousands of people, and can get an avatar which everyone is envious of" (Sang-Min Lee, 21, male).

> "I think virtual space can be characterised by anonymity. ... I daily enter on-line communities. ... Although people (in virtual space) conceal their own real existence with pseudonyms, I am pleased to meet them. I sometimes feel more comfortable when I spend time with them than with my friends (in actual space). I think the reason is because the people do not know about me" (Kyoung-Ock Kim, 21, female).

As Robins (1996: 22) notes, "new technological developments continue to respond to this desire to enter into the space of the image", making people overcome or forget the physical, social and mental limits and boundaries which they feel in actual spaces. "Through the constitution of a kind of magical reality and realism, in which normal human limits may be overcome and usual boundaries transgressed, the new technological medium promotes, and gratifies (magical) fantasies of omnipotence and creative mastery" (Robins, 1995b: 143). It is for this reason that people have desires to move into virtual spaces and take more pleasure in virtual spaces than in actual spaces. In anonymous virtual spaces, people can on the one hand, conceal their real identities through avatars with pseudonyms, and on the other hand, express themselves though such virtual identities, pursuing a kind of self-expression and self-satisfaction. That is, people in virtual spaces pursue their desires, but never reachable, obtainable or satiable like Lacan's object 'a',[13] while wearing 'digital masks' and making their 'physical skin (bodies)' 'invisible', 'dislocated' and 'deterritorialised' like in the case of Fanon's (1986) *Black Skin, White Masks*.

However, virtual spaces themselves can be explained in terms of Bhabha's (1994) 'third space' as the space of resistance with 'hybridity' in that they enable people to challenge existing restrictive and oppressive cultural worlds and to crack existing hierarchical and formal social worlds. As Heim (1991: 13) puts it, "when on line, we break free, like the monads, from bodily existence. Telecommunication offers an unrestricted freedom of expression and personal contact, with far less hierarchy and formality than is found in the primary social world". In this sense, virtual spaces, where wearing anonymous digital masks, people can express their desires through heterogeneous voices, can be thought of in terms of Turner's (1982) 'liminality' or 'anti-structure', or Bakhtin's (1984) 'carnival' or 'second world' where ordinary and everyday time-space is replaced by extraordinary and non-everyday time-space. That is, "like liminal zones and events, virtual spaces are 'liminoid' in that they are participated in on a temporary basis, and distinguished from some notion of commonplace 'everyday life'" (Shields, 2003: 13), and "the experience of loss, and thus of rupture and transformation, highlights the carnivalesque qualities of computer-mediated communication" (Shields, 1996: 7). Especially, "computer-mediated communication is

[13] "For Lacan, 'real life' or 'the real world' can never actually be apprehended, because the act of perceiving reality necessarily filters it through consciousness where it enters into the psychological logic of the Imaginary and the Symbolic. The Real, then, exists outside symbolisation, outside language, and more than this it resists symbolization. An example of the Real, for Lacan, would be the primary object the subject desires – the mother's body, taken away so long ago. In place of this unobtainable Real the subject discovers a number of symbolic signifiers that relate to the Real: these things (a sexualised body, a consumer object) constitute the unobtainable aspect of otherness, l'objet petit a (abbreviated by Lacan to a small 'a' which stands for autre, the French for 'other')" (Roberts, p.66).

similarly many-voiced, made up of intersecting dialogues which are the sum of the inputs of each participant, but where the final product is controlled by no single user" (Arglye and Shields, 1996: 66).

As such, virtual spaces take on Bakhtin's carnival world[14] where "the many voices, the polyphony of the social world, are bound to the many languages, the many speech genres, of heteroglossia" (Holloway and Kneale, 2000: 78). This can be seen as a kind of 'cyborg politics' which is "the struggle for language and the struggle against perfect communication" and "insist on noise and advocate pollution" (Haraway, 1991: 176). Indeed, Haraway's cyborg world can be compared to Bakhtin's carnival world in that "the strongest affinity between Haraway's ironic vision of cyborg politics and Bakhtinian critique is the stress on a radical heterogeneity in discourse and language" (Hitchcock 1998: 84). As "the discussions of carnival in Bakhtin's theorizations of medieval carnival is the essentially mobile refusal of the strict spaces of official culture" (Cresswell, 1997: 367), so virtual carnivals through displacement or dislocation from everyday to non-everyday time-space can be understood in terms of what is called 'mobility as resistance' (Cresswell, 1993).

In general, there are two ways of displacement or dislocation from everyday time-space into non-everyday time-space: one is through carnivals or festivals and the other is through tourism or travel. While the former entails the constraints of temporal cycles and, the latter involves the constraints of spatial movements and in the movement. Virtual spaces could make it possible for people to easily, instantly and flexibly move

[14] "Theories according primacy to textual representations, such as Bakhtin's and more recent postmodern and poststructuralist notions, are often deployed to assert that (1) there is no (knowable) world beyond the text, (2) belief that representations relate to the real world constitutes a "category mistake," and (3) identity is futile concepts, as we are consigned to repeat performances by which we momentarily confirm who we are. Such theories resonate with and support the dominance of telematics and IT. In a variety of ways, as technologies and practices, information technologies confirm not only that "all the world's text" but also the cogency of these academic theories, which are themselves partially extended, as in the case of Baudrillard's understanding of the simulacra, from information theory. Such theories, along with VEs [Virtual Environments], not only ignore distinctions between the power of pictures and that of more abstract textual representations but also are premised on communicating agents extending away from bodiliness. Instead, a disincorporating subjectivity is actively directed toward metaphoric "spaces" and representational language practices, within which a kind of purified carnivalesque libratory potential might seem to reign free" (Hillis, 1999b: 152).

between everyday time-space and non-everyday time-space without such temporal and spatial constrains. Unlike classical non-everyday time-spaces like carnival or tourist spaces, non-everyday time-spaces as virtual spaces are not transitional or separated from everyday time-spaces as actual spaces, but rather conterminous and coextensive with them. That is, we can see the demise of the binary spatial structure of everyday life: actual vs. virtual; normal vs. abnormal; stable vs. mobile; present vs. absent; place vs. space and so on. In other words, the everyday life world based on the Internet comes to be transformed into a kind of liminial space between such binary spaces.

9-5-2 Between Imaginary and Symbolic worlds

Displacement or dislocation from actual identities/spaces into virtual identities/spaces can be thought of in psychological terms, particularly in Lacanian terms. The reason why I here translate such a process of deterritorialisation into Lacan's words is because Lacan's wor(l)ds as well as Bakhtin's wor(l)ds can provide significant implications for understanding the symbolic or linguistic conflicts between actual and virtual spaces. This is because of the limit of Bakhtinian perspectives: "Bakhtin's mistake – or, rather, that of some of his followers – was to present an idealized image of these transgressions, while passing in silence over lynching parties, and so on, as the crucial form of the 'carnivalesque suspension of social hierarchy' (Žižek, 2005: 55; see also Eco, 1984). In this sense, we need to recognise how varied power relations erupt in virtual carnival space in relation to symbolic order and transgression. In addition, that is because "his [Lacan's] insights are critical to a twentieth-century subject of an image-centred society" in that "Lacan's emphasis on the degree to which our identities are shaped in relation to a two-dimensional mirror has much to tell us about the production of a twentieth-century subjectivity" (Blum and Nast, 2000: 183).

Here, what I want to say is that virtual spaces and actual spaces can be seen in terms of Lacan's Imaginary world and Symbolic world respectively. The Imaginary world of Lacan can be characterised by 'spatiality', 'visuality' and 'duplicity' (Gregory, 1997: 211-2). "What happens in Lacan's mirror stage is that the experience of a body-in-the-world is supplanted by two-dimensional images of space and spatial relationships" (Blum and Nast, 2000: 92). That is, "the child has established a set of imaginary figures through which it understands (but fails to recognise) itself and its place in the world. This relationship is inherently spatial" (Pile, 1996: 129). And, "in Lacan's diagram, the virtual space 'behind' the plane mirror is where the subject imagines (through misrecognition) that its self exists as a unity (rather than some disorganized collection of identification)" (Wilbur, 1997: 11). That is, "the child that sees its image is already fantasising about the image and its relationship to it. ...... The relationship echoes Narcissus's encounter with his image" (Pile, 1996: 128). In other words, "the mirror stage is a drama whose internal thrust is precipitated from insufficiency to anticipation" (Lacan, 1977: 5). Such a self is expressed as 'organs without a body', in other words, a 'body in pieces', a 'fragmented' or 'splintered' body, not a 'body without organs' which is "nomadic (without home or refuge) and rhizomatic (without roots or anchorage)" (Doel, 1995: 235).

These landscapes in the Imaginary are exactly what happen on the screen, and the fragmented body in the Imaginary is very similar to the virtual body in virtual spaces. The screen is like the mirror, and virtual space is like the Imaginary. Just as people identify their visual images in mirrors – 'the *imago* of one's own body' (Lacan, 1977: 3) – with themselves, so too they can identify their virtual images as avatars on computer screens with themselves, in pursuit of the object of desire in virtual spaces. In this sense, virtual identities/spaces can be seen in terms of the 'Imaginary' or the 'mirror stage'. The virtual and visual body on the screen can be seen as an undifferentiated infant body which lie in a pre-linguistic or pre-Symbolic state of imaginary confusion between self and m/other. Some people find satisfaction in spending a great deal of money and time in making their avatars look good and pretty. If although "the mirror is a virtual space" (Pile, 1996: 126), it "really exists and has a kind of come-back effect on the place that I occupy" (Foucault, 1997: 352), then the screen is like the mirror, as a 'heterotopia', in which the actual and the virtual are coexistent, and people reflect themselves back to themselves.

In addition, virtual identities/spaces can be seen in terms of the 'metaphorical condensation' and 'metonymical displacement' of actual identities/spaces. (Generally, the psychological processes of condensation and displacement are explained as operated in the Symbolic. However, I here regard them as mechanisms which produce the landscapes of virtual identities/spaces in the Imaginary world into where people escape from the Symbolic world.) This means that virtual identities/spaces in terms of the Imaginary cannot be fully free from the shadow of actual identities/spaces in terms of the Symbolic. When a child enters the world of linguistic systems, he/she enters the Symbolic world or the Oedipus complex where the-Name-of-the-Father is dominant. In this process, the mother-child dyadic relations are transformed into the mother-father-child triadic relations. For Lacan, "the Symbolic is a set of meaning that are embedded in language: it defines a culture which lines outside the child, but within which the child have to take up a position" (Pile 1996: 130). Here, the desires of the child come to be repressed by the Symbolic order, especially the-Name-of-the-Father. In Freudian psychoanalysis, when one's desires (id) cannot be realised in reality due to social or moral constraints (super/ego), being repressed into unconsciousness, they appear as substituted forms in his/her dreams through 'condensation' or 'displacement' into other images because of the censorship mechanism of super/ego. Virtual spaces can be compared to such dream spaces. That is, people in virtual spaces substitute their actual identities with virtual identities in order to on the one hand, conceal their actual identities and on the other hand, express their desires repressed in actual spaces. This process is nothing more than condensation/displacement.

For Lacan, who combined Freud's psychoanalysis and Saussure's linguistics, the structure of dream is like that of language: condensation = metaphor: the substitution of one for another; and displacement = metonymy: the substitution of part for whole. And the structure of the self follows that of language and dream: metaphorical condensation and metonymical displacement. In this sense, we can think of virtual identities/spaces in terms of the condensation/displacement of actual identities/spaces in psychological terms and metaphors/metonymies for actual identities/spaces in linguistic terms. As Dallow (2001: 68) puts it, "in a Lacanian sense, what we see in the mirror of the digital mediascape is the metaphorical image of the workings of our minds, the abstraction of the metaphoric and metonymic aspects of the new spatio-visual regime". The processes of metaphorical condensation and metonymical displacement deny any signifier cohesive, coherent and inherent to its referent or signified, as we saw in some examples such as pseudonyms, avatars (gender swapping) and e-mail addresses. If the 'signifier' can be described as a empty formal structure, and the 'signified' can be described as elements filling out the empty spaces in the structure, "we always encounter an entity that is simultaneously – with regard to the structure – an empty, unoccupied, place, and – with regard to the elements – a rapidly moving, elusive object, an occupant without a place" (Žižek, 2005: 131). That is, virtual identities can be regarded as "flickering signifiers, characterized by their tendency toward unexpected metamorphoses, attenuations, and dispersions" (Hayles, 1999: 30), and virtual spaces can be understood as a kind of 'new floating world' (Gergen, 2002: 234-5).[15] In this sense, they are represented as disembodied', 'multiple' and 'fragmented' identities and as 'disembedded', 'dispersed' and 'displaced' spaces (Slater, 2002; Kolko and Reid, 1998).

9-5-3 From place to space and back again[16]

We need to recognise that displacement or dislocation from actual identities/spaces into virtual identities/spaces is not socially and culturally neutral, bringing about the symbolic conflicts between actual and virtual spaces, between Bakhtin's first and second worlds or between Lacan's Symbolic and Imaginary worlds. In fact, this kind of conflict has always been in the world of representations of the world. For instance, Daniels and Cosgrove (1993) proclaim that there has been a close but tense relationship between linguistic (word) and visual (image) metaphors in the representation of landscapes:

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[15] Gergen's (2002: 235) 'floating world' refers to "a world of meaning cut away from the pragmatics of everyday life", and "a world in which the relationship of the language to ongoing practical activity is ambiguous if not irrelevant". That is, "it is this new floating world that is facilitated by the expansion of absent presence. To read a novel, see a film or watch televised sports is to engage in a world of representation – what Debord might call the 'world of the spectacle' and Baudrillard would term the 'hyperreal'. Similarly, when e-mail exchanges create their own realm of 'conversational objects,' they can float free from their moorings in everyday life". This is similar to Castells' (1996: 373) 'real virtuality' which is "a system in which reality itself (that is, people' material/symbolic existence) is entirely captured, fully immersed in a virtual image setting, in the world of make believe, in which appearances are not just on the screen through which experience is communicated, but they become the experience".

[16] This phrase is taken from Harvey's (1993) *From space to place and back again*. However, I use here the terms 'place' and 'space', drawing on de Certeau's (1984) concepts of place as 'stability' and space as 'mobility'.

> "In our contemporary world, where the visual seems not to provide a transparent window to truth but shatters appearance into a set of dazzling surfaces, many reflecting the vanity of the spectator, textuality is upheld as providing an instrument to probe into substance. But, from the other pole of the struggle between word and image, the very power of textuality can be seen as repressive and mystifying, scribbling as it were on the window on the world" (Daniels and Cosgrove, 1993: 73).

These tensional relations in the representation of landscapes can be found in the representation of identities in virtual spaces, reflecting the tensional relations between Imaginary spaces (as visual images) in the virtual world and Symbolic spaces (as textual words) in the actual world. Here, I suggest two cases of literally symbolic conflicts in the landscapes of symbolic/linguistic identities: nominal and social identities at an individual level (pseudonym/real name) and linguistic and cultural identities at a collective level (cyber language/standard language). Such symbolic conflicts have often appeared between the government attempting to make virtual spaces transparent and controllable through the use of real names in virtual spaces and people or NGOs resisting the government's surveillance and control over virtual spaces, and between those who want to reterritorialise the landscapes of symbolic/linguistic identities and those who want to deterritorialise them.

The first is about the use of pseudonym/real name as nominal and social identities at an individual level. As we have seen above, many people tend to use their pseudonyms because they think that using or exposing their real names in virtual spaces to others is disadvantageous and dangerous. Furthermore, some people argue that using pseudonyms and sustaining anonymity can make virtual spaces liberal and democratic. On the other hand, some people think that pseudonyms can make virtual spaces so chaotic and anarchic that people could lose morality and accountability in virtual spaces. This conflict is related to the contradictory social or moral values of the freedom and the responsibility of expression in the public sphere as we can see in the on-line debate below.[17]

[17] [http://www.naeil.com/weeklynaeil/naeil/news/311/31152.htm]: on-line debate about the use of pseudonyms and anonymity, in December 1999 (*Is the N-generation a coward hidden behind anonymity?*).

> "Everyone must be responsible for their opinion. To speak anonymously rarely gains support from other people" (ID: KYUYU).

> "I think that real names must be revealed in communication networks. ..." (ID: S92SSY).

> "The role of N-generation in society is increasing. Here (in virtual space), it is possible to say about what is not allowed outside (in actual space)" (ID: KHR965).

> "We are important. We lead the future. ... The reason why the old generation sees the N-generation as bad is because they think they are different from us?" (ID: KJHAKER).

The use of pseudonyms making virtual spaces opaque can bring about not only social issues but also legal issues (Froomkin, 1999). For instance, the Korean government have attempted to institutionalise real name registrations in BBS as a typical electronic public space in virtual spaces from the early 2000 in order to make virtual spaces transparent. Some NGOs constructed on-line networks against the plan – like they did so against the electronic identification card plan in the late 1990s. For them, the use of real names in virtual spaces can be regarded as to undermine the potential of virtual spaces to establish electronic democracy, and the plan of the government can be seen as the mechanism of surveillance and control over virtual spaces through electronic fingerprints. To their eyes, the plan was seen as Althusser's (1971) ideological interpellation (hailing/naming), Foucault's (1977) panoptic/disciplinary gaze or Lacan's (1977) symbolic/patriarchal order.

The other case is about the use of cyber language/standard language as linguistic and cultural identities at a collective level. We have talked often about the penetration of national cultural boundaries by the Internet (see Holloway and Valentine, 2001a). However, what I want to suggest here is cultural deterritorialisation not across national boundaries but within national boundaries by the Internet. In the virtual spaces of on-line chatting, plus 'emoticons' as signs to express emotions and feelings, many Korean young people use a kind of 'cyber language' (cyber dialect called a 'communication language' in Korea), which looks so different from normal Korean letters (the Korean alphabet called *Hangeul*) that it is difficult to make sense of it and looks alien and strange to the extent to which it is called a 'extra-terrestrial language'. Like in the case of the use of real names/pseudonyms, the use of the cyber language in virtual spaces also becomes a social issue, bringing about debates about cultural identities. Some people claim that the use of the cyber language make virtual spaces disordered and messy, bringing about the disruption or destruction of a linguistic national identity. On the other hand, some argue that the cyber language is just a new kind of culture in virtual spaces, as expressed in the on-line debate below.[18]

> "In the early 1990s when communications via the modem is practiced, the speed of transmission of information is slower than today. Thus, to resolve this problem, it was necessary to simplify words or to produce new expression terms. That is, the communication language was at first made on this efficiency. However, recently, instead of the efficiency, being combined with the possibility of self-expression, freedom in Internet space, and young people's desire for expression and their psychology of resistance, the communication language results in the destruction of Korean language" (Young-Dea Kim).

> "All cultural phenomena have their own reasons for being, and the communication language also is not merely a passing (linguistic) fad but an emerging alternative for realms that could not be covered by the existing language. Especially, because it is impossible to hear (conversation) sounds at (on-line) chat rooms, it is reasonable and necessary to modify the existing language in order to express effectively emotions" (ID: Eahookilla).

Furthermore, one of the interesting facts which were found in the off-line and on-line interviews of this research is that people come to use the cyber language not only in virtual spaces but also their everyday lives in actual spaces. This process can be seen as a kind of boundary-blurring process between the two spaces, as the on-line interviewees below said.

[18] [http://issue2.daum.net/200220502_language/]: on-line debate and discussion about communication language use, in May 2002.

> "The boundaries between the real and the virtual seem to be ambiguous, especially, in the case of the use of language. ... Though it is difficult to generalise this point, emoticons and the communication language are already being used as a usual language (also in actual spaces)" (ID: junkky 8147, 22, female)

> "There appears the virtual in the real. The way of thinking or the way of using language in virtual space has effects on that in real space" (ID: dolly, 21, female).

Through analysing the new generation's Internet use in Korea, drawing on Bourdieu's (1990) 'habitus' which "is the mediating link between objective social structures and individual action and refers to the embodiment in individual actors of systems of social norms, understanding and patterns of behaviour" (Painter, 2000: 242), Yoon (2001: 255) says that "it is the habitus of Korea's new generation that makes them partly comply with dominant discourse and partly resist the old authority system". If Bourdieu's habitus refers to a kind of embodied practice through which human behaviours reproduce social systems and vice versa, we need to see how the existing habitus structured by social systems in actual spaces can be changed and weakened in disembodied virtual spaces through the practices and strategies of social, cultural and symbolic resistance, if not the product of rational calculation. Here, I have explained how symbolic or linguistic systems as social or cultural systems can be fragmented and deterritorialised by new practices in virtual spaces through looking at the two cases: pseudonym/real name, and cyber language/standard language.

In this sense, virtual spaces can be seen in terms of Bakhtin's second or carnival world where the symbolic systems of actual spaces, especially the-Name-of-the-Father in Lacan's Symbolic world, are challenged and unsettled by heterogeneous languages, that is, heteroglossia. However, the crisis of boundaries through spatial deterritorialisation from virtual spaces to actual spaces and the crisis of identities through symbolic deterritorialisation in virtual spaces are not social and cultural neutral, but bring about symbolic conflicts between the two worlds. Especially, given that the formation of one's social identity and subjectivity is fundamentally grounded on his/her linguistic development, and that the integration of the social or cultural world is definitely founded on social linguistic systems, deterritorialisation in the landscapes of symbolic/linguistic identities relates to not only the crisis of individual or collective identities, but also the crisis of social and cultural orders. It is for this reason why the symbolic landscapes of virtual spaces has been frequently at stake in social issues, sometimes bringing about the intervention of the government in their formation.

9-6 Conclusion: all that is solid melts into the Internet?

Until now, I have illustrated how what have been thought of as integrated and solid in the city can be rendered fragmented and fluid into the spaces of nets and bits, as cities and homes are increasingly penetrated by the Internet and based on the screen. First, as the Internet penetrates the home, its images as the most fundamental social-spatial unit small, solid, static and private inevitably come to be challenged. Second, on-line interactions tend to involve discontinuous temporal networks and localised spatial networks, making social relations or interactions in cities transient, ephemeral, contingent and anonymous. On-line interactions within/between cities need to be perceived in terms of not only social interactions through the Internet, but also the time-space fabric of the cities. That is, the time-space fabric of the city is relationally and dynamically shaped through the combinations of off-line and on-line social interactions. Finally, spatial deterritorialisation into virtual spaces and symbolic deterritorialisation in virtual spaces enable people to have multiple and fluid bodies and identities, bringing about diverse symbolic conflicts in the landscapes of symbolic/linguistic identities.

As the Internet penetrates cities, homes and bodies through its global-local networks, the city cannot be described only as solid, constant, stable, consistent, jointed, fixed, unitary, integrated, but rather as fluid, discontinuous, ephemeral, contingent, dislocated, displaced, multiple, fragmented like the metaphorical or metonymical spaces of dreams. However, it does not mean that the city on the screen completely replaces the city on territorial, social and cultural grounds. For example, the degrees of urban penetration by the Internet and the practices of on-line interactions reflect and are reflected in the geographical, social and cultural conditions of cities. The flows and trajectories of on-line interactions are affected by the gravity and inertia of physical territories. And, social and symbolic practices in virtual spaces cannot be fully free from the social control and cultural order of actual spaces. Although the Internet can make the city porous and permeable to some degree, producing the fragmented and fluid landscapes of the city through its global-local networks, such urban landscapes are still in the shadow of the conditions and influences of physical spaces. Thus, the city needs to be seen in terms of the dialectic relations of actual and virtual spaces, not the replacement of actual spaces with virtual spaces.

Chapter 10

The Multiple Networks of CATV and the Delocalisation of Local Places

Cable TV has had its image as a local media based on localism through its centrifugal, decentralised and heterarchical networks. Through investigating the cases of Seoul and Daegu in Korea, this chapter challenges such a utopian and ideological image of cable TV by showing that cable TV can make local places delocalised, deterritorialised and decontextualised through its multiple networks which are centripetal, centralised and hierarchical. I divided the multiple networks of cable TV into four kinds of networks, each being spatially categorised into local, national and global levels: spatio-temporal, organisational-spatial, techno-spatial and cultural-spatial networks. The 'spatio-temporal networks' are constructed by the institutional shift by the government, and by technologies such as satellite or cable networks, resulting in the synchronisation of cable flows. The 'organisational-spatial networks' are formed through the transactional and organisational relations between media actors in the capital city/region and the other cities/regions, producing power networks between them. The 'techno-spatial networks' are constitued through channel systems both institutionally and technologically. Finally, the 'cultural-spatial networks' are made through programme flows, leading to cultural globalisation. I analyse these four types of networks at three spatial levels: local, national and global levels in order to understand how cable TV connects local places to different actors and networks at multiple spatial levels. Through exploring these multiple networks of cable TV, I argue that cable TV is not a local media but rather a global-local media through which ordinary cities are connected to global-local networks.

10-1 CATV landscapes: localism and delocalisation

Like other media like the Internet, satellite TV, the mobile phone and so on, cable TV is one of the key information technologies which generate a 'mediated world' (Thompson, 1995) or a 'networld' (Harasim, 1993b). However, it has different mediascapes in that it has its own distinctive electronic territorial scale. In general, the Internet or global satellite TV forms 'mediascapes' at a global level and terrestrial TV or national satellite TV at a national level, and cable TV shapes mediascapes at a local level. In addition, while mass media networks such as terrestrial TV or radio have integrated media spaces at a national level, new media networks such as the Internet, satellite TV and cable TV have disintegrated the mass media spaces towards global and local levels. In particular there are opposing images of the Internet and cable TV. That is, the Internet has its image as a 'global' media in that it distintegrates the mass media spaces formed at a national level through extending them towards a global level, resulting in the 'death of distance' (Cairncross, 1998). On the contrary, cable TV has its image as a local media in that it does so through fragmenting them into a local level.

In fact, such an image of cable TV as a local media[1] is not new. From its early age, cable TV, developed to relay terrestrial radio or television waves into blanket areas and rural communities in the middle twentieth century, has been represented as a local media based on localism or embedded in local communities. Such an image of cable TV is a spontaneous or forced image historically made as a result of the territorial competition and conflict between monopolist (national or local) terrestrial TV and relay cable TV (as an initial form of cable TV) in the UK and the USA from about the 1950s to the 1970s when the mass media, such as terrestrial TV or radio, dominated broadcasting territories and newly emerging media systems, such as relay cable TV or radio, were restricted by the mass media. To understand this historical situation, it

[1] Cable TV is represented as 'CATV'. In its early years (until the 1960s), CATV had referred to 'Community Antenna Television' as relay cable TV. It was not until the 1970s that CATV was conceived as 'Cable Television' as a kind of new media. In the case of the United States, in 1966, CATV organization's name was changed from the National Community Television Association to the National Cable Television Association (Parsons, 1989).

seems be worth citing the following somewhat long passages about the specific history of cable TV and its conflicts with broadcasting systems in the UK and the USA.

• **The case of the United Kingdom**

"The monopolistic control exercised by the BBC allowed it to do many things, including the development of a particular programming policy of 'the best of everything' which was often 'threatened' by the possibility of commercially run broadcasters. One of the earliest perceived threats came from the radio relay services of the 1920s. Little came of this as the BBC, with help from the Post Office, was able to curtail development and to contain the potential for change. ...... In the late 1940s and early 1950s many private companies were willing to start offering new things on the existing relay systems, including via some form of subscription or pay-television, but these efforts were turned down for fear of upsetting the delicate broadcasting system then controlled by the BBC, and later by the duopoly. ...... Some cable operators felt that they needed to show that they were not only interested in profit-making and that they wanted to provide, through their systems, community facilities in the form of community television. In this way, they could prove their worth to the community and justify their claims to being another set of legitimate broadcasters within the British broadcasting system" (Negrine, 1998: 8-9).

• **The case of the United States of America**

"In the late 1940s and early 1950s, cable – also known as community antenna television (CATV) – referred to the distribution to subscriber homes of two to six television signals via a system of wires and amplifiers. To the extent that cable was defined at all in the early and mid-1950s, it was so only in terms of its dependent relationship with broadcasting. Like broadcast 'repeaters' and 'translators' of the time (methods by which broadcasting television signals were received, amplified, and redistributed), cable was considered, at least by the Federal Communications Commission, an 'ancillary service'. ...... As cable moved into the markets of small, primarily western, broadcasters in the 1950s and threatened to do the same in larger markets in the 1960s, and as the once-entrenched broadcasting industry began to perceive cable as a potential threat to its monopoly status, the dialectic of control took place. When the broadcasting industry initiated its effort to bring CATV within the domain of federal regulation, it was required to advance both a rationale for control and a legal mechanism through which control could be invoked. The rationale was the contentious argument that CATV would undermine the profitability of local broadcasting stations and erode the FCC's expressed goal of localism" (Parsons, 1989: 16-18).

In the case of the USA, "CATV originally served isolated places where television reception was impossible without centralized antenna facilities. Soon, however, CATV began to penetrate markets already served by one or more television stations, and the innovation has been diffusing up the nation's urban hierarchy since 1949" (Abler, 1975b: 126). "Although the first CATV systems began operating in the United States in the late 1940s, it wasn't until the early 1970s that the technology began to expand rapidly" (Doheny-Farina, 1996: 165). This diffusion of cable TV was combined with the 'discourse of the new technologies': "a pattern of talk common in the policy-making arena around 1970 in regard to the introduction of cable TV in US cities" (Streeter, 2004: 54). At the time, cable TV was seen as a community technology which could revitalise local communities and reintegrate local people with their community. Interestingly, "people were saying the same thing in 1971 about public access television that they are saying now about the net" (Doheny-Farina, 1996: 164). However, in this process, there appeared concerns about the contradictory effects of cable TV on local communities in American metropolises around 1970. This point is well expressed in Ted Ledbetter's writing in *Cable Television in the Cities*.[2]

> "Cable has the potential to help or hurt communties. It can help community organizations get access to the media and by providing better educational facilities. It can hurt by reducing personal contacts to a minimum, by eleiminating half of the postal jobs in this country, and by restricting public access, program diversification and community responsiveness. If offers new job and business opportunities, but these opportuntities could turn out to be white only. It could provide increased public safty: but who want the television equivalent of no-knock police power? CATV has

[2] In the same book, Charles Tate expressed power relations and racial struggles over the 'community control of cable television systems' in American cities at that time. "The prospect of cable television expanding into the metropolitan centers throughout the country has caused a major power struggle among wealthy and influential investors, local governments, and various well-financed, vested interest groups. The central cities within the Top 100 markets have already become hotly contested franchise areas. If blacks, Chicanos, Puerto Ricans and other racial minorities who reside in the central city ghettoes lay claim to those systems that will operate in their communities, ownership and control by outsiders could be seriously challenged and prevented" (Tate, 1971: 15).

> the potential to help minority people solve many problems and achieve a new plateau in self-determination and self-fulfillment; it could also produce the Orwellian nightmare long before 1984" (Ledbetter, 1971: 14).

Since the 1970s, there have been many changes in mediascapes through the 'second communications revolution' (van Dijk, 1999) and the diffusion of discourses on informationalisation and globalisation. Especially, in the situation that the cultures and identities of local places are increasinly eroded by global media flows, cable TV as a local media, which can provide local people with the sense of place and reinforce the formation of local identity and autonomy, is more being underlined. This point is well expressed in Söderström's (1992: 119) research of cable TV networks in Sweden in *Cities and New Technologies*: "TV is becoming more internationalised as a result of the increasing range of satellite channels. However, the expansion of cable TV is also creating new opportunities for local TV programmes to strengthen the sense of community at neighbourhood level and to spread local information".

However, more recently, along with the globalisation of cable TV companies and networks such as CNN, there has appeared a new image of cable TV different from such a traditional image of cable TV as a local media. That is, cable TV began to be perceived as a typical technology and network through which local places are connected to the global space of cultural flows, forming 'global-local' networks. Recently, some theorists have stressed such new images of cable TV.

> "Electromagnetic waves may be everywhere, but I still have to have an antenna, a subscription and decoder if I am to get CNN (Cable News Network). Thus, in the case of electronic networks, we have no difficulty reconciling their local aspect and their global dimension" (Latour, 1993: 117).

> "Borders today are highly porous, and the pressure of glocal flows of goods and services are continuously eroding them even more every day. To take only one example, ... information gathered by British wire services in Eastern Europe for broadcast on 24-hour cable news networks centred in Atlanta" (Luke, 1995a: 101).

> "In 1980, for example, when Ted Turner decided to launch Cable News Networks as a round-the-clock live news station, he transformed his subscribers' living space into a kind of global broadcast studio for world events (Virilio, 1997b: 385).

As our local places and eveyday lives are more and more penetrated by and dependent on the global-local networks of cable TV, it can be argued that cable TV facilitates and accelerates cultural 'globalisation' or more appropriately 'glocalisation' (Robertson, 1992, 1995; Swyngedouw, 1992a, 1997a; Robins, 1995a; Morley and Robins, 1995; Robins and Cornford, 1994) in that "globalisation ... produces new forms of localisation in a dialectical relationship" (Savage et al, 2005: 3) through 'glocalisation' where "globalisation has involved the reconstruction ... of home, community and locality" (Robertson 1995: 30). However, we need to recognise that such "glocalization can be – in fact, is – used strategically, as in the strategies of glocalization employed by contemporary TV enterprises seeking global markets (MTV, then CNN, and now others)" (Robertson, 1995: 40). For example,

> "A number of cable channels and DBS services started with a more specific language or regional target. ... One satellite television service in Asia, Star TV, owned by Rupert Murdoch, originally targeted the whole of Asia with American (MTV, film), European (BBC, sports) and Chinese-language channels. It has since begun to target more specific markets, with more localized programming, such as its own adaptations of MTV and more language-specific programs" (Straubhaar and LaRose, 2000: 507).

In addition, the global-local networks of cable TV can be seen in terms of 'deterritorialisation', which can be understood in the sense of 'disembedding' by Giddens (1990), which began to be used as an academic term by Deleuze and Guattari (1987), then adopted and adapted by some thinkers (Appadurai, 1990; Tomlinson, 1999a; Lull, 2000; Lévy, 1998; Knox, 1995). Deterritorialisation refers to "the loss of the natural relation between geographical and social territory, or the release of cultural signs from fixed locations in space and time. ... Deterritorialization is the partial tearing apart of cultural structures, relationships, settings, and reprehensions" (Lull, 2000: 239). This can be seen as a process resulting in cultural landscapes such as 'placelessness' (Relph, 1976), 'no sense of place' (Meyrowitz, 1985) or the 'devaluation of place' (Bauman, 2001: 38). Ferguson (1990) particularly argues that cable TV brings about the 'colonisation of time and space' in everyday life in the local through round-the-clock and global services of the broadcasting industy such as CNN. Tomlinson (1999a: 113) also expresses this process as the 'mundane experience of deterritorialization': "the globalization of mundane experience may make a stable sense of 'local' cultural identity (including national identity) increasingly difficult to maintain, as our daily lives become more and more interwoven with, and penetrated by, influences and experiences that have their origins far away". Similarly, Thompson (1995) calls this process 'delocalisation', but in a different sense from 'deterritorialisation'.

> "Prior to the development of the media, traditions had a certain rooted ness: that is, they were rooted in the spatial locales within which individuals lived out their daily lives. ... But with the development of the media, traditions were gradually uprooted; the bond that tied transitions to specific locales of face-to-face interaction was gradually weakened. In other words, traditions were gradually and partially delocalised as they became increasingly dependent on mediated forms of communication for their maintenance and transmission from one generation to the next" (Thompson, 1995: 197).

Thompson (1995: 197) argues that the term 'delocalisation' can be conceived differently from the conception of 'deterritorialisation' in that "traditions were delocalised but they were not deterritorialized: they were refashioned in ways that enabled them to be re-embedded in a multiplicity of locales and reconnected to territorial units that exceed the limits of fact-to-face interaction". That is, media globalisation can be explained in terms of not 'media imperialism' but the 'global-local axis' of 'globalized diffusion' and 'localized appropriation' through which "media products are embedded in sets of practices which shape and alter their significance" and there appears a process of "symbolic distancing from the spatial-temporal contexts of everyday life" (Thompson, 1995: 175). In other words, "the processes that shape localities are not one-way interactions, but are rather dynamic and multifaceted, so that hybrids of the 'newly arrived' and the 'previously there' are constantly reconfigured and remobilized through global flows" (Short et al., 2000: 321). Ang (1996) also explains media globalisation as the process not of erasing local identities through homogeneous globalisation, but of reconstituting local identities through global-local interconnections.

> "The construction of a 'global culture', then, should not be conceived as a process of straightforward homogenization, in which all cultural difference and diversity is gradually eradicated and assimilated. Rather, globalization involves a checkered process of systemic desegregation in which local cultures lose their autonomous and separate existence and become thoroughly interdependent and interconnected" (Ang, 1996: 153).

Whether the result is described as 'globalisation, 'glocalisation', 'delocalisation' or 'deterritorialisation', the global-local networks of cable TV can bring about ontological issues about local boundaries, territories and identities through the 'transnationalisation of place' (Beck, 2000: 76). Adams (1992) sees television as a kind of 'social place' having 'a social context' and a kind of 'symbolic space' as 'a center of meaning'. Referring to 'television as gathering place', Adams (1992: 118) argues that "the idea of 'television as place' refers to (a) a bounded system in which symbolic interaction among persons occurs (a social context), and (b) a nucleus around which ideas, values, and shared experiences are constructed (a center of meaning)". Such a concept of television as gathering place is based on a concept of place with its own distinctive boundaries, territories and identities. That is, Adams' explanation can be seen as a comparison of television to place, not that of place to television. However, as local places are increasingly connected to global networks, it seems to be more reasonable to compare place to television with global networks. It is in this sense that Massey (1993, 1994, 2002) suggests the concept of place as 'meeting place' in order to stress a 'global sense of place' or a 'progressive sense of place'.

> "No longer do we think of place – or region, or nation – as simply bounded territories with eternal essential characteristics which somehow grow out of the soil. Rather we (or many of us) now lay stress on understanding the identity of place as the product also of its relations with elsewhere. We know we cannot understand the character of any place without setting it the context of its relations with the world beyond. This is place as meeting place: different stories coming together and, to one degree or another, becoming entangled. This is the thrown-togetherness of physical proximity, and it is even more marked in an age of globalisation. A global sense of place" (Massey, 2002: 294).

It is obvious that such a 'global sense of place' can be more facilitated and reinforced by media networks connecting local places and global space. In this sense, cable TV can be thought of as one of media forming such a 'delocalised or deterritorialised sense of place'. Drawing on Massey's (1993) idea of 'power-geometry' and White's (1992) viewpoint of the relationships between networks and identities, Bridge (1997: 623) explains the connectivity and diversity of networks as important factors in determining and reinforcing the power and identity of place: "the power of place is dependent on the interconnections of the networks in that place. Interconnected diversity in network space is what counts". However, we also need to recognise that networks can have different effects on places according to whether the networks make the places more homogeneous and dependent on other centres through centripetal vectors or more diverse and autonomous through centrifugal vectors. Generally, compared to the mass media such as terrestrial TV, characterised as networks with centripetal vectors, cable TV are represented as one of networks with centrifugal vectors. However, we need to rethink what vectors the networks of cable TV actually involve in local places and what effects the networks have on local power and identity.

This chapter explores what effects the multiple networks of cable TV have on local places in Korea. In the case of Korea where cable TV services were launched along with the beginning of the local autonomy system in 1995, a utopian image of cable TV, made mainly by the government and cable TV companies, has pervaded the whole country along with the diffusion of discourses on the so-called information society and grass-roots democracy. Through analysing the multiple networks of cable TV, I challenge a utopian and ideological image of cable TV as a local media based on localism or embedded in local communities, suggesting cable TV as a 'global-local media' rather than a local media. For this, I underline two points with regard to the characteristics and effects of cable TV on local places. One is that cable TV tends to make local places delocalised, deterritorialised and decontextualised through its multiple networks, and the other is that it involve centripetal, centralised and hierarchical networks rather than centrifugal, decentralised and heterarchical networks. Here, the term 'multiple networks' entails two meanings. First, cable TV connects local places to various kinds of networks. In this sense, I divide the multiple networks of cable TV into four kinds of networks: (a) 'spatio-temporal' networks through institutional systems and technological networks; (b) 'organisational-spatial' networks through transactional and organisational relations; (c) 'techno-spatial' networks through channel systems; and (d) 'cultural-spatial' networks through programme flows. Second, cable TV connects local places to multiple spatial scales of networks. In this sense, I divide the multiple networks of cable TV into three spatial scales of networks: local, national and global networks. However, what is more important here is whether such spatial networks are extensive (decentralised) or intensive (centralised) in terms of spatial scope of networks. My concern is not with making a prescriptive and normative argument as to whether cable TV should be closely embedded in its local territories for cultural or social integration or if it should connect local places to various global networks in order to make local people live with more diverse global cultures, but rather with descriptive explanations of how the city is composed of the multiple networks and global-local networks of cable TV, underlining that the city needs to be understood in terms of multiple networks, not a singlar territory.

10-2 Cable TV systems and spatio-temporal networks

10-2-1 The institutional shift and the proliferation of cable networks

In Korea, cable TV broadcasting services were launched with utopian visions in 1995 when the local autonomy system also started. With the beginning of cable TV services, there were also many changes in domestic and global media environments: the emergences of domestic DBS [Direct Broadcasting by Satellite] and local private broadcasting, the establishment of the national information infrastructure, the pressure of global media capital and organisations such as the WTO to open the door of domestic media markets, the financial crisis and so on. In these processes, the Korean government needed to find and make a new institutional regime relevant to new global media environments that were becoming more and more competitive. As Flew and McElhinney (2002: 317) put it, "in recent years national governments, sensitive to domestic political and economic pressures, have sought to establish new media industries that enable local business to compete with transnational enterprises in local and global markets". This was not exceptional to Korea. As a result, there appeared a institutional change, the 'Broadcasting Act' in 2000,[3] regulating institutionally all kinds of broadcasting such as terrestrial TV, cable TV, satellite TV and so on, and inducing a regulatory change from the intervention of the government to the principle of market of competition systems. This institutional shift was a turning point which transformed the contours of media spaces in Korea, not only cable TV but also all kinds of media.

The institutional shift entails some implications for changes in the spatial networks of cable TV. First of all, it has resulted in the rapid proliferation of cable TV networks or actors at a national level such as PPs [Programme Providers], SOs [System Operators] and NOs [Network Operators]. From 1995 to 1999, the government had strongly controlled the market of cable TV services with regard to the entrance of new media capital into the media market, ownership relations between media capital, the investment of foreign capital and so on. However, the institutional shift replaced the strong intervention of the government in the market with the principle of market and competition systems. The government relaxed the existing restrictions on the entrance of domestic and foreign media capital into the market, and as a result, there have been rapid increases in the numbers of PPs, SOs and NOs (Figure 10-1). In the case of PPs, 29 PPs were established in 1995 according the government' plan, and there was no change in the number until 1999. However, after the institutional shift, the number of PPs has rapidly increased, increasing the competition between PPs and the polarisation between them.

[3] Originally, the 'Broadcasting Act' was planned to be set up in the late 1990s, but it was delayed due to various power relations among different media sectors (or actors). As a result, the 'Comprehensive Cable Broadcasting Act' which had regulated cable TV was partly reformed in 1999 and replaced by the 'Broadcasting Act' in 2000.

	1995	1996	1997	1998	1999	2000	2001	2002	2003
PP	29					44	129	186	207
SO	53(4)		77				110	119	
NO	2		20	46					169

← The government — The market →

↑ *New Media*
: Cable TV
: Satellite
: The Internet (KII)
: Local private broadcasting

↑ *The financial crisis*

↑ *Turning point*
: The Broadcasting Act
: The proliferation of PPs/SOs
: The emergence of MPPs/MSOs
: The polarisation of PPs

Figure 10-1 Changes in the numbers of PPs, SOs and NOs
Note: PP [Programme Provider], SO [System Operator], NO [Network Operator]

In the case of SOs, 53(4) SOs had been established in large cities and medium-sized or small cities through two stages until the institutional shift. At the first stage in 1995, 44 SOs were established in the 6 largest cities and 9 SOs in 9 medium-sized cities within 9 regions (called '*-do*') (the 'first SO zone'). Their threshold was defined as a population of one hundred thousand one hundred thousand populations. At the second stage in 1997, 24 SOs were added in other medium-sized or small cities in regions (the 'second SO zone'). Their threshold was defined as a population of two hundred thousand. That is, cable networks were proliferated into smaller cities with low population density and the large spatial scale of threshold. Through these two stages, SOs could be located in their exclusive and monopolistic local zones. However, after the institutional shift, the number of SOs has increased through the third and forth stages where the government allowed ROs [Relay Operators] (called 'relay cable broadcasting business operators') to be transformed into SOs (called 'comprehensive cable broadcasting business operators'). In this process, 33 ROs within the first SO zone in 2001 (at the third stage) and 9 ROs within the second zone in 2002 (at the forth stage) were transformed into SOs. As a result, more than one SO could locate in the same local SO zone, and as a result, some local SO zones began to change into competitive markets. In Korea, a great number of ROs have mushroomed from the late 1960,[4] being less regulated and controlled by the government, forming very trivial and decentralised media landscapes in local areas and receiving and relay-transmitting terrestrial TV programmes to blanket areas in urban and rural areas. However, as terrestrial TV networks were more and more extended over national space, they began to transmit not only terrestrial TV programmes but also video movies and animations. However, with the emergence of SOs since 1995, they began to be weakened, and as a result, many of them eventually were transformed to SOs through the institutional shift.

Finally, in the case of NOs, in 1995, public companies such as the Korean Telecom and the Korea Electric Power Corporation were selected as the two main operators. The government strongly controlled the construction of cable networks in relation to the construction of the national information infrastucture (Kim, S.D., 1999). Consequently, the two companies constructed cable networks mainly in large cities (that is, in the first SO zone), resulting in the uneven distribution of cable networks between large cities and the other cities or regions (Lee, S.S., 1996). In 1997, the government added 18 NOs in the second SO zone in order to extend cable networks into rural areas. However, with the finance crisis in 1997, most of the NOs suspended network construction and in this situation, the government again added more NOs in 1998 in order to more faciliate the contruction of cable networks, (Lee, I.C. et al., 1999). After then, a large number of NOs appeared through the institutional shift.

[4] According to KBC (2002b), as of 2002, the number of ROs by city/region is as follows: 19 in Seoul, 25 in Busan, 17 in Daegu, 16 in Incheon, 1 in Gwangju, 6 in Daejeon, 9 in Ulsan, 100 in Gyeonggi-do, 69 in Gangwon-do, 63 in Chungcheonbuk-do, 58 in Chungcheongnam-do, 36 in Jeollabuk-do, 88 in Jeollanam-do, 129 in Gyeongsangbuk-do, 88 in Gyeongsangnam-do, 14 in Jeju-do.

Table 10-1 Changes in the numbers of PPs and SOs

City/region	PP		SO				
	Jan. 2000*	Nov. 2002**	Stage 1 1995*	Stage2 1997*	Stage3 2001***	Stage4 2002***	Total
Seoul	25	163	23	-	+11	-	34
Busan	0	11	7	-	+6	-	13
Daegu	0	2	6	-	+6	-	12
Incheon	0	0	5	-	-	-	5
Gwangju	0	1	2	-	+2	-	4
Daejeon	0	0	2	-	+2	-	4
Ulsan	0	0	-	1	-	+1	2
Gyeonggi-do	4	13	1(2)	+8	+1	+3	13
Gangwon-do	0	1	1	+2	-	+1	4
Chungcheonbuk-do	0	0	1	+1	+1	+1	4
Chungcheongnam-do	0	1	1	+2	+1	+1	5
Jeollabuk-do	0	0	1	+2	+1	-	4
Jeollanam-do	0	0	1	+2	+1	+1	5
Gyeongsangbuk-do	0	0	1	+3	+1	+1	6
Gyeongsangnam-do	0	1	1	+3	-	-	4
Jeju-do	0	0	1	-	-	-	1
Total	29	193	53(4)	+24	+33	+9	119

Source: *KBC (2000b), **KBC (2002b), *** Son, C.Y. and Yeo, H.C. (2003)

Although there have been rapid increases in cable TV actors and networks, there has also been the uneven spatial proliferation of them between the capital city/region and the other cities/regions and between large cities and the other cities or regions. This is found both on the side of suppliers and on the side of consumers. First, on the side of suppliers, the extremely uneven proliferation of PPs and SOs between the capital city/region and the other cities/regions and between large cities and the other regions has appeared. As Table 10-1 indicates, most of the PPs have been very highly concentrated in the capital city/region, the largest market of cable TV, and many of the SOs have located largely in the capital city/region or large cities, reflecting the threshold of the density of households or populations.[5] From 1995 to 2000, all PPs had been concentrated in the capital city (region): as of January 2000, 86.2 per cent of the total PPs in Seoul and 100 per cent in the capital region. Since 2000, with the institutional shift, many PPs have appeared in not only the capital city/region but also other large cities such as Busan, Daegu, Gwangju and so on. However, most of them have still been concentrated in the capital city/region: as of November 2002, 84.5 per cent of the total PPs in Seoul and 91.2 per cent in the capital region.[6]

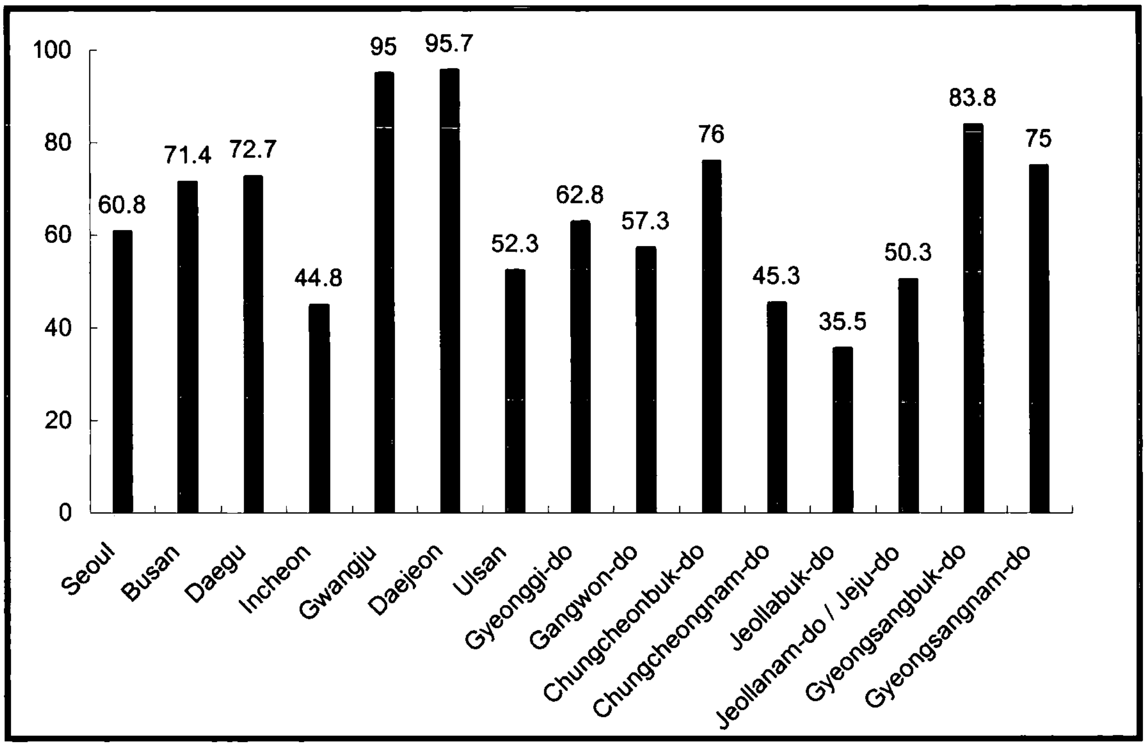

Figure 10-2 Percentage of households wired to cable TV (SOs)
Source: Adapted from data from the Korean Cable TV Association

[5] In Korea, the number of cable TV SOs in a city/region is closely correlated to that of households as a location factor (Han, J.S., 1997).

[6] Among the 13 PPs located in the capital region except Seoul, 11 PPs are located in Sungnam, 1 PP in Anyang and Goyang which are the satellite cities of Seoul.

Second, on the side of consumers, we can see that households are unevenly wired to cable networks between large cities and the other cities and regions. According to KBC (2000a), 77 per cent of the total cable TV subscribers live in large cities, 21 per cent live in medium-sized or small cities, and only a few in rural areas.[7] On average 63.9 per cent of the total households in Korea are wired to cable networks. As Figure 10-2 indicates, while four (Busan, Daegu, Daejeon and Gwangju) of the seven metropolises are penetrated by cable networks over the level of average, only three (Gyeongsangbuk-do, Gyeongsangnam-do and Chungcheonbuk-do) of the nine regions are penetrated by cable networks above the average level. Especially, in Daejeon and Gwangju where fewest ROs exist in Korea, about 95 percent of the total households are linked to cable networks (SOs). Surprisingly, the capital region composed of Seoul, Incheon and Gyeonggi-do is relatively less wired to cable networks. This may be because many of the households in the region are still connected to ROs' networks, not SOs' networks. When we look outside the capital city/region, we see that Gyeongsangbuk-do and Gyeongsangnam-do, which both boast more industrial cities than any other region, have high household penetration rates. In comparison less than 50 per cent of households in Jeollabuk-do and Chungcheongnam-do are wired to cable networks.

The difference in the development of cable networks between large cities and the other cities or regions, composed of middle size and small cities and rural areas, reflects the different social and economic conditions found in these areas and the differences in household density and population size. In the many cases, "because of the high fixed costs entailed in constructing networks, networking providers focused on deploying technologies first to high-density urban areas where the costs of deployment were lower and could be shared across a wider and more lucrative customer base" (García, 2002: 50). That large cities have the high density of households or populations, means that they have more SO zones because the spatial scale of the threshold is smaller and that cable networks can be constructed relatively easily at a low cost.

[7] In contrast to SOs (comprehensive cable broadcasting business operators), in the case of ROs (relay cable broadcasting business operators), 44 per cent of the subscribers live in large cities, 33 per cent in medium-sized or small cities, and 23 per cent in country areas.

10-2-2 Satellite networks and the synchronisation of cable flows

Cable TV entails not only spatial but also temporal networks. Of course, the temporal networks of cable TV are not separated from the spatial networks of cable TV, but rather are formed by them. The temporal networks of cable TV refer to the synchronisation of cable TV broadcasting not only within cities or regions but also between cities or regions through electronic networks such as satellite or optical cable networks. In order to understand this, it is helpful to know the technological process by which cable TV programmes are transmitted and broadcast from PPs through SOs to homes (Figure 10-3). In Korea, cable TV SOs receive programmes from PPs[8] or other TV broadcasters (terrestrial TV or satellite TV broadcasters), and transmit them to homes within their local zones[9] which are linked to the SOs. PPs, most of which are located in the capital city (region), provide local SOs with cable TV programmes through mainly satellite networks and partly optical cable networks which are constructed by NOs.[10] SOs transimit some terrestrial TV and satellite TV programmes in a similar way. All programmes are delivered and transmitted synchronously from PPs through SOs to homes in all local places across national space through satellite and cable networks without any temporal delay.

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[8] The contract method between PPs and SOs was until 2001 a collective contract. That is, SOs had to transmit all programmes of all PPs. However, in 2002 the method was changed into an individual contract according to the principle of market.

[9] Each SO divides its broadcasting zone into some decades of cells. At the centre of each cell is an ONU (Optical Network Unit) which connects SO and homes through HFC cable (Hybrid Fibre Coaxial: optical cable between SO and ONU and copper cable between ONU and some hundred or thousand households) and enables two-way communications between SO and homes (based on an interview with Mr. Cheon-Gi Park, an engineer of *C-vision* in Seoul).

[10] There are two gigantic NOs in Korea: the Korea Telecom and the Korea Electric Power Corporation. The former operates satellite networks and the latter does optical networks.

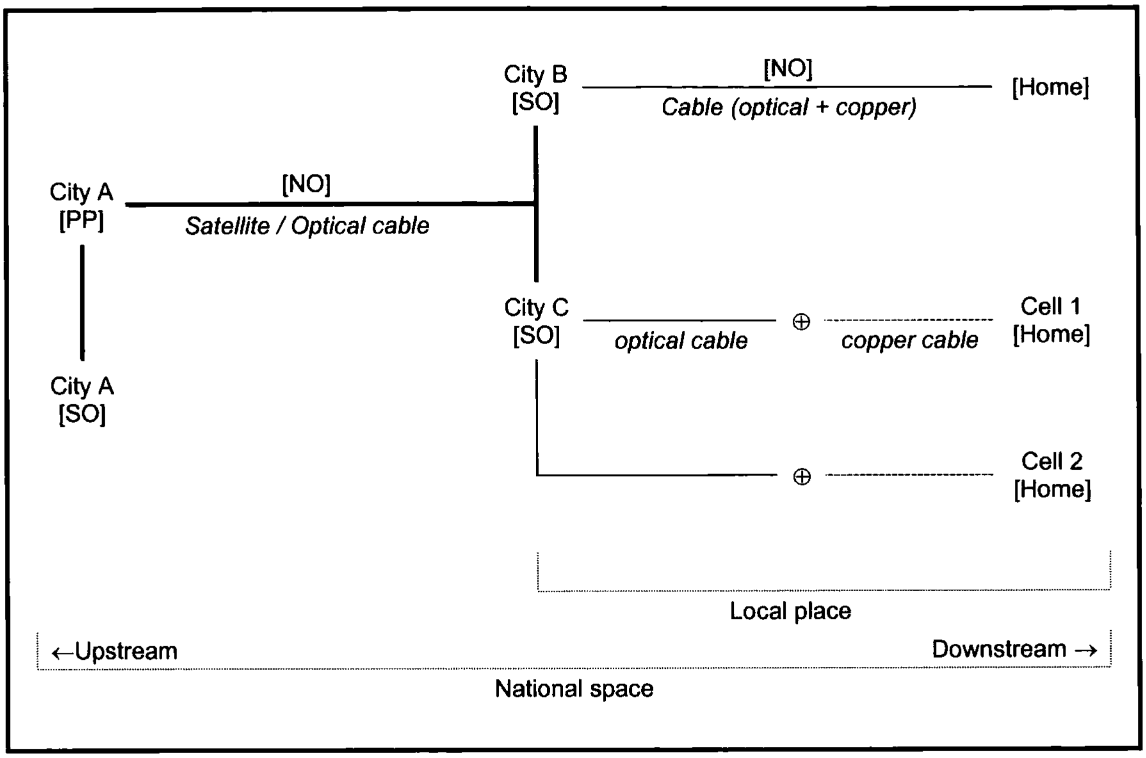

Figure 10-3 The technological networks of cable TV systems

Note: PP [Programme Provider], SO [System Operator], NO [Network Operator]

Of course, the emergence of synchronised temporal networks is neither a new phenomenon nor confined to cable TV. It was formed already at a national level by mass media technologies such as television or radio networks. New media technologies such as the Internet or satellite TV have accelerated such temporal networks at a global level through instaneous and simultaneous communications. For example, it becomes possible to watch 'BBC world' or 'CNN international' in real time in Korea through satellite networks. When I had an on-line chat with a South Korean student studying in Poland, we were able to share the real-time experience of watching the same KBS TV programme on television in Korea and over the Internet in Poland. This temporal synchronisation at a global scale through real-time networks results in 'real-time globalisation'. Nevertheless, the reason why I suggest synchronised temporal networks here is because the synchronised temporal networks of cable TV can make local place more delocalised or deterritorialised. Cable TV has been regarded as a local media embedded in local places. However, that people in different homes in different local places can watch the same programme at the same time through the networks of cable TV, means that local places are spatially and temporally deterritorialised, being ochestrated according to the same rhythms at a national level. This can be seen as the process of temporal integration by spatial integration and spatial integration by temporal integration. Although cable TV makes local places and homes have multiple channels, this does not mean that the local places and homes have heterogeneous temporalities. But rather, this means that all local places and homes connected the synchronised temporal networks of cable TV come to be penetrated by the temporal 'flow' of homogeneous images in Raymond Williams' (1974) terms.[11]

10-3 Organisational relations and power networks

10-3-1 The capital city/region with (M)PPs and provincial cities/regions with SOs

Here, I look at how the institutional shift has changed the organisational-spatial networks of cable TV in terms of the asymmetric power networks between the capital city/region and provincial cities/regions. Although power networks can be considered various forms such as political, economic, social, cultural or interpersonal networks, I here explain them in terms of transactional and organisational relations. In order to understand the power networks, we need to know how the institutional shift has changed the organisational relations of media capital in terms of the ownership relations within/between PPs and SOs. The institutional shift engendered new media capital through the horizontal or vertical integration within/between PPs and SOs. Before the institutional shift, a PP or a SO should exist as an independent singular company in ownership relations. That is, a PP could not own other PPs or SOs and a SO also could not do so, and the investment of foreign capital also was prohibited. However, the institutional shift loosened these restrictions. That is, the horizontal or vertical integration within/between PPs and SOs was allowed (Table 10-2), and the participation of foreign capital in the cable TV sector was also permitted to some extent (Figure 10-4).

[11] Raymond Williams (1974) referred to the temporal sequence of television programmes as a 'flow' in his book *Television: Technology and Cultural Form.*

Table 10-2 Institutional change in ownership relations

		The Comprehensive Cable Broadcasting Act (1994)	The Comprehensive Cable Broadcasting Act (1999)	The Broadcasting Act (2000)
Horizonal integration	MSO (SO ↔ SO)	prohibition	up to 1/10 of the total SOs	up to 1/5 of the total SOs
	MPP (PP ↔ PP)	prohibition	up to 1/5 of the total PPs	up to 1/5 of the total PPs
Vertical integration	NO → SO	prohibition	up to 1/10 of the total SOs	up to 1/10 of the total SOs
	SO → PP	prohibition	up to 1/5 of the total PPs	up to 1/5 of the total PPs
	PP → SO	prohibition	up to 1/10 of the total SOs	up to 1/10 of the total SOs

Source: Son, C.Y. and Yeo, H.C. (2003: 31)

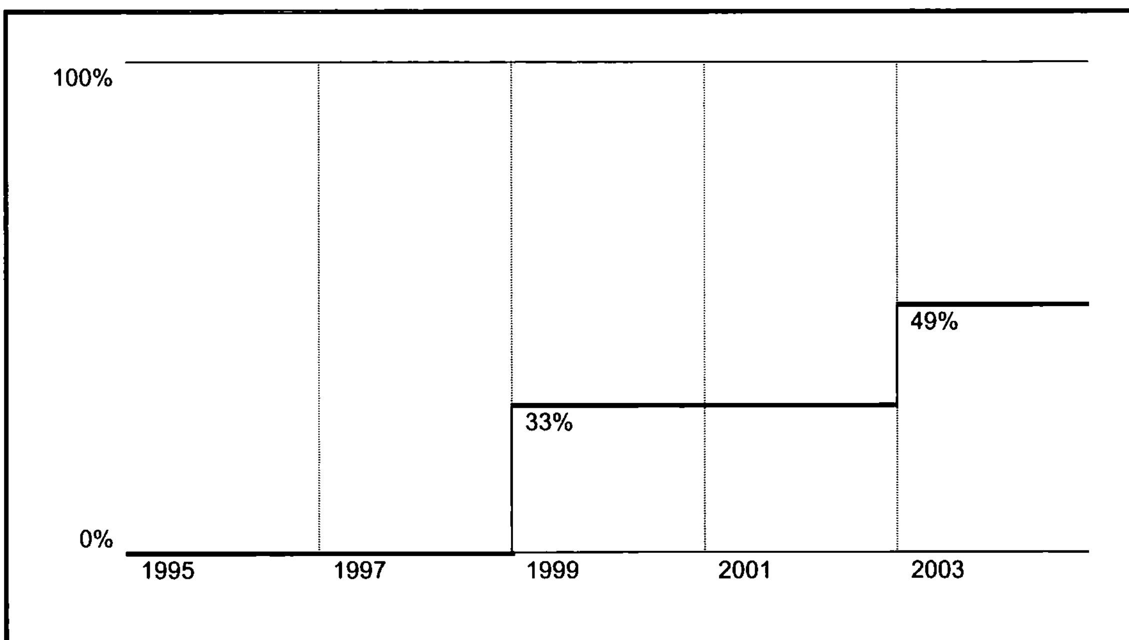

Figure 10-4 Institutional change in the limit of foreign capital' participation in cable TV (SOs)

Source: Son, C.Y. and Yeo, H.C. (2003: 347)

In the processes of the horizontal or vertical integration within/between PPs or SOs, there appeared new and powerful media capital such as MPPs [Multiple Programme Providers], MSOs [Multiple System Operators] and MSPs [Multiple System Program Providers]. MPPs and MSOs refer to multiple PPs and multiple SOs respectively, which belong to a company through the horizontal integration between them, and MSPs mean PPs and SOs which belong to a company through the vertical integration between them. The horizontal or vertical integration within/between PPs and SOs can be thought of as a strategy to induce 'economies of scale' and reduce 'external transaction cost' in competitive media environments. However, these processes have also resulted in the polarisation of PPs and SOs into large and powerful MPPs (MSOs) and small and minor PPs (SOs). These organisational relations of media capital are reflected into the power networks between the capital city/region and provincial cities/regions in two dimensions: one is the horizontal dependence of provincial cities/regions with SOs on the capital city/region with (M)PPs. The other is the vertical subordination of provincial cities/regions with SOs to the capital city/region with MSOs' head offices.

The horizontal dependence of provincial cities/regions with SOs on the capital city/region with (M)PPs can be seen partly as a result of the appearance of MPPs through the horizonal integration between PPs. Although since 2000 when the government allowed new PPs to enter the market, some PPs have been located in provincial cities/regions as well as the capital city/region, there has appeared polarisation between PPs in the capital city/region and PPs in provincial cities/regions.[12] While some large and powerful PPs, established in the capital city/region, provide very popular and attractive programmes to audiences at a national scale, others cannot afford to do so. Furthermore, some of them are MPPs, which appeared through horizontal integration between PPs with the institutional shift, and some of the MPPs are owned and managed by large companies such as *On-media* and *CJ* or the existing terrestrial TV broadcasters such as KBS, MBC and SBS (Table 10-3).

[12] This explanation about the polarisation of PPs and the dependence of SOs on the major (M)PPs is based on interviews with C-vision in Seoul and TJN in Daegu.

Table 10-3 MPPs in cable TV systems

Owner	Location of head office	Number of PP channels	Name of PP channels
On-media	Gyeonggi-do (Sungnam)	8	OCN, OCN Action, HBO, Tooniverse, Ongamenet, MTV, Baduk TV
CJ	Seoul	4	m.net, Food channel, NTV, CJ home shopping
KBS	Seoul	3	Sky KBS Drama, Sky KBS Sports, KBS Korea
MBC	Seoul	3	MBC dramanet, Gamebc, MBC ESPN
SBS	Seoul	6	SBS golf, SBS sports, SBS drama plus, SBS satellite golf, SBS satellite sports, SBS satellite drama
Others (10)	-	20	-

Source: KBC (2002a) (as of June 2002)

Note: The locations of headoffices were identified in September 2003

Compared to (M)PP in the capital city/region, PPs in provincial cities/regions are largely small and trivial. Of course, this point does not mean that all PPs in the capital city/region are large and powerful or that the polarisation between PPs takes place only between the capital city/region and provincial cities/regions. There are many small and powerless PPs, and the polarisation also appears in Seoul. Anyway, although the programmes of small PPs in provincial cities/regions is less expensive than those of large (M)PPs in the capital city/region, SOs in provincial cities/regions as well as the capital city/region have no choice but to make a contract with the major (M)PPs in the capital city/region, because the number of channels the SOs can operate are technologically limited and audiences want to watch the programmes of large (M)PPs in the capital city/region. This means that while the capital/region with SOs and (M)PPs act as not only consumption but also production spaces, provincial cities/regions with just SOs remain as only consumption spaces.

10-3-2 The capital city/region with MSOs' head offices and provincial cities/regions with SOs

The other power networks, that is, the vertical subordination of provincial cities/rgions with SOs to the captial city/region with their MSO's head offices, can be seen as a result of the appearance of MSOs through the horizontal integration between SOs. The formation of MSOs can be seen as a management strategy to compete with satellite TV or other cable TV SOs. 5 MSOs first appeared in 1999 when the Comprehensive Cable Broadcasting Act was reformed. The number of MSOs have greatly increased since 2000 when the Broadcasting Act was enacted. As of September 2002, there are 13 MSOs, and over 60 per cent of the total SOs (68 of 109) belong to the MSOs.[13] The main way of forming MSOs was to acquire existing ROs in different local areas. Furthermore, some MSOs became more powerful media capital, MSPs though vertical integration with (M)PPs. These processes have resulted in the power networks between the capital city/region and provincial cities/regions in that while most of the head offices of MSOs are located in the capital city/region, their SO outlets are located mainly in provincial cities/regions (Table 10-4). The spatial and power relations between the capital city/region and provincial cities/regions are exemplified in the interview below:

> "Compared to SOs in Seoul, SOs in provincial cities are disadvantageous because PPs are in Seoul and usually they operate in favour of SOs in Seoul. ...... Furthermore, SOs in provincial cities came to be dependent on (media) capital in Seoul through M&A (merger and acquisition). Their owners or head offices are almost in Seoul. We (TJN) are also so, and other SOs in Daegu are also so. While 50 per cent of the SOs in Daegu are based on Daegu, the other 50 per cent belong to MSOs of which head offices are in Seoul. A considerable number of SOs in this country (in Korea) belong to MSOs of which head offices are based on Seoul" (Ho-Gun Lee, a manager of TJN in Daegu).

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[13] The Digital Times (1 November 2002) *Special issue – cable TV SO.*

Table 10-4 MSOs in cable TV systems

Owner	Location of head office	Number of NOs	Location of SOs
C&M	Seoul	12	Seoul 11, Gyeonggi-do 1
On-media	Gyeonggi-do (Sungnam)	6	Seoul 1, Daegu 2, Gangwon-do 1, Jeollanam-do 2
Hanvit	Gyeonggi-do (Ansan)	11	Gyeonggi-do 4, Busan5, Incheon 1, Jeollabuk-do 1
Joongang Network	Seoul	14	Seoul 2, Daegu 3, Daejeon 3, Gwangju 2, Busan, 1 Chungcheonbuk-do 1, Chungcheonnam-do 1, Jeollanam-do 1
Hyundai	Seoul	7	Seoul 4, Gyeonggi-do 1, Daegu 1, Chungcheonbuk-do 1
CJ	Seoul	6	Seoul 2, Busan 1, Gyeongsangnam-do 3
LG	Seoul	5	Seoul 3, Gyeongsangnam-do1, Chungcheonbuk-do1
Qrix	Seoul	6	Seoul 6
Dream city	Gyeonggi-do (Bucheon)	2	Gyeonggi-do 1, Seoul 1
Taegwang	Seoul	4	Gyeonggi-do 2, Chungcheonbuk-do 2
Joongang cable	Busan	5	Busan 5
Others (2)	-	4	-

Source: KBC (2002a, 2002b) (as of June 2002)

Note: The locations of headoffices and NOs were identified in September 2003

In the case of Daegu, there are 12 SOs at 6 SO zones (2 SOs at each zone). 6 SOs among them belong to MSOs of which head offices all are in Seoul. Two (*Donggu* and *Susung*) belong to *On-media* and one (*KCS*) to *Hyundai*. And the other 3 SOs (*TJN*) at different SOs zones in Daegu belong to *Joongang Network*. In the case of TJN, their 3 outlets' role in Daegu is just to transmit programmes from PPs to homes in their local zones. The 3 outlets have the same broadcasting timetables for all channels, even local channels, to say nothing of PP channels. They are managed together by their branch office in Daegu which is directed by its head office in Seoul. Of course, their branch offices and outlets are located not only in Daegu but in other cities as well. This fact explicitly means that MSOs are less embedded in their local places.

We have seen the organisational relations of media captial and the power networks between the capital city/region and provincial cities/regions which appeared with the institutional shift: the horizontal dependence of provincial cities/regions with SOs on the capital city/region with (M)PPs; and the vertical subordination of provincial cities/regions with their SOs to the capital city/region with MSOs' head offices. In the terms of Massey's (1984, 1994) 'spatial divisions of labours', the former can be compared to the spatial division of labour between different industrial sectors, and the latter to the spatial division of labour within the same industrial sector. These power networks mean that provincial cities/regions with SOs become subordinate to the capital city/region with (M)PPs and MSOs' head offices. In this sense, Seoul could be called 'the media capital' where media capital is concentrated and thus could control provincial cities/regions.

10-4 Channel systems and techno-spatial networks

10-4-1 The institutional and technological construction of channel systems

Here, I explain the channel systems of cable TV as techno-spatial networks. Generally, the channel systems of cable TV are composed of multiple and various channels such as PP channels, terrestrial TV channels, satellite TV channels, local channels and so on. Of course, the composition can be different according to the technological conditions of SOs for the number of cable TV channels is constrained by the technological capacity of SO's networks.[14] In addition, the number and composition of cable TV channels are affected not only by SO's technological conditions, but also by the government' institutional constrains.[15] According to the 'Broadcasting Act' (Article 70), SOs should operate their channels "so as to realise the variety without any preponderancy of the specified broacast fields", and according to the 'Enforcement Decree of the Broadcasting Act' (Article 53), the number of total operating channels should be more than 40 and "the number of channels retransmitting foreign broadcasts shall be limited to within 10/100 of the total operating channels". Table 10-5 shows the construction of the channel systems of cable TV in the cases of a cable TV SO in Seoul (*C-vision*) and a cable TV SO in Daegu (*TJN*) in Korea. C-vision operates 76 channels and TJN does 77 channels composed of PP channels, terrestrial TV channels, satellite TV channels, direct use channels and local channels. (a) PP channels: PP channels are composed of a variety of genres such as movie, drama, animation, game, music, sports and so on, are more overwhelming than any other channel in both C-vision, Seoul and TJN, Daegu. Both C-vision and TJN have 3 public PP channles[16] and 3 religion PP channels[17] according to the Broadcasting Act (Article 70) and the Enforcement Decree of the Broadcasting (Article 54).

(b) Terrestrial TV channels: according to the Broadcasting Act (Article 78), SOs should "receive the terrestrial broadcasts (excluding radio broadcasts) conducted by a terrestrial broadcasting operator and simultaneously retransmit the broadcasts as they

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[14] In general, the capacity of cable networks in Korea is between 450-750MHz, this means that it is possible to use 75-125 channels (the number of channels = capacity / 6MHz). However, because some of them are used for the Internet or other value-added services, actually 70-80 channels are used for cable TV broadcasting (based on the interview with Mr. Cheon-Gi Park, an engineer of C-vision in Seoul).

[15] Based on the Broadcasting Act (2003 version) and the Enforcement Decree of the Broadcasting (2003 version).

[16] Three public channels: (1) KTV by the National Visual Media and Publishing Center, the Ministration of Culture and Tourism; (2) OUN by the Korean National Open University, the Ministration of Education and Human Resources; and (3) Arirang TV by the Korean International Broadcasting Foundation.

[17] According the Enforcement Decree of the Broadcasting Act (Article 54), "religious channels should be aimed at the proselytization of religions but should not be only for a specific religion".

are without modifying them ('simultaneous retransmission')". C-vision in Seoul operates 15 terrestrial TV channels (10 analogue ground wave channels and 5 digial ones),[18] and TJN in Daegu operates 5 terrestrial TV channels (four nationwide public channles of KBS1, KBS2, EBS, MBC and one local private channel of TBC).

(c) Satellite TV channels: satellite TV channels are divided into two kinds. One is domestic satellite TV and the other is foreign satellite TV. C-vision operate 2 domestic satellite TV channels (EBS plus1, EBS plus2) and 3 foreign satellite TV channels (NHK Primium World, Star sports, CNN International), and TJN in Daegu operate 3 domestic satellite TV channels (EBS plus1, EBS plus2, KBS Korea) and 4 foreign satellite TV channels (NHK Premium World, Star sports, CNN International, BBC World).

Table 10-5 The number and composition of cable TV channels

Channel		C-vision (Seoul)	TJN (Daegu)
PP channel		53 (69.7%)	62 (80.5%)
Terrestrial TV channel	Analogue	10 (13.2%)	5 (6.5%)
	Digital	5 (6.6%)	-
Satellite TV channel	Domestic	2 (2.6%)	3 (3.9%)
	Foreign	3 (3.9%)	4 (5.2%)
Direct use channel		2 (2.6%)	2 (2.6%)
Local channel		1 (1.3%)	1 (1.3%)
Total		76 (100%)	77 (100%)

Source: Data from C-vision and TJN

[18] C-vision has two sets of analogue terrestrial TV channels (KBS1, KBS2, EBS, MBC as nationwide public channles and SBS as a local private channel) and 5 digital terrestrial TV channels (KBS1, KBS2, EBS, MBC, SBS). The reason why analogue terrestrial TV channels are operated though two channels each is related to the SO's specific geographical situaion. That is, the SO lies nearby the trasmitting tower which sends electronic waves for nationwide broadcasting and communications and brings about electric wave interference around it. The SO has two set of analogue terrestrial TV channels due to the electric wave interference (based on the interview with Mr. Cheon-Gi Park, an engineer of C-vision in Seoul).

(d) Direct use channels. According to the Enforcement Decree of the Broadcasting Act (Article 53), SOs should "not directly use the broadcasting channels or lease the channels to persons related to the relevant broadcasting business operators or specific program providing business operators, in excess of the following criteria": "1. Cases of direct use: 3 channels; 2. Cases of a lease to specially related persons: 20/100 of the tolal operating channels; and 3. Cases of a lease to a specific progam providing business operator: 20/200 of the total channels". Both of C-vision in Seoul and TJN in Daegu operate 2 direct use channels and no lease channel.

(e) Local channels: according to the Broadcasting Act (Article 70), SOs should operate local channels which "produce, program and transmit the local information, a broadcasting program guide and the official announcement items", and according to the Enforcement Decree of the Broadcasting Act (Article 55), its scope of broadcast programmes shoud be as follows: "1. Broadcasting programs produced by the viewers themselves and for which they request broadcasting; 2. Broadcast programs of local life information within the comprehensive cable broadcast zone; 3. Broadcast programs for publicizing the policies of local governments; 4. Broadcast program guides; and 5. Other broadcast programmes recognized by the State or local governments as necessary for the development of local communities and for the convenience of local residents". C-vision in Seoul and TJN in Daegu operate 1 local channel respectively.

10-4-2 Putting techno-spatial networks into the local through channel networks

The channel systems of cable TV as techno-spatial networks are connected to multiple spatial levels. Of course, it is very difficult to define their spatial boundaries, because they are directly or indirectly linked to other technological, economic and cultural networks and thus their territories are not be fixed. Nevertheless, the techno-spatial networks of cable TV can be categorised into three levels in relation to their spatial scales: local, national and global networks (Figure 10-5). First, the local networks of cable TV channel systems are confined to local channels as cable TV-specific channels in that the spatial scales of their networks are based on local territories. However, compared to the other channels, the local networks of cable TV channel systems are very weak. Although cable TV SOs are obliged to operate local channels, the scope of programmes is confined to simple local information or news and programmes guides. Moreover, public access (or open) channels through which citizens broadcast their own programmes are neither operated nor obligatory.

Although public access channels are perceived as important in Korea where various opinions have been restricted by powerful mass media capital and the government (KBC, 1999a), the channels are rarely operated. In addition, audiences also tend not to watch nor to be interested in local channels (Lee, S.Y., 2000). For example, only 4.6 per cent of the subscribers subscribed to cable TV in order to know local news or information, and 61.6 per cent of the subscribers of cable TV do not watch local channels (Figure 10-6). Especially, SOs which belong to MSOs tend to have a negative effect on the local networks of cable TV for they operate their local channels for less time and allocate less time to broadcasting local news than general SOs (Lee, S.Y., 2000). In this situation, it is difficult to say that local channels are embedded in local places.

Second, the national networks of cable TV channel systems are composed of mainly PP channels, terrestrial TV channels and domestic satellite TV channels. The networks of PP channels can be seen to work at a national level, because generally PPs provide their programmes to SOs across national space through satellite or optical cable networks. The networks of terrestrial TV channels and domestic satellite TV channels can be also seen to work at a national level for their territories are basically based on national territories. In this point, it can be said that the techno-spatial networks of cable TV are formed mainly a national level. Futhermore, local SOs are obliged to operate public or national terrestrial TV channels such as KBS1, KBS2 and EBS, which are managed partly or totally by the government. They are also obliged to operate public PP channels such as KTV (information), OUN (education) and Arirang (culture), which are managed mainly by the government. This point means that cable TV can be seen as a technological and cultural means to inscribe national ideologies or government' progaganda in local territories. In this sense, cable TV plays an important role in shaping a collective identity at a national level, constituting a kind of 'imagined community' (Anderson, 1991) or an 'imagined e-community'.

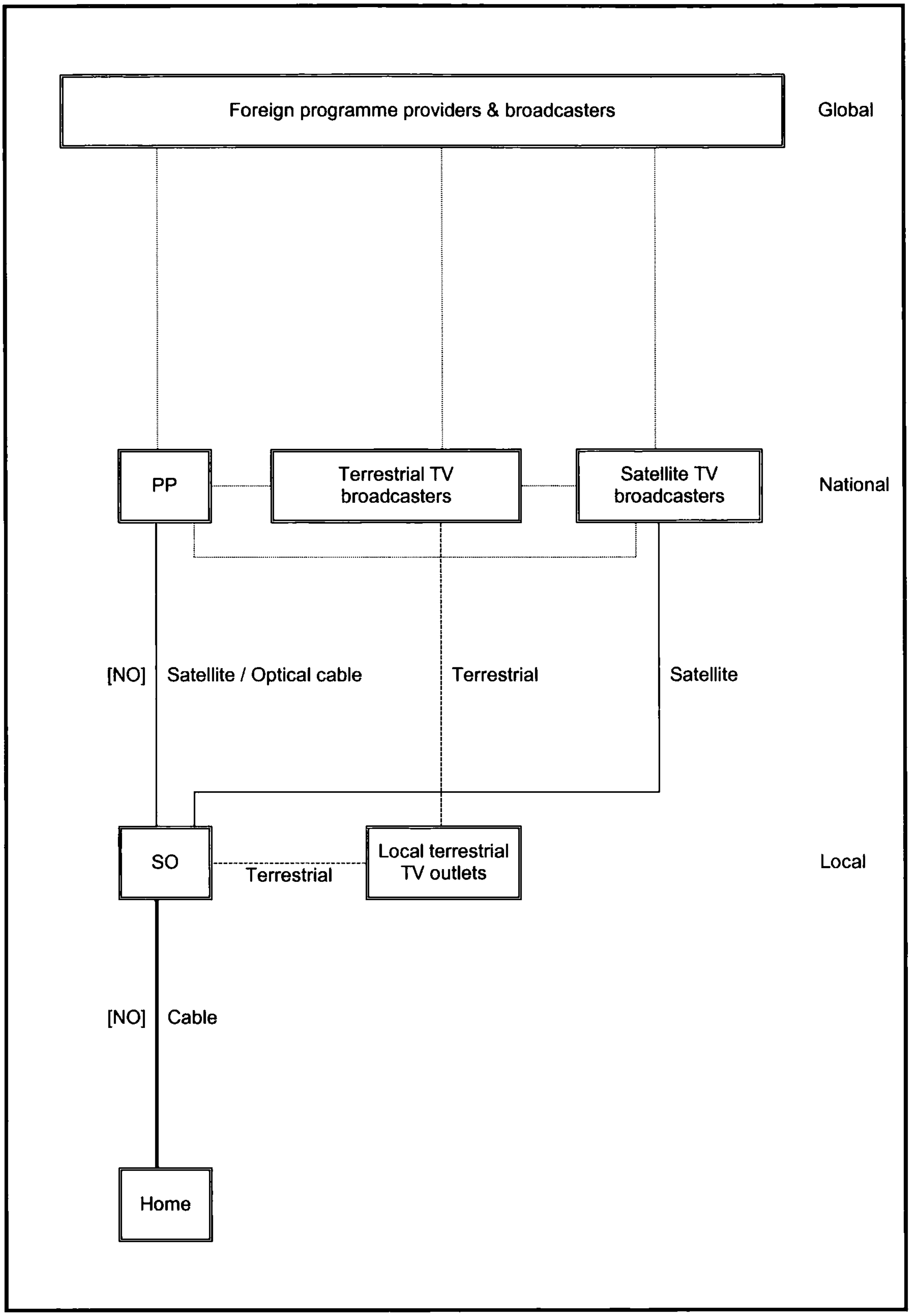

Figure 10-5 The techno-spatial networks of cable TV systems

Note: PP [Programme Provider], SO [System Operator], NO [Network Operator]

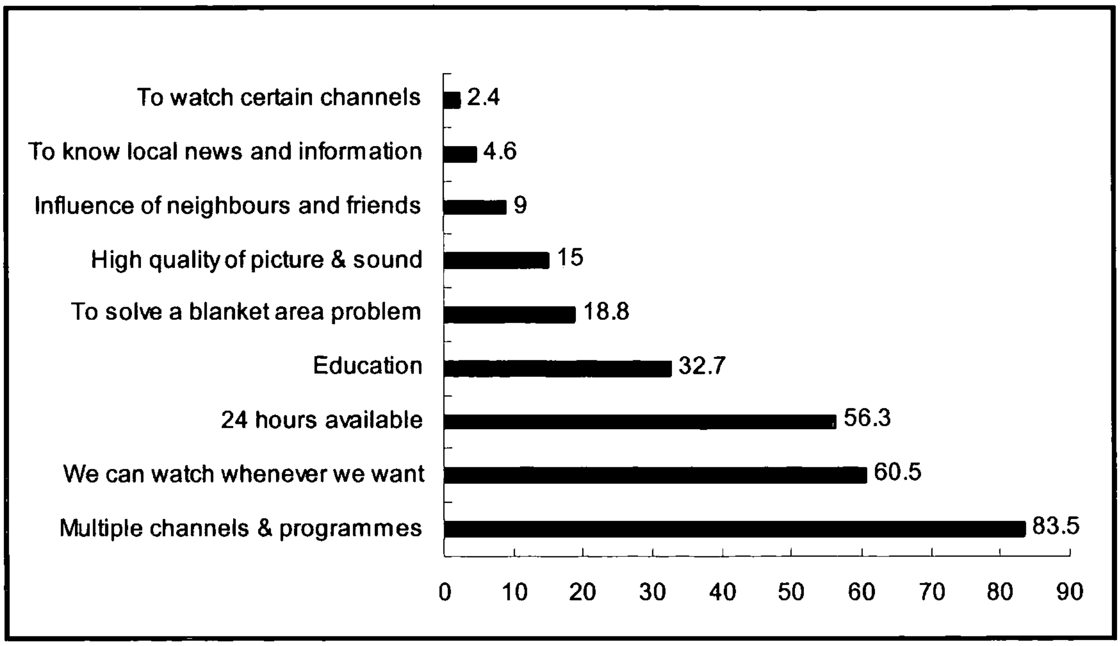

Figure 10-6 Reasons for subscription to cable TV
Source: KBC (1999b: 20)

Finally, the global networks of cable TV channel systems are formed mainly by foreign satellite TV channels such as NHK (Japan), Star (Hong Kong), CNN (USA), BBC (UK). That is, satellite TV provides "a 'technological extension' of social interaction across situational boundaries – helping to reconfigure the imaginative geography of culture and community" (Moores, 2000: 78; see also Moores, 1997). Such foreign satellite TV channels can be regarded as facilitating 'real-time globalisation' in that local places or urban locales are directly linked to global and real-time satellite networks which can deterritorialise the sense of place and and disembed the sense of belonging through exogenous cultures, images, languages and so on. As Virilio (1997b) argues,

> "Thanks to satellites, the cathode-ray window brings to each viewer the light of another day and the presence of the anitpodal place. If place is that which keeps eveything from occupying the same place, this abrupt confinement brings absolutely everything precisely to that 'place', that location that have no location. The exhaustion of physical, or national, relief and of temporal distances telescapes all locationization and all position. As with live televised events, the places become interchangeable at will" (Virilio, 1997b: 385).

In this regard, we also need to recognise that globalisation occurs not only in a few cities called global or world cities connected to each other through global networks, but also in small cities or villages connected to local cable networks combined with satellite networks. Short et al. (2000: 318) suggests the notion of 'gateway city' instead of 'world city', using "the term gateway to refer to the fact that almost any city can act as a gateway for the transmission of economic, political and cultural globalization". Cable TV can act as one of the main channels of the gateway city. Giddens (2002: 12) argues that "globalisation isn't only about what is 'out there', remote and far way from the individual. It is an 'in here' phenomenon too, influencing intimate and personal aspects of our lives". Cable TV makes globalisation take place 'in here' through bringing what is in there (the global) into here (the local).

10-5 Programme flows and cultural-spatial networks

10-5-1 Putting cultural-spatial networks into the local through programme flows

If the channel systems of cable TV can be thought of as its techno-spatial networks, the programme flows of cable TV can be thought of as its cultural-spatial networks. In addition, while the channel systems of cable TV could be thought of its primary and direct networks, the programme flows of cable TV could be regarded as its secondary and indirect networks. As we have seen, PP channels among all cable TV channels play the most important part in forming the channel systems of cable TV. Therefore, by tracing the spatial sources of PP channel programmes, we can understand the cultural-spatial networks of cable TV. Table 10-6 shows the geographical sources of the programmes broadcast through 45 PP channels for a week.[19] It can be again

[19] I analysed 8,903 programmes transmitted by 45 PPs (belonging to the Korean Cable TV Association) for a week from 1 to 7 September 2003. The data are based on their cable TV timetables, and the programmes rebroadcast or the programmes broadcast in the form of series were calculated as individual programmes and were added to the total number. The 45 PP channels are categorised into four sectors and various genres: 'entertainment' (20) including movie (8), drama (3), sports (2), music (3) and others (4); 'information' (11) including news (2), documentary (4), education (2) and others (4); 'life' (11) including religion (3), hobby (4), shopping (2) and others (2); and 'public' (3) including KTV (the National Visual Media and

represented as Figure 10-7 where we can visually see the cultual-spatial networks of cable TV. We can find out the spatial characteristics of the networks.

Table 10-6 The origins of cable TV PP channel programmes

	Enterainment		Information	Life	Public	Total
	Movie	Others				
Korea	226	1,466	2,085	2,280	521	6,578
USA	477	114	573	285	16	1,465
Japan	12	105	132	0	0	249
UK	14	31	90	53	28	216
France	9	7	20	32	0	68
Canada	8	11	13	29	0	61
Taiwan	16	15	24	0	2	57
Germany	7	2	12	7	19	47
Hong Kong	21	0	0	0	0	21
China	1	0	0	8	0	9
Italy	1	0	2	4	0	7
Singapore	0	4	0	2	0	6
Sweden	0	0	6	0	0	6
Russia	4	0	0	0	0	4
Australia	4	0	0	0	0	4
Finland	0	4	0	0	0	4
Spain	0	0	0	2	0	2
Israel	2	0	0	0	0	2
Denmark	1	0	0	0	0	1
Norway	1	0	0	0	0	1
Bulgaria	1	0	0	0	0	1
Yugoslavia	1	0	0	0	0	1

Publishing Center, the Ministration of Culture and Tourism), OUN (the Korean National Open University, the Ministration of Education and Human Resources development) and Arirang TV (the Korean International Broadcasting Foundation).

South Africa	1	0	0	0	0	1
Malaysia	1	0	0	0	0	1
Argentina	0	1	0	0	0	1
Multinational or others	30	8	10	0	0	46
Unknown	0	0	0	0	42	44
Total	838	1,768	2,967	2,702	628	8,903

First, domestic programme flows are much larger than foreign programme flows. Domestic programmes account for about 74 per cent of the total PP channels programmes. That is, most of the programme flows originate from inside national boundaries rather than outside the boundaries. However, strictly speaking, the domestic programme flows originate from the capital city/region in which almost all PPs and other media and culture industries related broadcasting, films, games, etc are concentrated. The price of domestic programmes is lower than that of foreign (Western) programmes. This may be the reason why domestic programmes are more broadcast than foreign ones. However there is another signifcant reason. That is that the government regulates the flows and contents of programmes to shield national cultural identities and protect domestic industries through quota systems in TV sectors as well as the cinema sector. In the case of terrestrial wave TV, at least 80 per cent of the total broadcasting time every month should be filled with domestic programmes. In the case of non-terrestrial wave broadcasters (including system operators and programme providers) such as cable TV and satellite TV, they should allocate over 50 per cent of the total broadcasting time every month to domestic programmes (Table 10-7).

"The structural changes brought about by the transnationalization of media flows are often assessed and officially defined in terms of a threat to the autonomy and integrity of 'national identity'" (Ang, 1996: 144),[20] and thus "the maintentance of

[20] Ang (1996: 144) suggests that "such a definition of the problem is a very limited and limiting one because it tends to subordinate other, more specific and differential sources for the construction of cultural identity (e.g. those based upon class, locality, gender, generation, race, ethnicity, religion, politics, and so on) to the hegemonic and seemingly natural one of nationality. ... Defining national identity in static, essentialist terms ignores the fact that what counts as part of a national identity is often a site of intense struggle between a plurality of cultural groupings and interests inside a nation in Latin America and elsewhere, fundamentally a dynamic,

boundaries – be they from political or moral geographies – in the face of the de-territorialising flows of media seems one of the issues brought to the fore in geographies of television" (Crang, 1998: 94). Hall (1992) suggests the three possible consequences of globalisation on cultural identities. (a) National identities are being eroded as a result of the growth of cultural homogenization and the global post-modern. (b) National and other local or particularistic identities are being strengthened by the resistence to globalisation. (c) National identities are declining but new identities of hybridity are taking their place. The institutional intervention of the government in the construction of the channel systems or programme flows of cable TV can be thought of as a kind of response to the first possibility in the relations of the 'space of places' and the 'space of flows' (Castells, 1996), or as a means of maintaining cultural boundaries, territories and identities at a national level, forming an 'imagined e-community'.

Second, though foreign programme flows come from various different countries and continents at a global scale, there apppears a hierarchical structure in the flows. The primary flows come from the USA, the secondary from Japan and the UK and the tertiary from France, Canada, Taiwan, Germany and Hong Kong. China, Italy, Singapore and Sweden follow . The USA, UK and Japan appear to be cores in North Amerian flows, West European flows, and Asian flows respectively. The USA is the most important core in foreign programme flows. American programmes are about 16 per cent of the total programmes and about 63 per cent of the total foreign programmes. In the movie sector, the most popular genre in Korea (Figure 10-8), the USA is absolutely dominant. American movie programmes make up about 57 per cent of the total movie programmes and about 78 per cent of the foreign movie programmes, exceeding domestic movie programmes which account for about 27 per cent of the total movie programmes.

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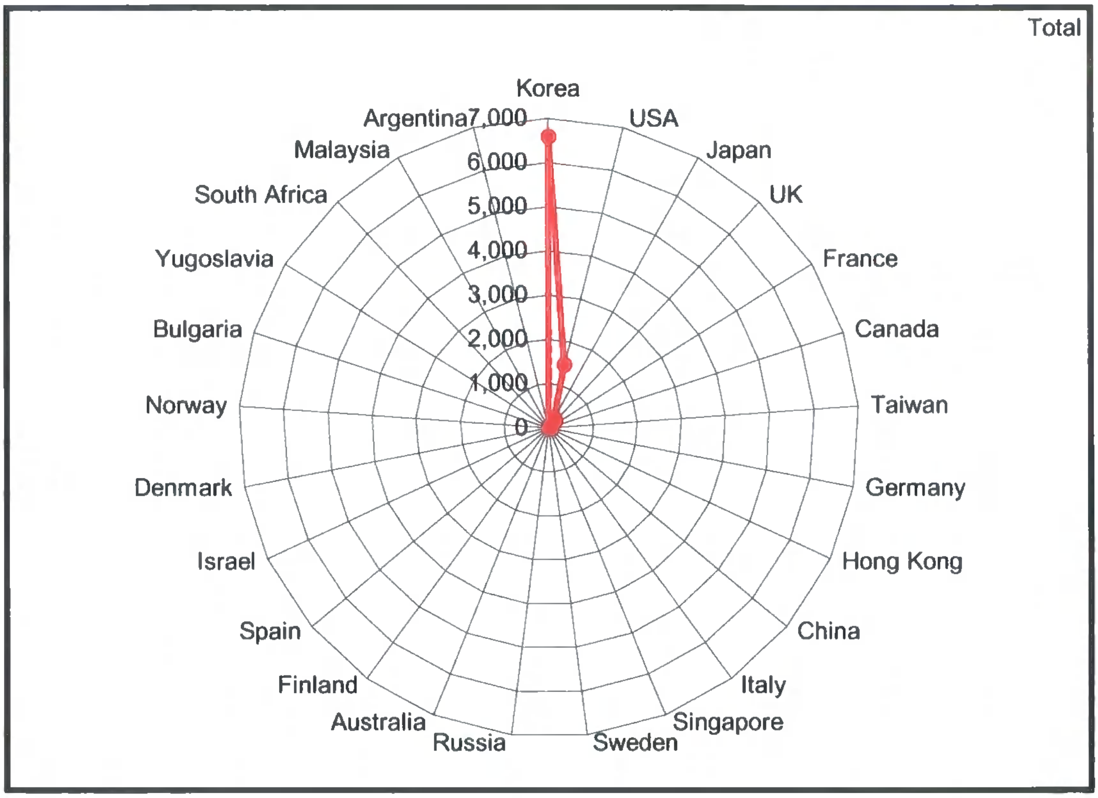
conflictual, unstable and impure phenomenon".



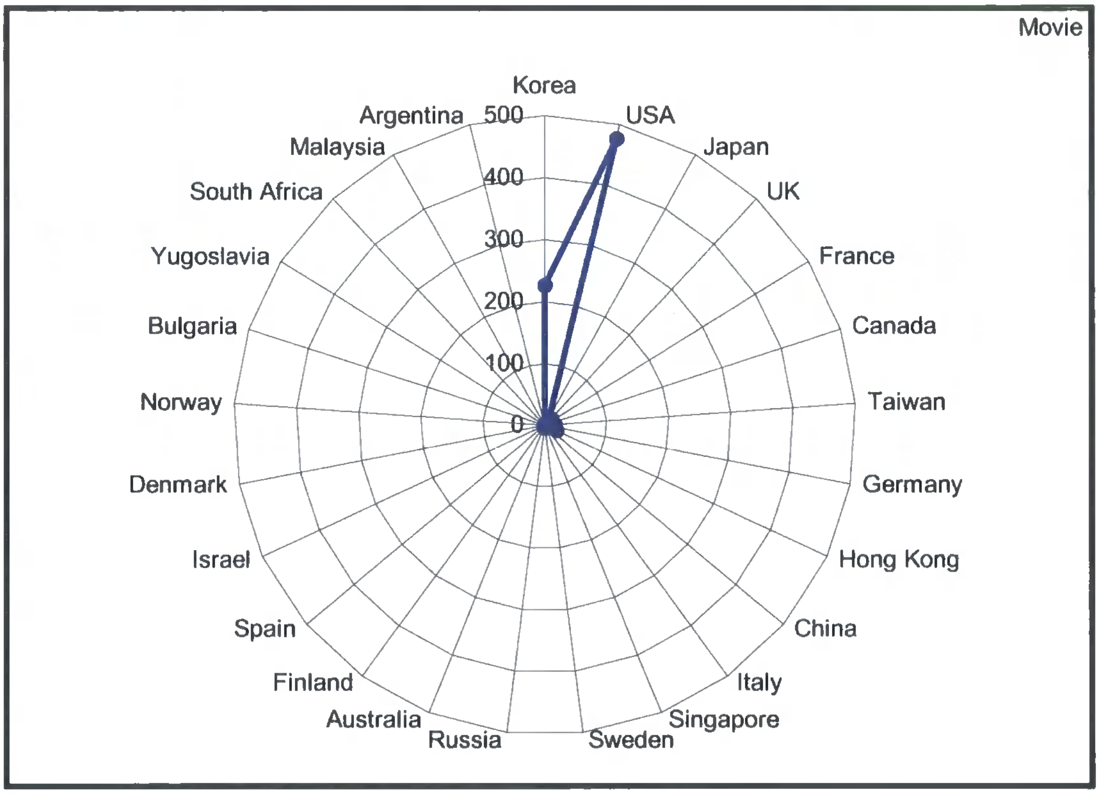


Figure 10-7 The skewed cultural-spatial networks of cable TV systems

Table 10-7 Quota systems in TV sections

		Domestic programme*	Domestic content**		
			Movie	Animation	Pop music
Terrestrial TV	Minimum	80%	20%	30%	50%
	Maximum	-	40%	50%	70%
Non-terrestrial TV (cable and satellite)	Minimum	50%	30%	40%	50%
	Maximum	-	50%	60%	80%
A certain foreign country's programme***	Minimum	-	-	-	-
	Maximum	-	60%	60%	60%

Source: Adapted from the Enforcement Decree of the Broadcasting Act, 2003

*Of the total broadcasting time per month, **Of the total broadcasting time in each sector, ***Of the total broadcasting time per month

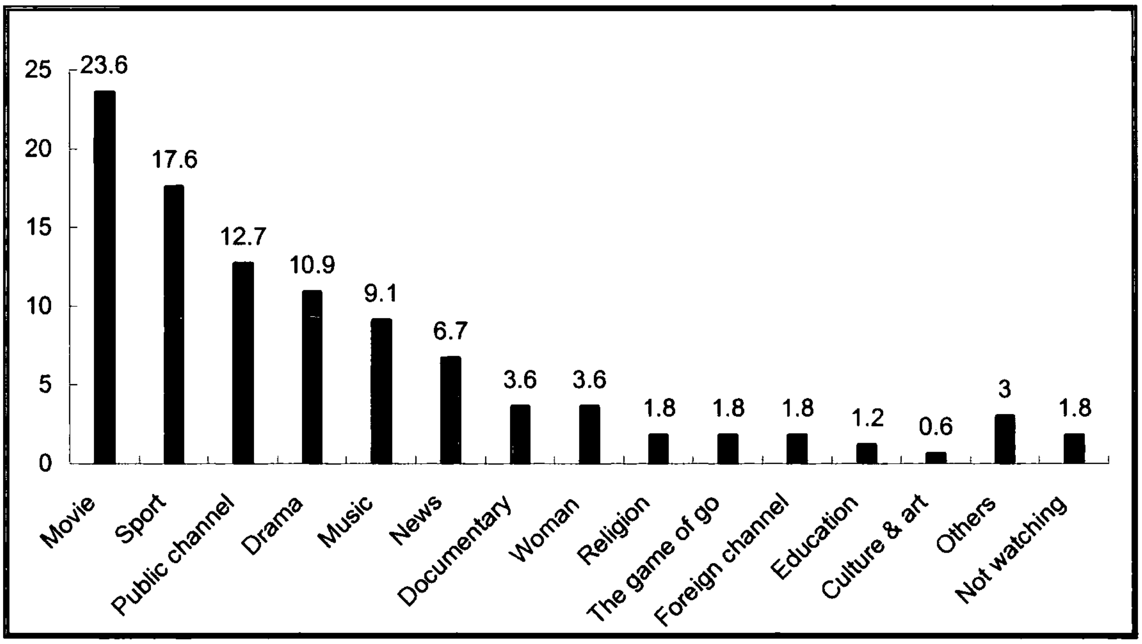


Figure 10-8 Channel genres popular to audiences

Source: KBC (2000a: 65)

Finally, although the foreign programme flows show a more or less static and stable hierarchical structure, they appear to be dynamic and changeable according to changes in domestic environments. Table 10-8 shows changes in the number of foreign programmes imported by cable TV PPs. From 1995 to 1997. the number of foreign programmes steadily increased with the US-centred hierarchical structure. However, changes in the structure of the flows appeared , especially in their spatial scale and scope, after the Korean economic crisis in 1997. First, on the whole, the number of foreign programmes dramatically decreased. This means that the number of domestic programmes relatively increased. Second, foreign progammes from the USA, the UK and Japan decreased. Finally, the origins of foreign progamme flows became more diverse and dispersed, as other countries in South America, East Europe and Southeast Asia appeared as the new sources of foreign programmes flows.

Table 10-8 Change in the number of foreign programmes imported by cable TV PPs

	1995	1996	1997	1998
USA	7,035	6,645	13,439	1,213
UK	1,476	1,510	512	344
France	687	1,009	351	52
Canada	417	513	314	42
Germany	257	101	134	24
Japan	708	1,695	1,102	200
Italy	179	238	170	13
Australia	429	163	335	8
Hong Kong	52	196	273	99
Taiwan	58	237	112	48
Russia	23	25	0	0
Belgium	5	5	4	0
Spain	4	277	5	2
Singapore	1,097	95	1	0
China	4	231	66	12
Czech	1	23	0	0

Peru	12	0	0	0
Poland	1	0	0	0
Finland	25	5	1	0
Netherlands	83	92	100	1
Hungary	35	0	10	1
Denmark	0	1	1	13
India	0	2	21	0
Israel	0	3	0	0
Austria	0	4	0	0
Thailand	0	4	2	3
Switzerland	0	9	4	1
Brazil	0	10	0	0
Cuba	0	4	0	0
Mexico	0	1	0	26
Chile	0	1	0	0
Sweden	0	0	2	4
Greece	0	0	18	0
Venezuela	0	0	135	26
New Zealand	0	0	0	1
Vatican City	0	0	0	6
Norway	0	0	0	11
Nicaragua	0	0	0	1
Ireland	0	0	0	2
Total	12,588	13,099	17,112	2,153

Source: KBC (2000b)

10-5-2 Cultural globalisation and local identity

Although the cultural-spatial networks of cable TV are composed of mainly domestic programme flows, further tracing foreign programme flows seems to be helpful for the better understanding of the effects the cultural-spatial networks of cable TV on local places. Here, we can consider the cultural-spatial networks of cable TV in terms of 'cultural globalisation' as a result of "a series of decisive shifts in the geographical scale, immediacy and speed of cultural interaction and communication" (Held et al., 1999: 363, in Savage et al., 2005: 153). Cultural globalisation has been facilitated by "international communications flows, delivered through telecommunications, information and media technologies such as broadband cable, satellite and the Internet, which facilitate transnational circulation of cultural commodities, texts, images and artefacts" (Flew and McElhinney, 2002: 304; see also During, 1999).

In particular, as television sets are connected to cable networks, cultural globalisation comes to be further accelerated and more intense (Straubhaar and LaRose, 2000: 506-7). In the case of Korea, cable TV based on local territories tends to bring about cultural globalisation more intensively than terrestrial TV based on national territories. Particularly, cable TV accelerates cultural globalisation more than terrestrial TV through movie programmes (Table 10-9), which are more popular to people than any other programme (KBC, 2000a).[21] According to the Enforcement Decree of the Broadcasting Act, terrestrial TV broadcasters should allocate at least 20 per cent and cable TV broadcasters at least 30 per cent in the total time of broadcasting movies to domestic movies. However, it is hard to find cable TV broadcasters that do so (Jeong, Y.G., 2002: 71).

"Today, cultural practices frequently escape fixed localities such as town and nation, eventually acquiring new meanings in interaction with dominant global themes"

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[21] Cultural globalisation through cable TV can also be accelerated through the temporal sequence or distribution of programmes. For example, in Korea, from June to December 2001, 10 per cent of 549 domestic movies and 40 per cent of 2,170 foreign movies are broadcast at prime time (Jeong, Y.G, 2002: 71).

(Steger, 2003: 70), and (cultural) "globalization also affects the degree to which local people or citizens have control over the identity of their places" (Short et al., 2000: 322). In this regard, we need to recognise cultural globalisation through cable TV in terms of the dual process of 'heterogeneous' and 'homogeneous' globalisation (see McGrew, 1992; Robertson 1995; Beck, 2000). As Moores (2000: 99) puts it, "transnational flows of information and entertainment are seen by some to lead inevitably to the 'homogenisation' of global culture, yet others, perceive an increased 'heterogeneity' of places and hybrid local identities". In addition, heterogeneous and homogeneous globalisation can be conceptualised as 'centrifugal' and 'centripetal' vectors respectively. Here, whether certain vectors are centrifugal or centripetal does not necessarily dependent on whether the directions of their flows are literally outwards or inwards, but rather on whether they are metaphorically related to deterritorialising (or decentralising) effects or reterritorialising (or recentralising) effects. In this sense, heterogeneous globalisation relates to centrifugal vectors in that it has deterritorialising effects on local places, connecting them with different countries, and homogenous globalisation relates to centripetal vectors in that it has reterritorialising effects on local places, connecting them to a country which is dominant in cultural globalisation.

In this sense, the cultural-spatial networks of cable networks can be considered to involve these two kinds of vectors. On the one hand, it can be argued that the cultural-spatial networks of cable TV are connected to centrifugal vectors which bring about heterogeneous cultural globalisation. This process involves the reconstruction of local places through the cultural-spatial networks of cable TV, transforming one-dimensional experiences into multiple-dimensional ones. However, it should be noted that the cultural-spatial networks of cable TV are much more connected to centripetal vectors, resulting in homogeneous cultural globalisation on the other hand. This is because although the cultural-spatial networks of cable TV connect local places to various scopes of countries across global space, they are overwhelmingly and intensively linked to the USA. Table 10-10 shows explicitly the high dependence of cable TV on US programmes. The USA accounts for about 90 per cent of the total amount spent in importing foreign programmes. As we have seen, this process apparently appears in the movie sector of cable TV.

Table 10-9 The shares of domestic movie programmes in terrestrial TV and cable TV

	Terrestrial TV					Cable TV
	KBS1	KBS2	MBC	SBS	EBS	OCN*
Total time (Min)	12,173	223,755	26,030	24,246	38,882	283,740
Foreign	1,043	14,558	19,463	18,023	24,232	234,770
Domestic	1,750	7,817	6,567	6,223	14,650	48,970
(D/T)×100 (%)	14.4%	34.9%	25.2%	25.7%	37.7%	17 %
Total number	113	203	215	214	415	2,236
Foreign	95	117	158	161	204	1,832
Domestic	18	86	57	53	211	404
(D/T)×100 (%)	15.9%	42.4%	26.5%	24.8%	50.8%	18 %

Source: Jeong, Y.G. (2002) (from June to December in 2001)

* The most popular PP channel in not only movie PP channels but also the total PP channels, which belongs to *On-media*, the largest MPP in Korea

Table 10-10 The export and Import of cable TV programmes in Korea

	Export from Korea	Import to Korea
Japan	630 (28.6 %)	152 (1.3 %)
Hong Kong	238 (10.8 %)	297 (2.5 %)
China	223 (10.1 %)	8 (0.1 %)
Taiwan	290 (13.2 %)	-(-)
USA	230 (10.4 %)	10,579 (90.8 %)
UK	11 (0.5 %)	397 (3.4 %)
France	1(-)	80 (0.7 %)
Germany	121 (5.5 %)	14 (0.1 %)
Australia	-(-)	6 (0.1 %)
Others	461 (20.9 %)	117 (1.0 %)
Total	2,205 (100.0 %)	11,650 (100.0 %)

Source: KBC (2000b) (as of 1998)

Unit: × 1,000 (USD)

This cultural-spatial mediascape signifies that cable TV plays a crucial role in forming cultural Americanisation which can be seen in terms of 'cultural imperialism' (see Tomlinson, 1991, 1999a, 1999b; Schiller, 1969, 1998) or more recently, popularly called 'McDonaldization' (Ritzer, 1993). Tomlinson (1999b: 167) defines 'cultural globalisation', facilitated by the media, as the global extension of Western culture: "globalised culture is the enforced installation, worldwide, of one particular culture, born out of one particular, privileged historical experience. It is, in short, simply the global extension of Western culture". In the case of Korea, the global extension of American culture rather than Western culture would be more appropriate. American media networks are linked to almost all domestic media networks such as terrestrical wave TV, satellite TV, cable TV, cinema and so on. As Steger (2003: 76) puts it, "to a large extent, the global cultural flows of our time are generated and directed by global media empires that rely on powerful communication technologies to spread their message". Here, the global media empires would be nothing more than American media industries.

7-6 Conclusion: we have never been local

Until now, I have explored how the multiple networks of cable TV make local places delocalised, deterritorialised and decontextualised, challenging a utopian and ideological image of cable TV as a local media based on localism or embedded in local communities through its centrifugal, decentralised and heterarchical networks. The characteristics of the multiple networks of cable TV are as follows. First, the spatio-temporal networks of cable TV make cities and regions synchronous at a national level, especially through satellite networks, resulting in 'real-time globalisation'. Second, the organisational-spatial networks of cable TV make provincial cities/regions dependent on the capital city/networks through the transactional and organisational relations of media actors. Third, the techno-spatial networks of cable TV link local places to the capital city/region at national and global levels through channel systems. Finally, the cultural-spatial networks of cable TV make local places reliant on not only the capital city/region at a national level, but also the USA at a global level through programme flows.

In addition, the multiple networks of cable TV involve three kinds of territorial processes: territorialisation (nationalism), partly supported by the central government of Korea; deterritorialisation (heterogeneous globalisaton) through global-local networks; and reterritorialisation (homogeneous globalisation), mainly through global flows from the USA. However, it seems that there is little which is local in the multiple networks of cable TV in that cable TV brings about the delocalisation or deterritorialisation of local places through centripetal, centralised and hierarchical networks rather than centrifugal, decentralised and heterarchical networks. If cable networks are local, that is only because the outlets of cable TV are located in local places, connecting the places or locales to the centripetal multiple networks of cable TV.

In this process, the local places come to be delocalised and dependent on existing economic and cultural centres at national and global levels, taking on Seoul-centred networks at a national level and America-centred networks at a global level. In this sense, I want to argue that a utopian image of cable TV as a local media is not the case, for most of its networks are operated as centrifugal networks by actors in media centres in the national and global spaces of flows. Rather, cable TV can be seen as a global-local media which brings about the delocalisation or deterritorialisation of local places through its centripetal multiple networks in a new technological environment. As Luke (1995a: 91) argues, the "new 'third nature' of cybersptial/televisual/informational globality fuses the local and the global in new everyday life worlds". That is, the local is always already the global and vice versa in the third nature, and cable TV can be seen as a global-local media which produces the third nature in our eveyday life worlds which are increasingly being delocalised or deterritorialised. In this sense, I would like to say, in the spirit of Bruno Latour's (1993) *We Have Never Been Modern*, 'we have never been local'.[22]

[22] In a sense, it may be more reasonable to say that 'we have never been global' in that "even a longer network remains local at all points" (Latour, 1993: 117).

Chapter 11

The Networks of Mobile Phones and the Uncertainty of Everyday Life

Recently, the mobile phone, as a kind of wearable machine, has been perceived as a technology that can significantly change urban landscapes, leading to cyborg urbanisation. In this chapter, I illustrate how mobile networks produce the mobile landscapes of 'uncertainty' or 'paradox' in the city. In order to address this question, after reviewing mobile phone landscapes explored by other researchers, and suggesting the characteristics of the micro-networks society fabricated by mobile phones, I look at three kinds of mobile network landscapes now found in Korea: techno-social; socio-spatial; and socio-temporal networks. First, in the techno-social networks, I explain how mobile networks have proliferated through technological and institutional changes in Korea, and how such mobile networks have formed bodies-with-mobiles as nodes in the mobile networks. Then, in the socio-spatial networks, I claim that mobile networks shape decentralised networks and makes bodies-with-mobiles produce relative and relational time-spaces, instead of an absolute and physical time-space frame, and show that mobile networks involve highly localised networks based on the everyday lives of mobile users. Finally, in the socio-temporal networks, I argue that mobile networks tend to induce the networks of uncertainty as well as flexibility in three aspects: time-space coordinates through which people move in the city; social networks to which people desire to be connected; and control networks from which people desire to be disconnected.

11-1 Mobile landscapes: the micro-network society

The mobile phone began life as a luxury object but in recent years it has become an everyday necessity. This wearable machine now forms new urban and media landscapes as a result of its development as 1G, 2G (2.5G) and 3G multimedia. At a time when the telephone's implications for cities and societies have not been fully explored,[1] it is perhaps not surprising that there have been very few studies of the mobile phone. Recently, however, some researchers have begun to draw their attention to the landscapes created by mobile phones (Sussex Technology Group, 2001; Henderson et al., 2002; Green, 2002; Fortunati, 2002; Townsend, 2000; Ling, 2004; Carey, 2004; Kopomaa, 2000, 2004; Laurier, 2001; Weilenmann, 2003; Katz and Askhus, 2002; Brown et al., 2001; Ito, 2003; Yoon, 2003; Rafael, 2003; Goodman, 2003; Geser 2004; Williams and Williams 2005). The following pages present a brief overview of their research.

Mobile phones create multiple spatial landscapes around their users and others around the users. For example, Sussex Technology Group (2001) categorised four distinct zones of technological action and appropriation, each reflecting different spatial awareness: 'performative space' referring to a space in which one displays oneself as a user with a just-in-time lifestyle; 'public/private space' relating to the blurring of what has been addressed traditionally as public/private space; 'physical space' referring to a space which acts as a 'back-drop' where people use mobile phones; and 'psychological space' relating to the issue of a controlling or controlled technology in using the telephone. Among them, the performative space can be regarded as a social space which could be found in the early time of mobile phone use. The boundary-blurring process between public and private spaces by mobile networks has been particularly underlined by many researchers (Green, 2002; Sheller, 2004; Kopomaa, 2000; Ling, 2004), although such a process is not a specific result of the mobile phone. In fact, the telephone in the late nineteenth century also blurred the boundaries between public and private spaces (Marvin, 1988). However, what is important is that the process is now

[1] For the landscapes of the telephone, see de Sola Pool (1977), Marvin (1988), Wellman and Tindall (1993), Katz and Katz (1999) and Stein (1999).

being facilitated to a greater degree by mobile phones. As Henderson et al. (2002: 509) put it, "the tool of the mobile telephone facilitates a reworking of public and private boundaries, as the individual becomes the centre of a network of communicative practices, easily accessed and able to access others". Interestingly, Henderson et al. (2002: 494) detected gendered dimensions in the process blurring the boundaries between public and private spaces: "young women appearing to make the most of freedoms offered by this technology and young men emphasizing constraints". Mobile phones also entail various temporal landscapes as well as spatial ones. For example, Green (2002: 285) distinguished three mobile temporalities: the 'rhythms of mobile use' relating to the time taken interacting with a mobile device, and referring primarily to the 'duration and sequencing of interaction' between an individual and the device; the 'rhythms of everyday life' referring to the 'local temporalities' associated with 'social and cultural relationships' in which specific device use is embedded: the 'rhythms of institutional change' referring to the 'historical and infrastructural elements' that enable mobile use, including such dimensions as the 'institutionalization of travel', 'cycles of technological development', or the time taken to establish and maintain network technologies. Green (2002), however, argued that while mobile temporalities are emerging and offer new ways of acting in perceiving time and space, the practical construction of mobile time in everyday life remains firmly connected to well-established time-based social practices, whether these are institutional or subjective.

It seems that one of the most important effects of mobile phones, which appear in such spatial and temporal landscapes, is that mobile networks shatter the boundaries between absence and presence. With outstanding insights, Gergen (2002) stressed that we need to distinguish between the potential of mobile phones and that of other technologies in regard to the separation and integration of the present and the absent. The development and proliferation of our major communication technologies of the past century have expanded the dimension of 'absent presence' which results in "the erosion of face-to-face community, a coherent and centered sense of self, moral bearings, depth of relationship, and the uprooting of meaning form material context" (Gergen, 2000: 236). However, the mobile phone makes 'absent presence' tenuous in local communities, resulting in the integrations of 'the absent' which other technologies have facilitated so far, and 'the present' which the technologies have eroded. As a result, "with the cell phone, one's community of intimates more effectively sustains one's identity as a singular and coherent being" (Gergen, 2000: 238). In a similar vein, Fortunati (2002) argued that the mobile phone enables 'present absence' through which the binary opposition presence/absence is undermined. What is important is that this process restructures the sense of belonging to places. "This shift makes it possible to suffer less from nostalgia, a tormenting feeling which frequently accompanies immigration, mobility, tourism and so on, and which is connected to the sense of loss of one's own relationship with a place" (Fortunati, 2002: 520). However, Fortunati (2002) concluded that as the sense of belonging to one single place is translated into the sense of belonging to many places or an unlimited space, people come to suffer from a sense of uncertainty, insecurity and confusion. In the recent special issue on 'absence' and 'presence' in *Society and Space* (2004, Vol.22), Urry (2004), Sheller (2004) and Licoppe (2004) explained complex network spaces produced by mobile machines such as mobile phones in terms of 'intermittent connections and mobility', 'fluid and contingent social structures' and 'connected presence and social relationships' respectively. Here, the mobile phone can be perceived as a key technology transforming the existing Euclidean frame of time-space into fluid, multiple and complex time-spaces where spatial and temporal boundaries are reordered and rearranged. Especially, Callon and Law (2004) explained this complex space in terms of 'actor-network theory'.

> "But how are new relations made? If we want to answer the question we have to start thinking about technologies. We have to think about telephone directories, telephone lines, mobile phones, not to mention the billing and call-logging systems for telephone canvassing. These are the kinds of technologies that link distant actors, that make them present to one another, and that move them through time and space. These are the kinds of technologies that distribute actors, even those who say at home, through time and space" (Callon and Law, 2004: 6).

As such, that people are connected to one another through mobile networks within/between cities, signifies that the time-space of the city comes to be changed through techno-social networks. Such techno-social networks can be characterised as individualised and decentralised spatial networks and accelerated and speeded up temporal networks. Townsend (2000) suggested that the arrival of mass mobile communications in the city results in the acceleration of urban metabolism through decentralized and complex information networks, producing the 'extension of the body' and the 'real-time city'. In the real-time city, mobile phones tend to make people move according to indeterminate and uncertain time-space coordinates at which people get together and meet each other through incessant mobile communications Ling and Yttri (2002; also see Ling, 2004) called 'hyper-coordination' or 'micro-coordination'. In this sense, Carey (2004: 136) said that "we're no longer required to make prior arrangements – activities can keep their chosen sites for demonstration (physical and virtual) secret until the last minute, thus stealing a march on the authorities". Furthermore, Kopomaa (2004: 271) argued that "increased use of the phone and spontaneous phone conversations in public enliven the street scene. ... Non-places – with the ideal type being the traveller's space – are transformed to loci of here-and-now by mobile phone users". Carey (2004) and Kopomaa (2004) called the city based on such mobile communications an 'indeterminate city' and a 'condensed city' respectively. This effect of mobile phones on time-space coordinates is reflected in conversations on mobile phones. As Laurier (2001) observed, (especially, for those who live their lives as nomadic worker) 'geographical locating' appears often in conversations on mobile phones and thus at the heart of the conversations are temporal and spatial orderings on a spatio-temporal context which is mutually accomplished between users. While Laurier said that the most frequent question is 'where are you?', Weilenmann (2003) said that it is 'what are you doing?'. According to Weilenmann, the frequent question sometimes causes a location to be given as part of the answer which shows how location, activity, and availability are strongly related.

In this chapter, I explain mobile network landscapes in the context of the 'micro-network society'. The network society has been explained as a new kind of society emerging through the development of information and communication technologies since the late twentieth century (Castells, 1996; van Dijk, 1999). Until now, the network society has been explained mainly with regard to the global space of flows mediated by global cities at a macro-level. However, our everyday lives in ordinary cities are somewhat far from the 'macro-network society' or the 'global network society' (Webster, 2000a: 72) which Castells (1996) and Sassen (1991) have been concerned with at a global level. I here want to look at the 'micro-network society' fabricated by mundane technologies and practices in everyday life. As Wittel (2002: 52) states, "it is worthwhile translating this macro-sociology of a network society into a micro-sociology of the information age". I want to characterise the landscapes of the micro-network society as follows: ordinary bodies as mobile nodes, the uncertainty of everyday life, and the production of emotional spaces.

Our bodies in networked cities are increasingly being connected to multiple and various electronic networks or circuits. Among such electronic networks, the networks of the mobile phone can be seen as electronic networks most closely connected to (ordinary) bodies in their everyday lives. In this sense, while nodes in the macro-network society are described as global cities which are operated by global elites, called a 'virtual class' (Kroker and Weinstein, 1994; Kroker, 1996; Barbrook and Cameron, 1996), nodes in the micro-networks society can be regarded as ordinary human bodies connected to electronic networks such as mobile phones. In addition, the micro-network society can be characterised by uncertainty itself (as well as certainty). In a way, Castells' network society is closely related to Beck's risk society in the sense that the processes of 'time-space distanciation' (Giddens, 1990) and 'time-space compression' (Harvey, 1989) in the network society involve not only certainty but also uncertainty. For example, global financial market crashes in the macro-network society can be seen as a result of an uncertainty increased by information and communication technologies that were originally invented and used to reduce uncertainty in global financial markets through the 'control of time-space' (see Adam, 2003; Ferguson, 1990; Wark, 1994). Such accidents are considered extraordinary and abnormal events in the macro-network society, and unexpected uncertainties or unintended consequences can be reduced by system equilibrium which is one of the most characteristic mechanisms of the network society (Castells, 2000b, Lash, 2002; van Loon, 2000). In this sense, Lash (2002) contrasts Castells' network society with Beck's risk society, relating the former to the stabilisation of social systems and the latter to the de-stabilisation of social systems.[2]

[2] However, Lash (2003) also contrasts Castells' network society with Parsons' linear systems as opposed to Luhmann's non-linear systems and Beck's risk society. In fact, it is problematic to see Castell's network society as fully opposed to Beck's risk society. Castells (2000b) also explains the network society in the perspective of the so-called 'sociological plane of immanence' (see van Loon, 2000) such as Luhmann's (1995) 'social systems', while accepting Beck's (1992) risk society.

> "The network society is what comes after the risk society. It puts order into the previous disorder of disorganized capitalism. It imparts a new systematicity to the previously fragmented world system. It re-stabilizes the risks of Beck's risk society partly by calculatingly colonizing – through for example futures markets – the future. The network society creates a new order and hierarchical chain of linked global cities, of urban space and cyberspace" (Lash, 2002: 127).

However, in the micro-network society, based on mobile phones, such de-stabilisation or uncertainty is not what could or should be reduced. Rather, the micro-networks society can be characterised by uncertainty or unpredictability itself. Of course, there had been always uncertainty in everyday life before the emergence of the mobile phone, and the mobile phone does not necessarily entail uncertainty. However, we need to be conscious of the point that our everyday lives wired to mobile networks become increasingly uncertain and unpredictable. For example, mobile phones make it possible for us to instantly and directly call to or be called by someone anytime and anywhere. As a result, locations, directions and connections in the time-space prism of everyday life can be changed easily, suddenly and unexpectedly, and in this course, we come to have various ambivalent emotions and desires. What is important is that the landscapes of uncertainty based on mobile networks in everyday life needs to be seen as a matter of course in the micro-network society, and in terms of 'emotional' spaces rather than 'intelligent' spaces.

Alongside the internet, the mobile phone makes Korea one of the most wired countries in the world. This chapter explores three kinds of mobile network landscapes in Korea: techno-social, socio-spatial and socio-temporal networks (Figure 11-1). (a) In the techno-social networks, I explain how mobile networks are generated through technological and institutional changes in Korea, forming bodies-with-mobiles as nodes in the mobile networks. (b) In the socio-spatial networks, I explain how mobile networks make bodies-with-mobiles produce relative and relational time-spaces, and investigate the socio-spatial scales of mobile networks. (c) In the socio-temporal networks, I examine how the mobile networks of flexibility and uncertainty makes bodies-with-mobiles produce floating time-space coordinates in cities and desire to be connected to or disconnected from mobile networks. I argue that mobile networks fabricate the city through spatially decentralised and temporally flexible networks involving urban landscapes paradoxical and uncertain.

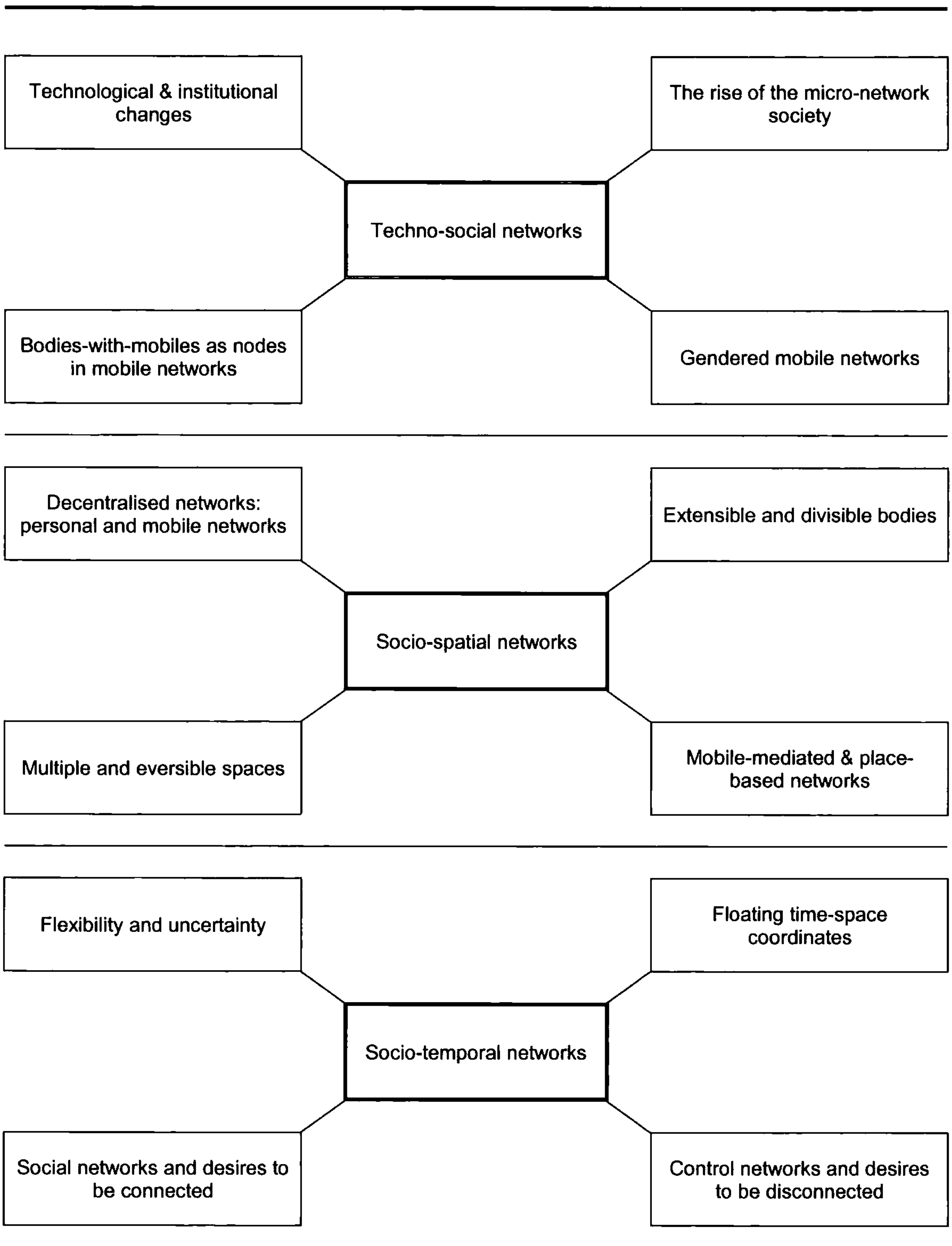


Figure 11-1 Mobile networks: techno-social, socio-spatial and socio-temporal networks

11-2 Techno-social networks

11-2-1 Technological changes and the generation of mobile networks

Since the 1980s IT technologies and industries in South Korea have focused first on the development of technologies and then on the creation of a consumer demand for them. This strategy has been combined with institutional regulations as well as with technological developments. Here, I explain how mobile networks have proliferated in Korea through technological and institutional changes. The process started with changes in mobile technologies. In Korea, mobile communication services began in the 1980s (car-phones in 1984 and 1G mobile phones: analogue cellular phones in 1988). Until the mid-1990s mobile phone ownership was only affordable for a small group of people. Furthermore, most of mobile phones were imported from foreign countries, mainly the USA. To create the stable supply and demand for mobile phones, it was necessary to develop new mobile technologies that not were dependent on foreign technologies, and which furthermore could be exported into foreign markets. In this situation, in 1989, the government set up a project for the development of digital mobile communication systems, and in 1995, IT institutes and companies in Korea succeeded in developing digital mobile phones using CDMA [Code Division Multiple Access][3] technologies, which was possible only in theory but uncertain in practice at that time, (MIC, 2001a, 2003). As a result, 2G mobile phones such as digital cellular mobiles (in 1996) and PCS [Personal Communications Services] (in 1997) began to be used in Korea, and furthermore 3G mobile phones (CDMA-2000) began to be introduced in the early 2000s. These technological changes were important in making Korea one of the most wired countries in the world.

[3] CDMA [Code Division Multiple Access] was a much more advanced mobile communication technology than the existing GSM [General System for Mobile Communications] in Europe and TDM [Time Division Multiplexing] in the USA. The technology was originally developed as a military satellite technology by Qualcomm, but was not adapted in mobile phones (see Agar, 2004: 67-9).

Table 11-1 Change in the market structure of communication services

	Change in market structure	Number of operators	Market share of the main operator
Local call	Monopoly → Duopoly (97)	2	KT (96%)
Distant call	Duopoly (96) → Competition (97)	3	KT (78%)
Overseas call	Monopoly → Duopoly (90) → Competition (96)	3	KT (45%)
Mobile phone	Monopoly → Duopoly (94) → Competition (96)	3	SKT (53.3%)
Dedicated line	Monopoly → Duopoly (90) → Competition (96)	18	KT (54%)
Superhigh-speed Internet	Monopoly (98) → Duopoly (99) → Competition (00)	6	KT (47%)
IMT-2000	Duopoly (03) → Competition (04)	3	-

Source: MIC (2003: 83)

Table 11-2 Change in the market share of mobile carriers

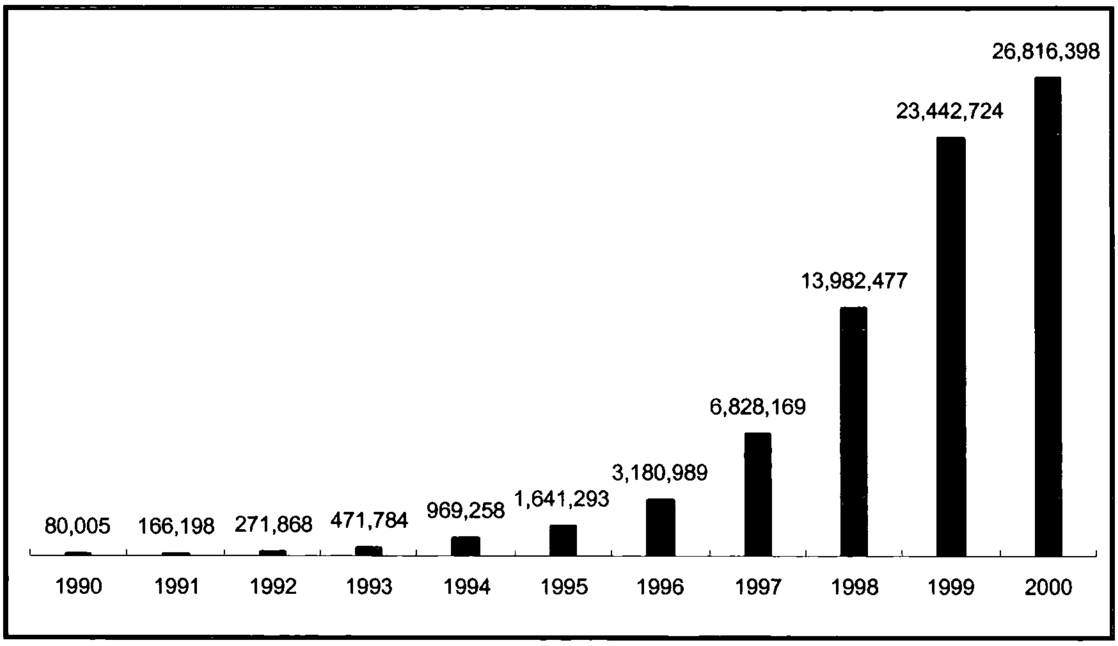
	Cellular		PCS		
	SK Telecom	Shinsegi Telecom	KT (Korea Telecom)	Hansol Telecom	LG Telecom
1995	100	-	-	-	-
1996	90.9	9.1	-	-	-
1997	66.9	16.5	5.1	6.1	5.4
1998	42.7	15.3	16.8	10.1	15.1
1999	43.1	13.8	18.2	11.7	13.2
2000	40.8	13.1	19.7	11.7	14.7
2001	52.3	(merged into SKT)	33.0	(merged into KT)	14.7
2002	53.3		31.9		14.8

Source: MIC (2003: 85)

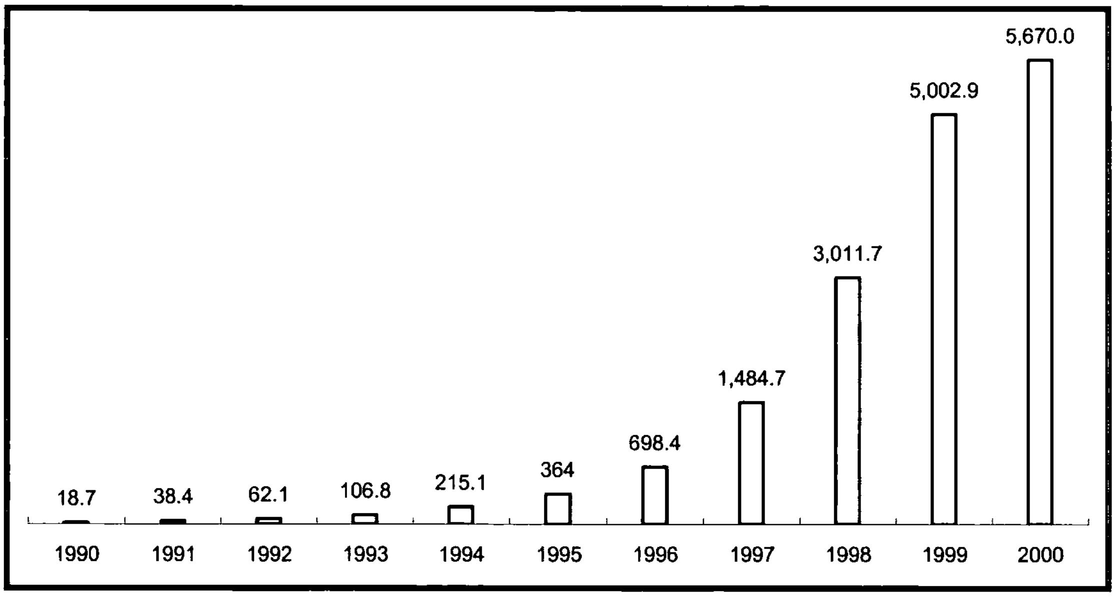
Secondly, the changes in mobile technologies were combined with changes in the structure of mobile service markets from monopoly to competition systems through the government's institutional regulations. In fact, such regulatory changes have taken place in almost all communication service markets in Korea since the mid-1990s (Table 11-1). In the case of mobile services, until 1994, the public company KMT [Korea Mobile Telecom] had acted as the main and only mobile carrier. However, in 1994, according to the government's policies for facilitating competition systems in mobile service markets, the public mobile carrier KMT was privatised into SK Telecom, a private mobile carrier, which is now the largest mobile carrier and another private mobile carrier (Shinsegi Telecom) was allowed to launch mobile services. With the development of CDMA-based mobile technologies, the two companies began digital cellular phone services in 1996, and three new telecom companies (Korea Telecom, Hansol Telecom and LG Telecom) selected as new mobile carriers (PCS) started their mobile services in 1997 (Table 11-2). Of course, this institutional transformation of mobile service markets does not mean that there is actually no monopolistic landscape. For example, SK Telecom has more than 50 per cent of the cellular phone service market. This is because the company could easily secure established network facilities and subscribers that once belonged to KMT, and thus was able to retain privileges through a kind of lock-in effect. However, the institutional spaces of mobile phone markets in Korea are not monopolistic, especially in that there is no institutionally monopolistic service zone for certain mobile companies in Korea.

11-2-2 Bodies-with-mobiles as nodes in mobile networks

As a result of these technological and institutional changes there has been a tremendous increase in mobile devices, services and users since the late 1990s. From 1996 to 1998, the subscribers increased by 100 per cent per year, and by 1999, about 50 per cent of the population (more than 20 million people) were using mobile phones (Figure 11-2). Mobile users began to surpass pager users and fixed telephone subscribers in 1999 (MIC, 2001a, 2003).



(a) Total mobile subscribers



(b) Mobile subscribers per 10,000 persons

Figure 11-2 Change in the number of mobile users

Source: MIC (2001a: 79)

In the present generation of mobile networks a new pattern of electronic network seems to have appeared: individualised and decentralised networks. We can think of this spatial structure of mobile networks as an important aspect of the micro-network society in which ordinary bodies themselves become nodes in mobile networks and the (individual or collective) temporal and spatial coordinates of everyday life come to be fluid and floating. After all, people come to be 'bodies-with-mobiles' as nodes in mobile networks in the micro-network society. As Sheller (2004: 49) puts it, "persons themselves are not simply stationary nodes in a network, but are flexible constellations of identities-on-the-move". Human bodies become not only biological entities but also electronic nodes combined with mobile phones as not only technological objects but also prosthetic parts of their bodies. In such bodies-with-mobiles, the mobile phone can be thought of not just as objects but also as 'organs'. As Callon and Law (2004) put it,

> "Recently Lucy Suchman has talked of the amplified body. What is implied here? The answer is that technologies such as cell phones are not best thought of as extensions to the body. Instead they are organs, integrated into the body. The argument is general. Capacities for calculation, connection, the fabrication of relations and of fitting together have all come from outside but have then been integrated into the body. They have become wearable, what is worn, as Suchman notes, is intertwined with the person who wears it. Senses are enhanced. This suggests that the character of agency is on the move: that it is radically reconfigured in a process of prosthetic incorporation" (Callon and Law, 2004: 9).

As the mobile comes to be more and more directly and closely connected to the human body, the technological machine does not exist as a pure object any longer but rather as a 'quasi-object', and likewise the human body cannot exist as a pure subject any longer but rather as a 'quasi-subject' in terms of Latour's (1993) 'actor-networks'. In this sense, the emergence of bodies-with-mobiles implies that the mobile phone, as an organ existing not 'inside' but 'outside' the human body, can transform the human body into a 'cyborg' in Haraway's (1991) terms. Furthermore, the 'bodies-with-mobiles' can be seen as deterritorialised bodies or 'bodies-without-organs' in Deleuze and Guattari's (1987) terms. That is, as Lash (2001) puts it,

> "In technological forms of life, what were more or less closed systems, my body, the social body, become more or less open systems. My body cannot interface with technological systems unless it is more or less open. The social body (nation-state) cannot interface with another unless each is to a certain degree open. When individual or social bodies open up, their organs are often externalized at a distance. This is true of the institutions of nation-state as well. Technological forms of life, whether natural or social are like Deleuze and Guattari's 'body without organs'. As the open, they externalize their organs, and open up to flows of information and communication" (Lash, 2001: 108).

In addition, the development of bodies-with-mobiles provides the possibility of the production of a kind of 'wearable' or 'ubiquitous' computing space in which human-machine hybrid networks blur the boundaries between human and machine spaces, leading to 'cyborg urbanisation' (Graham and Marvin, 2001; Chatzis 2001; Gandy 2005). Through the connections of body and media and of body and space, "space becomes wearable when affect becomes the operator of spacing or the production of space through bodily experience" (Hansen 2002: 321). The mobile phone can be explained as one of the technological devices that are capable of constructing a new kind of technological environment. It brings about major changes in 'the geography of calculation' where "from being centred and stable entities located at definite sites, through the medium of wireless computing, computing is moving out to inhabit all parts of the environment and users are able to be mobile (Thrift, 2004a:182). The mobile phone can also be described as bringing into being the world of 'local intelligence' where "everyday spaces become saturated with computational capacities, thereby transforming more and more spaces into computationally active environments able to communicate within and with each other" (Thrift and French, 2002: 315). Particularly, in these mobile spaces of calculation and intelligence, the mobile phone can play a role as a kind of GPS [Geographical Positioning System] in that mobile networks make it possible to identify the locations of bodies-with-mobiles on the move. This point can be found in the fact that communications on mobile phones are characterised by 'geographical locating' in the sense that the most common and frequent question found in conversations on mobile phones is "where are you?" (Laurier, 2001). In a sense, this relates to the networks of control (see Subsection 11-4-4).

11-2-3 Gendered mobile networks

Although mobile networks are formed across national space, there are differences between urban and rural areas and between males and females. As Table 11-3 indicates, the larger cities are, the more mobile networks are formed. Such gaps appear somewhat obviously between large cities (where more than 50 per cent of people use mobile phones) and rural areas (where less than 50 per cent of people use mobile phones). And, in middle-sized and small cities, about 50 per cent of people use mobile phones as of 2001. In addition, as Table 11-4 indicates, there are demographic differences in mobile landscapes. In general, more males than females are connected to mobile networks, and more young people in their 20s and 30s are connected than any other generation. As such, the distribution of human bodies as nodes in mobile networks is not equal geographically and demographically.

Table 11-3 Percentage of mobile phone users by city size

City	Mobile phone user (%)
Large city	55.2
Seoul	60.0
Busan	50.4
Daegu	49.4
Incheon	53.8
Gwangju	49.5
Daejeon	53.3
Ulsan	52.8
Middle-sized & small city	51.7
Rural area	43.4
Average (%)	52.4

Source: KRNIC (2001: 266-7) (as of June 2001)

Table 11-4 Percentage of mobile phone users by sex and age

	Male	Female	Average (%)
7-19	21.5	29.4	25.2
20-29	90.0	75.8	83.1
30-39	92.1	47.2	70.1
40-49	84.5	38.4	61.8
50-59	64.2	24.8	44.2
60-	27.8	5.4	14.6
Average (%)	65.7	39.2	52.4

Source: KRNIC (2001: 266) (as of June 2001)

Mobile networks are not only gendered by the proportion of male to female mobile phone users. Males and females show different patterns of use with voice telephony (not voice messages) based on 'synchronous' (real-time) communications and SMS (short message service) based on 'asynchronous' communications. Before explaining such a gendered landscape in mobile networks, it seems to be wise to look at when people usually tend to use SMS. In interviews with mobile users, I found that they tend to use SMS in certain situations: when they are in public spaces such as libraries or classes; when their counterparts cannot immediately receive or respond to their calls; when they do not want other people to hear their conversations; when direct mobile calls are not necessary, important or emergent or in order to reduce call charges.[4] Voice telephony is restricted by the users' location but SMS enables the users move from present to absent spaces, even in the situations where voice telephony could not do so. As Ling and Yuri (2002) note,

> "With synchronous voice telephony, one must pay attention as the event unfolds. One can only with difficulty and with the forbearance of others have a telephone conversation 'on the front stage'. By contrast, SMS enable one to operate on the front

[4] Economically, "it was better to use factions of a second sending a text than waste whole minutes in conversations" (Agar, 2004: 108).

stage although one must also be conscious of the small-scale boundaries between the front and the back stage" (Ling and Yuri, 2002: 165).

Interestingly, in the interviews, it was found that while males tend to use more voice telephony, females tend to prefer SMS. In general, in the case of females, about seven in ten tend to prefer SMS to voice telephony, and in the case of males, the number of those preferring voice telephony was twice as many as that of those preferring SMS. This fact means that the use of SMS or voice telephony is not dependent only on spatial backgrounds or situations. Many female interviewees using SMS more than voice telephony said that they prefer SMS is because it is economically cheaper to use SMS. On the other hand, most of the male interviewees using more voice telephony than SMS said that it is somewhat uncomfortable and troublesome to use SMS. We can easily observe that in public spaces such as buses or undergrounds, while males tend to play (on-line) games on their mobile phones, females tend to send and receive text messages through SMS. Generally, compared to males, females tend to be more proficient and spend more time in maintaining social networks with their friends and families (see di Leonardo, 1987). In order to communicate with friends or other familiar people for a long time or frequently on mobile phones, it is economically more rational to use SMS than it is to use voice telephony. It seems then that females tend to produce text-based electronic landscapes more than males, as observed in the cases of SMS, e-mail (Boneva and Kraut, 2002) and on-line chatting (see Chapters 8 and 9).

11-3 Socio-spatial networks

11-3-1 Decentralised networks: personal and mobile networks

In recent years, the growth of human mobility has accelerated through the development of technologies and communication networks. Sociologists and geographers have greatly preoccupied themselves with the examination of the results and effects of this increase (Harvey, 1989; Giddens, 1990; Beck, 2000; Lash, 2002; Lash and Urry, 1994; Urry, 2000a, 2000b; Sheller and Urry, 2000, 2003; Seller, 2004; Bauman, 1998, 2000a, 2000b; Virilio, 1997a; Castells, 1996; Thrift, 1995; Leyshon, 1995; Kirsch, 1995; Brunn and Leinbach, 1991). Many argue that increases in human mobility have detached people from their original territories, resulting in the demise of their local communities. For example, Bauman (2001: 38) argues that "the cellular telephone, offering independence even from wired networks and sockets, delivered the final blow to the claim physical proximity might have had on spiritual togetherness". However, I suggest here that mobile phones, which can be seen to facilitate and accelerate people's mobility, are highly bound to their local places. Before proving the point, I shall explain the characteristics of the socio-spatial networks of mobile phones in terms of 'decentralised' networks through 'personal' and 'mobile' networks, and the 'relational' networks between 'bodies' and 'spaces'.

One of the most outstanding characteristics of the socio-spatial networks of mobile phones is that the devices produce 'decentralised' networks through 'personal' and 'mobile' networks. First, as the term PCS [Personal Communications Services] indicates, mobile phones involve 'personal' or 'individual' networks. Through such personal networks, a large number of bodies-with-mobiles themselves can act as electronic nodes in mobile networks. That is, "mobile phones are more strongly implicated than fixed lines, in individuation for the mechanical reason that they are worn on the body" (Nafus and Tracey, 2002: 211). As Townsend (2000) puts it, "it is clear that the point of intervention of mobile communications technologies is the individual, not the institution, neighborhood, city, or region". Second, as the term mobile phone implies, mobile phones literally enable 'mobile' or 'nomadic' networks. Mobile phones make their networks movable, portable or wearable because they are integrated with the human body. As international roaming services are introduced, the spatial scale of mobile networks has gradually expanded, and "there are no longer any restrictions on where computing devices can be located: they will be located everywhere in constantly shifting and adapting peer-to-peer networks" (Thrift, 2004a: 182). When the users temporarily go to other cities or regions, their social networks based on their original places are always accompanied them via their mobile phones (Fortunati, 2002). We can find these landscapes in various locales such as streets, cafés, airports and so on. Wherever the users exist and go, they tend to communicate with others through their mobile phones, send or get text messages through short message services, or play (on-line) games through mobile game services. The 'decentralised' networks of mobile phones involve paradoxical effects. On the one hand, mobile phones make their users free from their original social-spatial territories through 'personal' and 'mobile' networks, and on the other hand, they keep their users continually connected to their territories through real-time networks.

11-3-2 Extensible/divisible bodies and multiple/eversible spaces

We can think about how the socio-spatial networks of mobile phones produce 'relative' and 'relational' networks between 'bodies' and 'spaces'. First, mobile phones enable human bodies to be 'extensible' and 'divisible'. Reviewing studies of the relations of practice and structure in the context of Hägerstrand's time-geography (mainly, studies by Pred, Thrift and Carlstein in the 1980s) and studies of the relations of space and technology in the context of McLuhan' media theory (mainly, studies by Abler, Gould and Jannelle in the 1960s to 1980s), Adams (1995) argues the possibility of 'personal extensibility' like 'amoeba' in space-time through electronic media. For example, "when a person in city A telephones a person in city B, he or she is partly present in city A and partly present in the virtual space of the phone call" (Adams, 1995: 270). In a similar vein, Townsend (2000) says that "the mobile phone is more and more becoming perceived as an extension of the body". As Fortunati (2002) puts it,

> "With the spread of the mobile, that is, the phenomenology of the presence of individuals in social spaces also changes, in that individuals apparently present in a given place are actually only half-present. ... If until yesterday the presence of individuals in flesh and blood in social space meant material and immaterial accessibility to their person on the part of those present, today this accessibility has become more limited" (Fortunati, 2002: 518-9).

Time-geographers have seized on the idea that "one individual cannot exist in two places at one time and therefore has to allocate his path in time-space" (Carstein 1982: 41, in Adams, 1995: 271) or "all individuals are indivisible – never being able to be at more than one place at a time (Pred, 1981: 31, in Adams, 1995: 269). However, the mobile phone makes the argument invalid. Furthermore, "the ability to be in one room or building, linked to a computer accessing data elsewhere, while phoning someone who is at another point, begins to unravel any simple time-geography based on physical presence" (Crang, 2000b: 306). Thus, "the points of a personal network need not be unitary Cartesian individuals" (Bridge, 1997: 622). The mobile phone makes it possible for the body to be extensible and divisible into off-line and on-line spaces or into co-present and tele-present spaces. As a result, the body can be located at different points, and different spaces can be located at the same point at the same time.

Second, the mobile phone makes spaces around the body 'multiple' and 'eversible'. Let us suppose a person communicating with his/her friend at point C on his/her mobile phone in the bus or underground moving from point A to point B. How many spaces is he/she related to? First, he/she exists in the moving space of the bus or underground. Second, he/she lies in the transit space between point A and point B. Third, he/she exists partly in point C through mobile networks. In addition, one's mobile phone contains others' mobile phone numbers at different locations which could be instantly and directly connected through mobile networks. These multiple networks can be seen as invisible, potential and virtual social networks contained in the small chip of the mobile phone, like the phrase '*the city in your pocket*' (Kopomaa, 2000), forming the 'liminial' spaces between absent and present spaces in everyday life (Shields, 1992). Such multiple spaces are eversible spaces where 'inside' and 'outside' spaces can be easily changed. In Euclidean or Newtonian absolute space, physically close spaces can be regarded as inside spaces, and remote spaces as outside spaces. However, mobile networks can easily reverse or dislocate the two spaces' positions. As Gergen (2002: 238) puts it, "cell phone conversation typically establishes an 'inside space' ('we who are conversing') vs. an 'outside space' constituted by those within earshot but prevented from participating". In the sense, mobile spaces are like Möbius spaces where there are no boundary between inside and outside spaces.

11-3-3 Mobile-mediated and place-based networks

Here, we need to think about the extent to which the boundaries of bodies are extended through mobile networks. In order to address this question, I investigated the socio-spatial scales of mobile networks, comparing them with e-mail networks. Both mobile and e-mail networks can be seen not only as technological tools for personal communications, but also as social networks. Table 11-5 shows, in the case of university students, how many phone numbers are stored in their mobile phones and how many e-mail addresses are stored in their e-mail accounts. First, it is found that mobile phones are being used more than e-mails. More importantly and surprisingly, they frequently said the same things about the differences between mobile phone and e-mail communications. They tend to use their mobile phones for communications with those whom they meet frequently in their everyday lives, while they tend to use their e-mails for communications with those whom they do not meet often in their everyday lives due to social, temporal and spatial distances, in addition they use e-mails with those whom they have to communicate with due to public reasons or affairs. It is helpful to explain this in more detail in order to understand the socio-spatial scales of mobile networks in relation to e-mail networks.

In general the mobile phone users interviewed for this research had the numbers of intimate friends and family stored in the phone books of their mobile phones. These were people that they met in their homes, universities or other locales, and were people that they kept in close touch with in their everyday lives. Of course, this does not mean that all people whose numbers were stored in their mobile phones were close associates. In fact, the interviewees' mobile phones also contained the numbers of people that they did not call on a frequent basis. This is because on first meeting a new person they had the habit of storing that person's number in their phone book, even though they knew that the number might not be used. This is because they tend to get a kind of pleasure by filling their mobile phones with others' phone numbers, whether the invisible, potential and virtual social networks are important or not. In addition, this is because they tend to take the stranger's number to signify friendship and think it as a part of the social ritual of politeness.

Table 11-5 Comparison of mobile phones and e-mail accounts

Interviewee' name (sex)	The number of phone numbers stored in the Mobile phone	The number of e-mail addresses stored in e-mail account	The number of people overlapped
Ji-Wook Jang (M)	229	31	24
Kyoung-Wan Seong (M)	136	89	75
Hae-Min Kang (F)	84	0	0
Eun-Kyoung Jeon (F)	94	20	10
Myoung-Sook Lim (F)	83	9	2
Min-Jeong Baek (F)	93	1	1
Jeong-Min Kim (F)	130	25	20
Kyoung-Mi Kim (F)	113	25	20
Soo-Jeong Lee (F)	164	53	53
Jung-Lim Heo (F)	230	41	16
Hyo-Jin Park (F)	200	25	25
Ki-Heon Park (M)	172	30	13
Seong-Ik Jang (M)	30	0	0
Jong-Ki Moon (M)	100	10	10
Chang-Soo Cha (M)	77	17	9
Chang-Jun Lee (M)	11	0	0
Hyeon-Seok Jeong (M)	51	6	6
In-kyoung Kim (F)	188	98	43
Young-Dong Cho (M)	168	17	16
Jin-Geol Shin (M)	138	27	21
Dae-Yeol Bae (M)	22	4	2
Min-Gwak (M)	178	10	2
So-Jeong Heo (F)	164	29	29
Da-Jin Jeong (F)	134	32	13

Source: Survey of university students

The interviewees said that the email addresses stored in their email accounts tended to be those of people that they rarely met in everyday life. They can be divided into some types. (a) Those whom they once met intimately or were acquainted with in the same city or other cities: for example, ex-girl/boy friends or their primary or secondary schoolmates. (b) Those whom they cannot meet easily because they live different cities or countries: for example, friends living in foreign countries. (c) Those whom they need to communicate with for public reasons: for example, classmates with whom they have to communicate about shared tasks, or university professors or lecturers to whom they were required to submit their papers or assignments by e-mail. (d) Those whom they came to know in the on-line world: for example, friends in made in on-line communities or on-line chat rooms. Most of these people are not those whom they now have strong or private links with, and their communications with the people are already broken off or are being practised temporarily or momentary.

Finally, people in the overlapping part between mobile phones and e-mail accounts are somewhat ambiguous. In fact they are often closer to the user than those described in the first and second cases. Many said that people in this group are those with whom they had originally or previously kept in touch through e-mail communications, whether they first met them in the off-line world or the on-line world, but with whom they now are keeping in touch with through mobile communications after purchasing their mobile phones or as they developed a closer relationship. In this case, e-mail communications tend to be replaced by mobile communications. However, some said that people in this group are those whom they already have been acquainted with in the off-line world and have always kept in touch with through face-to-face or mobile communications. They occasionally get in touch with these people via e-mails due to private or public reasons. For example, they use e-mails when they say something special which is hard to say through face-to-face or mobile communications for private reasons, or because they send and receive files by e-mail for private or public reasons. In this case, e-mail communications do not replace mobile communications, but supplement face-to-face or mobile communications.

Table 11-6 Time-diary about the use of electronic media

The media			The Internet		Counterpart	
Time	Media	Location	Web site	Activity	Who	Where
Friday 31 October 2003						
07:45-07:47	Mobile	Home			Friend	Local
09:30-09:30	Mobile	University			Friend	Local
12:50-12:52	Mobile	University			Friend	Local
18:00-20:40	CATV	Bar			-	-
20:45-20:52	Mobile	Street			Friend	Non-local
23:30-00:50	Internet	Home	daum.net naver.com	Information research	-	-
			sayclub.co.kr	On-line chatting	Friend	Local
Saturday 1 November 2003						
00:56-00:58	Mobile	Home			Friend	Local
01:13-01:17	Mobile	Home			Friend	Local
08:21-08:22	Mobile	Street			Friend	Local
09:34-09:35	Mobile	Home			Friend	Local
09:46-09:48	Mobile	Taxi			Friend	Local
10:01-10:02	Mobile	Bus			-	-
13:07-13:10	Mobile	Coffee shop			Friend	Local
13:28-13:29	Mobile	Street			Friend	Local
14:08-14:10	Mobile	Coffee shop			Friend	Local
15:53-15:55	Mobile	Coffee shop			Friend	Local
16:56-16:57	Mobile	Photo studio			Friend	Local
17:30-17:32	Mobile	Street			Friend	Local
17:41-17:42	Mobile	Street			Friend	Local
19:18-19:26	Mobile	Bus			Friend	Local
19:31-19:35	Mobile	Bus			Friend	Local
20:43-21:01	Mobile	Home			Friend	Local
21:13-21:14	Mobile	Street			Friend	Local
21:23-21:28	Mobile	Street			Friend	Local
21:28-21:29	Mobile	Home			Friend	Local
22:00-23:00	Internet	Home	daum.net	BBS	-	-
				Information research	-	-
23:06-23:10	Mobile	Home			Friend	Local

In short, they tend to use mobile phones for communications with those whom they meet socially intimately, spatially closely and temporally frequently. In terms of Granovetter's (1973) social networks, whereas e-mail networks relate to 'weak links' formed at larger spatial scales, mobile networks relate to 'strong links' at smaller spatial scales. The localised socio-spatial scale of mobile networks represents 'network enclosure' (Bridge, 1997: 616) with relatively dense networks, and indicates that they are associated with a strong sense of place. We can know that social, temporal and spatial networks in the off-line world have effects on the ways of on-line communications though mobile phone or e-mail networks and that the ways of on-line communications reflect social interactions, relations or networks in the off-line world. The two on-line worlds of mobile phones and e-mails correspond to two off-line worlds of 'now-and-here' and 'then-or-there' respectively. In other words, while 'co-presence' in the off-line world is related to 'tele-presence' through mobile communications, 'absence' in the off-line world is related to 'tele-presence' through e-mail communications. The point that mobile communications tend to be based on local places is evident in the case of a female interviewee. She has her own mobile phone and her home is equipped with a computer connected to the Internet, and TV wired to cable networks. She said that compared with her friends, she tended to be a more frequent user of the mobile phone and a less frequent user of the Internet and television. She also tended to use voice telephony more than SMS. She said that in mobile communications, about 70 per cent of her phone use consisted of in-coming calls and about 30 per cent consisted of out-going calls. When comparing the contacts she had stored in her mobile phone and e-mail account, she said of the effects of the mobile phone on her social networks:

> "Those who are in my hand-phone (mobile phone) are socially and geographically close people I usually meet often. ... Those who are in my e-mail account are otherwise, though they are also in my hand-phone. They are people I hardly meet or people I send and receive files by e-mail. Though I booked them in my e-mail account, I don't get in touch with them often (Soo-Jeong Lee, female, 21).

In the time-diary where she recorded her behaviours related to the use of various electronic media such as the mobile phone, the Internet and cable TV for two days

(Table 11-6), we can see how the mobile phone produces personal or urban time-space fabric. (a) The mobile phone is overwhelmingly used more often than any other media, increasing real-time interactions in the city. (b) The mobile tends to be used locally. (c) The mobile tends to be used regardless of day and night; private and public spaces; and fixed and moving spaces. (d) Finally, the mobile phone tends to be used at weekends rather than weekdays, this implies that the mobile phone is used for private activities rather than public activities. However, we need to recognise that the use of the mobile phone should be thought of in various social contexts, although its networks are local. For instance, in the case of six male university students who study mathematics as classmates, they get together through their mobile phones in order to play on-line games or to watch cable TV. I observed their meeting at the home of one of the members equipped with three computer terminals connected to the Internet and TV linked to cable line. In the meeting, two of them were playing on-line games with each other (called *StarCraft*), one was having on-line chats on the Internet, the other three were looking at the computer screens or were watching a game channel (also *StarCraft*) on cable TV. One of the members said of the meanings and effects of such media on their meetings and social relationships:

> "Hand phones, Internet games and cable TV have been important means in my social relationships with my friends since 2001. In our meetings, hand phones are important means to communicate for us to get together, Internet games are like our leisure, and sometimes we watch together game programmes on cable TV. ... These three media are very important in our meetings. However, I feel sometimes that playing games or watching TV rather is becoming more important in our meetings than human relationships or friendships" (Hyeon-Seok Jeong, 24, male).

Nevertheless, it cannot be rejected that the socio-spatial networks of mobile phones are local. Of course, this does not mean that other media are fully far from the local. For example, cable TV is based on local territories, although it is linked to non-local networks (see Chapter 10). And although the Internet is a globally connected network, on-line interactions through the Internet tend to be local (see Chapter 9), as we can see in the case of the two students playing on-line games. However, compared with the mobile phone, the Internet and cable TV can be seen as much more delocalised, deterritorialised or decontextualised networks. The Internet could weaken local cultures by bringing non-local cultures into the local and shatter local interactions by replacing local off-line interactions with local or non-local on-line interactions. Cable TV could also destabilise local cultures, implanting non-local cultures into local places through the twenty-four hour or real-time broadcasting of non-local programmes. These processes could be found in the case of the male interviewee below who said of the effects of cable TV and the Internet on his everyday life:

> "It became possible to watch many programmes on cable TV through a large number of channels. At home, I always hold the remote control in my hands. ... I like to watch sports programmes such as football or baseball, especially UEFA [Union of European Football Association] or MLB [Major League Baseball in the US], and more especially, English or Spanish football games. Now, there is a problem that I should wait without sleeping or wake up at dawn in order to watch live broadcastings. Then, I wake up late in the next morning, sometimes missing classes. ......Even until some years ago, I brought newspapers, but now I use the Internet rather than newspapers. ... At http://www.realmadrid.com, I can see here (in Korea) directly the results of football games in Spain. ... In fact, although the geographical extent to which I can reach and have social relationships with other people has been broadened through the Internet, it seems that my interest in people familiar to me has been reduced and the frequency of meeting them also have been reduced obviously" (Young-Dong Cho, 24, male).

This exactly corresponds with van Dijk's (1999: 156) explanation that "new concepts of global time (produced by satellite TV and Internet communication) overlie the old ones (marked by local, daily rhythms and routines)" or Virilio's (1995) argument that "we have global time, belonging to the multimedia, to cyberspace, increasingly dominating the local time-frame of our cities, our neighborhoods". Although cable TV has been seen as a local media based on local territories, it can facilitate and accelerate the colonisation of local time-space by global time-space (Ferguson, 1990: 158-9). In this landscape of 'absent presence', the mobile phone can provide alternative socio-spatial networks (Gergen, 2002). This can be found in a study of teenage mobile users in Seoul (Yoon, 2003) according to which although the mobile phone has been represented as an example of global technologies, and young people have been explained to become increasingly individualised, mobile phones are used for local social networks. However, although mobile phones have been used as local socio-spatial networks until now, we need to think further about what mobile landscapes 3G mobile phones connected to the Internet or other multimedia networks will produce.

11-4 Socio-temporal networks

11-4-1 Flexibility and uncertainty

The mobile phone enables us to access others instantly and directly. In this sense, we can think of the socio-temporal networks of mobile phones in two kinds of 'flexible' networks. First, the mobile phone also enables 'always-accessible' networks, extending time in which we can access others. Just as "much of what many people now think of as 'social life' could not be undertaken without the flexibilities of the car and its availability 24 hours a day" (Urry, 1998), so "one aspect of temporal location significant for user (and for service providers) is the 'anytime, anywhere' availability provided by mobile devices" (Green, 2002: 287). Second, the mobile phone enables 'immediately-accessible' networks, reducing time we spend in accessing others. While the always-accessible networks relates to the extension of time, the immediately-accessible networks to the reduction of time. The mobile phone is a typical device to reduce the time taken in the intermediary zone. This aspect of mobile phones can be compared to that of private cars (Bauman and May, 2001: 40). Just as private cars are used for people to increase temporally accessibility to destinations, so are mobile phones.

The 'socio-temporal' networks of flexibility can lead to the 'socio-spatial' networks of flexibility in that the 'always-immediately-accessible' networks of mobile phones bring about the spatial blurring of spatial boundaries, especially between public and private spaces. On the one hand, mobile networks facilitate the expansion of private spaces into public spaces – people use their mobile phones in workplaces, libraries, cafés, cinemas, bookstores, buses, undergrounds, streets and so on for private reasons (see Sussex Technology Group, 2001; Puro, 2002; Fortunati, 2002; Kopomaa, 2004). On the other hand, mobile networks induce the expansion of public spaces into private spaces – people use their mobile phones for their work or other public affairs at home (see Moss and Townsend, 2000c; Green, 2002). As Green (2002: 287) puts it, "a kind of spatial and temporal 'boundary rearrangement' becomes possible. ... This involves both the case of 'public' activities and responsibilities (as in the case of work) that become embedded in the temporal rhythms of the home, as well as 'private' relationships becoming integrated into the public sphere in mobile relations". Consequently, mobile networks can shatter time-space boundaries in that the spatial boundaries between public and private spaces are replaced by the temporal boundaries between 'on time' and 'off time'. That is, whether people exist in public spaces or private spaces is not determined by whether the people are physically in public spaces or private spaces but on whether their mobile phones are on or off. In short, mobile phones enable the users to have not only the 'socio-temporal' networks of flexibility, but also the 'socio-spatial' networks of flexibility through their always-immediately-accessible networks.

11-4-2 Floating time-space coordinates

Here, I explain how the socio-temporal networks of 'flexibility' can lead to the socio-temporal networks of 'uncertainty'. This point can be observed in three cases: (a) time-space coordinates; (b) social networks; and (c) control networks. The mobile phone enables the users to call and be called instantly and directly, making a 'real-time lifestyle' (Townsend, 2000) or 'just-in-time lifestyle' (Sussex Technology Group, 2001) where "the old schedule of minutes, hours, days, and weeks becomes shattered into a constant stream of negotiations, reconfiguration, and rescheduling" (Townsend, 2000). The emergence of this 'on-the-spot lifestyle' in turn produces two paradoxical temporalities. On the one hand, it results in speeded up and flattened out temporalities, making users move according to accelerated rhythms and paces. As Kopomaa (2004: 269) notes, "the mobile phone challenges its user to engage in real-time participation, which brooks no delays. The mobile phone side-steps anticipatory social arrangement and allows for spontaneous forms of real-time interaction. It offers a tool for a social and practical control of the urban environment". On the other hand, it results in adaptable and adjustable temporalities, making users free from strict scheduling and punctuality. As Kopomaa (2004: 269) states, "mobile phones change our notion of time as something linear and mechanical, distinct from rhythm of nature and always divisible into smaller parts. ... Continuous availability means more flexible working hours; the mobile phone rearranges the division of time into work and leisure, previously dictated by the clock".

In this way, the mobile phone produces 'floating' time-space coordinates in that it can unexpectedly change locations, directions and connections in time-space prisms in terms of time-geography. For instance, the mobile phone makes it possible to easily arrange prompt or impromptu events and to easily change or cancel already arranged or anticipated events, making uncertain the time-spaces of events even until the last moment. In interviews with mobile users, I found that mobile phones make them have frequent meetings, they tend not to decide previously or precisely the time-spaces of appointments, and they tend to constantly change the time-spaces of appointments even until some minutes before they actually meet each other.

> "Appointment times and venues tend not to be decided certainly and already decided times and venues tend be altered often ......" (Jung-Lim Heo, 20, female).

> "Immediate contact became possible. ... I came to be insensitive to appointment times ......" (Jin-Geol Shin, 23, male).

> "Instant meetings became possible ... the frequency and number of meeting people increased ...... " (Dae-Yeol Bae, 23, male).

Ling and Yttri (2002) call these kinds of mobile communications 'micro-coordination' (cf. hyper-coordination), and Ito (2003) also describes these aspects as one of the important landscapes of mobile communications.

> "One of the impacts of mobile telephony is the opportunity for nuanced instrumental coordination. This forms the core of micro-coordination. With the use of mobile communication systems, one need not take an agreement to meet at a specific time and place as immutable. Rather, those meeting have the ability to adjust and agreement as the need arises. In addition, mobile communication systems allow for

the redirection of transportation to meet the needs of social group" (Ling and Yttri, 2002: 139-40).

> "They initially agree on a general time and place, and exchange approximately 5 to 15 messages that progressively narrow in on a precise time and place, two or more points eventually converging in a coordinated dance through the urban jungle. As the meeting time nears, contact via messaging and voice becomes more concentrated, eventually culminating in face-to-face" (Ito, 2003).

In this context, Carey (2004: 136) claims that the mobile phone engenders the 'indeterminate city': "by virtue of the cellular phone, meeting places have become indeterminate; fluid territories rather than precise spots". As such, time-space coordinates according to which mobile users move, meet each other and get together in urban space always remain uncertain, changeable, fluid and floating.

11-4-3 Social networks and desires to be connected

Mobile phones tend to make the users always ready to call and to be called, and thus desire to be connected to mobile networks. Human communication through the phone relates to the "true psychological need for 'social belonging'" (Lull, 2000: 106). To be sure, the mobile phone is a tool which can satisfy such a psychological and social need in contemporary life. That is, mobile phones are social networks, increasing 'connected presence' (Licoppe, 2004) or 'present absence' (Fortunati, 2002) and decreasing 'absent presence' (Gergen, 2002). "The mobile can play the part of a technological injunction (you will never ignore my demands upon you, you will never be free of my intrusion) as much as a technological conjunction (you will never be outside the network of always-immediately-available presence, you will always be able to reach me)" (Sussex Technology Group, 2001: 220). In a sense, the mobile phone tends to make the user Pavlov's dog, making him/her to desire to be always connected to mobile networks as we can see in the following case.

> **An underground scene:**
> I was going to somewhere by underground in Daegu, Korea in 2001. Most of people in the underground were just sitting without doing anything, and some people were reading books or newspapers or were fingering with their mobile phones, or were having conversations. I was listening to the Walkman radio, wearing earphones. Now, some of them suddenly began to take their mobile phones out of their pockets. They seemed to check something phone and after checking something, and put their mobile phones in their pockets back again. They did the same behaviour in turns. I did know exactly what and why they did so, and just the behaviour looked somewhat strange to me. It was not until I got off the underground that I knew the reason. A friend of mine called me when I was at the underground, and I however could not hear the bell sound because I wore the earphone. Why the people did so was because they thought of the sound to come from their mobile phones.

When they heard the mobile phone bell sound as a 'stimulus', they automatically looked at their mobile phones as a 'response'. Of course, here my concern is not with the behaviourist mechanism of (un)conditional stimulus-response, but rather with people's desires to be connected to their mobile phones. It seems that people are more addicted to the mobile phone than any other technological device, maybe even more than their attachment to the Internet. It seems that the objects of the desires are not mobile phones themselves, but rather are social networks. For many people, living without the mobile phone means exclusion from social networks, and mobile phones "are also significant for social capital because they are accessible to unprecedented numbers of people" (Goodman, 2003: 5). For example, in the case of Korean adult users, "users of mobile phones were more active in getting together with their colleagues, participated more in after-work drinking occasions, considered life at work more important than private/family life, and tended to be more innovative" (Kim, 2002: 71), and also in the case of Korean teenage users, "young people's cultural practices via the mobile phone did not contradict that which was valued by adults" (Yoon, 2003: 342).

However, when invisible, potential and virtual social networks in the mobile phone could not be unfolded and realised for different reasons (for example, when other people do not call, the user leaves his/her mobile phone somewhere else, the power of the mobile phone runs out, the mobile phone is missing and so on), that is, the desire to be connected to mobile networks could not be satisfied, the user comes to have painful emotions (such as anxiety, irritation, frustration, disappointment, depression and so on). These cases are shown well in the examples below shows.

> "When I leave my hand phone at home sometimes, I become nearly irritated and almost crazy. However, when I come back home and find that no text message is left for me in my hand phone during the day, it makes me more disappointed and depressed. ... And, I become really nervous when the power of the hand phone is gone and I could not remember the phone numbers of my friends booked in my hand phone, thus I could not call them" (Kyoung-Mi Kim, 20, female).

> "When there is no call for me in my hand phone, I often become disappointed and irritated. ... Even when the power of my hand phone goes out for a while, I feel uneasy and anxious because I could not call other people or not be called by them, and I feel even isolated from them" (Ki-Heon Park, 23, Male).

Because the number of calls or messages can be though of as the popularity or social currency of the user (see Ling Yttri, 2002: 161; Yoon, 2003: 338), receiving very few calls or messages can make the user very disappointed. In addition, the mobile phone tends to make the user oblivious of others' phone numbers for the user usually tends to store them in his/her mobile phone without keeping in mind the phone numbers or noting them elsewhere. This mobile-referring habit or mobile-induced amnesia makes the user more frustrated when his/her mobile phone is missing. For the social networks stored in the mobile phone come to disappear and be lost and the user comes to be isolated from his/her social networks.

11-4-4 Control networks and desires to be disconnected

Mobile phones make the users desire not only to be connected, but also to be disconnected from mobile networks. This is because the mobile phone can be a tool for remote controls with unpredictable and interruptive networks, for example, in the social networks between employers and employees and between boyfriends and girlfriends (Sussex Technology Group, 2001) and between parents and their children (Green, 2002:

288-9). As such, the mobile phone can be used as a means through which the user can be connected to social networks on the one hand, and to control networks on the other hand. In this sense, concerning such a contradictory and paradoxical function of the mobile phone, Green (2002: 291) stresses the duality of time-space in relation to social relationships by mobile phones: "on the one hand, social space and time are 'extended', and on the other, they remain locally continuous. Communities are being formed in highly contradictory ways, which reflect new disjuncture, as well as new continuities, in the relationship between space, time, and location". The mobile phone can be used to forbid the user from even being apart from his/her social networks and relations, forming somewhat homogenous and standardised social spaces by restricting the user to existing social networks (Gergen, 2002). Furthermore, just as "visual representation of the moving body by GPS introduces the possibility of subjective mapping – or plotting the personal" (Park, 2001: 212), so too the mobile phone enables vocal representations of the moving body. Actually, GPS services through the mobile phone are provided in Korea, and the police use the mobile phone as a means for the networks of surveillance like CCTV in order to trace criminals. As Licoppe, (1994) puts it,

> "The increasing traceability of mediated interactions also opens the possibility for different types of institution to constitute panoptic pictures, on different scales, of interpersonal communication and interaction, and sometimes even of their content. ... Connected practice, characterized by the proliferation of interactions to maintain a link which is constantly threatened by distance and absence, could then constitute a technology of power" (Licoppe, 1994: 153).

As such, while the mobile phone can be seen as a means of mobility and freedom, the device can be viewed as a means of control and surveillance. This is the reason why people want to turn off or throw away their mobile phones.[5] A male interviewee said to me that he deletes voice and text messages other people send him and does not book females' mobile numbers in his mobile phone because his girlfriend asks in an annoying way about them. A female interviewee said that she found that her boyfriend was

[5] According to the eighth annual Lemelson-MIT Invention Index study, in the case of the USA, "nearly one in three (30%) adults say the cell phone is the invention they most hate but cannot live without". From [http://web.mit.edu/invent/n-pressreleases/n-press-04index.himl].

having another girlfriend by checking text messages in his mobile phone. Another female interviewee said that she sometimes turns off her mobile phone to avoid calls from her home, and another male interviewee said about the interruptive and embarrassing effects of the mobile phone on his everyday life as follows.

> "When I miss or turn off my hand-phone, other people such as my friends or parents seem to be more irritated than me, because they cannot call me. Especially, my mom is very concerned about me. ...... When I am outside my home until late at night, sometime I intentionally turn off my hand phone not to receive calls from my home " (Soo-Jeong Lee, female, 21).

> "The hand phone gives me many chances to meeting people. ... It gives me on the one hand convenience, and on the other hand restrictions. ... When I would like to be alone at home, if someone calls me, then I have to go out. Sometimes I think it would be better to get way from the hand phone. Of course, if I have no hand phone, then I would feel anxious. However, this also is because I have the hand phone now. It is not something I can escape from. Even though I want to be severed from it, I cannot do so" (Hyeon-Seok Jeong, 24, male).

After all, the body linked to the mobile phone has ambivalent desires – desires to be connected to and disconnected from mobile networks, and this point means that the networks of uncertainty of the mobile phone involve 'emotional' landscapes as well as 'intelligent' ones in the everyday life world of the user.

11-5 Conclusion: decentralisation and its discontents

I have explained how mobile networks fabricate the landscapes of uncertainty in the city, while examining three mobile networks: techno-social, socio-spatial, and socio-temporal networks. In the micro-network society, mobile phones make bodies-with-mobiles act as nodes in their decentralised techno-social networks, involving gendered mobile landscapes, and make them produce relative and relational time-spaces in their socio-spatial networks. The socio-spatial scale of mobile networks are highly localised, because people tend to use their mobile phones for communications with those who are socially, temporally and spatially close to them in their everyday lives. The socio-temporal networks of mobile phones can be characterised by flexibility and uncertainty with regard to three landscapes: floating time-space coordinates according to which mobile users move in the city; social networks to which the users have desires to be connected; and control networks from which the users have desires to be disconnected. As such, mobile phones tend to make the users have ambivalent desires, and various negative emotions, when those desires can not be satisfied.

Given that mobile networks can be characterised by 'spatially decentralised' and 'temporally flexible' networks, the networks make the landscapes of paradox. For example, such mobile networks can be seen as 'rhizome-like networks', forming the 'rhizome-city' in terms of Deleuze and Guattari's (1987: 15). However, the mobile networks can also be used as 'control networks' like Foucault's (1977) space of power (closed, disconnected and centralised spaces) or more exactly Deleuze's (1997) space of control (open, connected and decentralised spaces). On the one hand, mobile phones enable the users to form and maintain their social networks through decentralised networks, making them desire to be connected to mobile networks. However, at the same time, mobile phones confine the users in their existing social networks through control networks, making them desire to be disconnected from mobile networks. Both of these processes give the users various emotions in relation to the use of their mobile phones. In general, in the discipline of geography, information and communication technologies such as mobile phones have been explained in terms of intelligent spaces. However, we need to draw attention to the point that they produce not only 'intelligent' spaces, but also 'emotional' spaces in the landscapes of uncertainty.

Chapter 12

Conclusions

12-1 Summary of the main findings

In this thesis I have explained the geographies of the technocultural spaces which have appeared in the hybrid cities constructed by multimedia technologies in Korea. I defined the hybrid city as a city where the ontological or ecological boundaries between binary categories or territories such as time/space, global/local, actual/virtual, centripetal/centrifugal, human/machine, social/technological and so on are unsettled and blurred by multimedia technologies and people's practices in their everyday lives. In order to look at various ecologies, landscapes and geographies of technocultural spaces in hybrid cities, I first reviewed how new media technologies produce new time-space networks, actual-virtual circuits and human-machine hybrids. This section can be found in the theoretical research chapters (Chapters 2, 3 and 4). I then explained the ways in which new media spaces have been produced and organised at a national level, as an analytic unit, in the macro-level research chapters (Chapters 6 and 7). This can be explained in two temporal-spatial dimensions as the two sides of national media spaces.

In Chapter 6, I looked at the transformation of national media spaces in Korea from mass media space in the 1960s-70s through transitional media spaces in the 1980s to new media spaces since the 1990s. While the mass media spaces can be explained as media spaces integrated and territorialised at a national level, the new media spaces can be characterised as media spaces that are multiple and deterritorialised at global, national and local levels. There are two reasons why We need to see this transformation of national media spaces in terms of the techno-spatial fixes of capitalism, especially the scalar fixes of techno-economic spaces. The first is because the process can be seen in terms of the deterritorialisation of national media spaces from the single layer of national space into the multiple layers of local, national and global spaces. This multiplication of media space layers can be seen as the creation of new economic value-chains at a national level. The second is because the process can be seen in terms of the rearticulation of national techno-economic spaces with global techno-economic spaces. This rearticulation of the techno-economic spaces can be explained as incorporation into new economic value-chains at a global level.

In Chapter 7, I explained that in Korea, electronic spaces in terms of electronic networks/speeds and domains/territories are constructed, concentrated and circulated mainly in the capital city/region as the centre of new media spaces. The capital city Seoul as the centre of electronic space as well as physical space in Korea, has tried to transform itself into a digital city in order to become and act as a node in the global electronic, economic and cultural space of flows. This attempt has been carried out on the one hand, through technologically constructing digital urban space/place ('urban engineering') in order to spread urban networks into global space, and on the other hand, through ideologically creating digital urban image/identity ('urban imagineering') in order to inscribe digital urban images into local place. Such an attempt by the city of Seoul can be seen as an urban strategy whereby the city can be monopolistically or exclusively linked to newly emerging economic value-chains in national and global techno-economic spaces, on the one hand emerging as a new hub in global techno-economic spaces through a 'spatial power shift', and on the other hand recreating its centrality in national techno-economic spaces through a 'spatial power fix'. At the heart of this urban strategy is the 'network politics of dis/connections'.

In the micro-level research chapters (Chapters 8, 9, 10 and 11), I looked at how hybrid territories and fuzzy boundaries take place in the technocultural spaces of cities which are connected to multimedia networks such as the Internet (and Internet cafés), cable TV (combined with satellite networks) and mobile phones. In Chapter 8, I have examined how Internet cafés (PC Bangs) produce the electronic landscapes of paradox, looking at three kinds of landscapes appearing in this process: spatio-temporal, socio-cultural and human-machine landscapes. First, PC Bangs seem to deterritorialise spatio-temporal boundaries. Acting as an enormous number of electronic gateways/bridges or entrances/exits in urban spaces, PC Bangs produce 'hypertext-cities' or 'rhizome-cities' and 'non-stop, on-line cities'. Second, although PC Bangs deterritorialise spatio-temporal boundaries in cities, they also involve socio-cultural boundaries territorialised through invisible social boundaries. Even though PC Bangs act as public electronic spaces which can be made available to anyone, they appear as gendered, or masculine, new urban consumption spaces. Finally, PC Bangs as mediating/moving machines construct 'cyborg cities' where machines' electronic networks are combined with humans' sensory networks, making people's time-space senses disoriented between actual and virtual time-spaces and where human-machine networks replace human-human networks, producing 'non-places' with individualised and fragmented urban landscapes.

In Chapter 9, I illustrated how what have been thought of as integrated and solid in the city can be rendered fragmented and fluid into the spaces of nets and bits, as cities and homes are increasingly penetrated by the Internet and based on the screen. First, as the Internet penetrates the home, its images as the most fundamental social-spatial unit small, solid, static and private inevitably come to be challenged. Second, on-line interactions tend to involve discontinuous temporal networks and localised spatial networks, making social relations or interactions in cities transient, ephemeral, contingent and anonymous. On-line interactions within/between cities need to be perceived in terms of not only social interactions through the Internet, but also the time-space fabric of the cities. That is, the time-space fabric of the city is relationally and dynamically shaped through the combinations of off-line and on-line social interactions. Finally, spatial deterritorialisation into virtual spaces and symbolic deterritorialisation in virtual spaces enable people to have multiple and fluid bodies and identities, bringing about diverse symbolic conflicts in the landscapes of symbolic/linguistic identities.

In Chapter 10, I explored how the multiple networks of cable TV make local places delocalised, deterritorialised and decontextualised, challenging a utopian and ideological image of cable TV as a local media based on localism or embedded in local communities through its centrifugal, decentralised and heterarchical networks. The characteristics of the multiple networks of cable TV are as follows. First, the spatio-temporal networks of cable TV make cities and regions synchronous at a national level, especially through satellite networks, resulting in 'real-time globalisation'. Second, the organisational-spatial networks of cable TV make provincial cities/regions dependent on the capital city/networks through the transactional and organisational relations of media actors. Third, the techno-spatial networks of cable TV link local places to the capital city/region at national and global levels through channel systems. Finally, the cultural-spatial networks of cable TV make local places reliant on not only the capital city/region at a national level, but also the USA at a global level through programme flows.

In Chapter 11, I explained how mobile networks fabricate the landscapes of uncertainty in the city, while examining three mobile networks: techno-social, socio-spatial, and socio-temporal networks. In the micro-network society, mobile phones make bodies-with-mobiles act as nodes in their decentralised techno-social networks, involving gendered mobile landscapes, and make them produce relative and relational time-spaces in their socio-spatial networks. The socio-spatial scale of mobile networks are highly localised, because people tend to use their mobile phones for communications with those who are socially, temporally and spatially close to them in their everyday lives. The socio-temporal networks of mobile phones can be characterised by flexibility and uncertainty with regard to three landscapes: floating time-space coordinates according to which mobile users move in the city; social networks to which the users have desires to be connected; and control networks from which the users have desires to be disconnected. As such, mobile phones tend to make the users have ambivalent desires, and various negative emotions, when those desires can not be satisfied.

12-2 Discussion of the research questions

Here, I discuss the research questions suggested in Chapter 1. First, what time-space landscapes are produced in the city by new media technologies? The city is composed of multiple and complex time-space networks that are produced not only technologically but also socially and culturally and which cannot be described only in terms of the annihilation of space by time. What is important is that the time-space networks or fabric within/between cities are produced by the dialectic interactions of physical (actual) and electronic (virtual) spaces and by the practices and relations of human bodies with electronic machines. For example, the Internet makes the time-space boundaries of the home increasingly unstable, dividing cities into fast and slow ones, and fabricates cities through the localised, but discontinuous networks of on-line interactions, thus making social relations in the cities ephemeral and contingent. Internet cafés in cities make the cities into hypertext-like or rhizome-like spaces, connecting together points within/between the cities through a large number of electronic gates/bridges, and make cities non-stop, on-line spaces, disorienting their users' senses of time-space.

Cable TV makes cities that are synchronous and orchestrated to the same rhythms and flows at a national level through satellite and cable networks, and results in real-time globalisation through foreign satellite TV channel networks. Finally, mobile phones make the users move in the city along a 'floating time-space coordinate' where the users' locations, directions and connections in their time-space prisms can be changed uncertainly and unpredictably through their networks of flexibility and uncertainty. The formation of these time-space networks and landscapes means that the city does not exist in an absolute time-space framework, but rather it is composed of relational, contingent, multiple and complex, time-space networks produced through the interactions of technological networks and human practices. Another point I want to argue in relation to time-space networks is that the city is composed of invisible and virtual time-spaces which are always ready to be unfolded. For example, hyper-linked websites in the Internet, cable TV channels on remote control devices and phone numbers booked in the mobile phone can be seen as such virtual time-spaces which are already here, but not yet actualised. This means that such multiple virtual time-spaces coexist in the same physical entity such as cities, homes or bodies which can be located in different virtual time-spaces at the same time.

Second, how does the city come to be linked to global-local networks which embed the global into the local on the one hand, and disembed the local towards the global on the other hand? Global-local networks can be found in the cases of the Internet and cable TV. In the case of cable TV, which has been regarded as a 'local' media, it was found that it tends to delocalise or deterritorialise local places through its multiple networks. On the contrary, in the case of the Internet, which has been represented as a 'global' media, it was found that it tends to involve the localised networks of on-line interactions. Both the Internet and cable TV can be seen to fabricate 'global-local' networks in cities. In addition, if we compare the Internet and the mobile phone, we can see that people tend to use their mobile phones more locally than the Internet (e-mail). This is because the socio-spatial scale of mobile networks is closely related to the existing social networks of the users based on their everyday lives. We need to recognise that although new media technologies are facilitating such global-local networks, the meanings of national boundaries and territories are still valid. This is because the national government' role is very powerful in planning and constructing new media spaces and furthermore new media spaces appear at a national level through domestic satellite TV or the quota systems of cable TV, forming an 'imagined e-community'.

The formation of global-local landscapes in the city implies that the city itself is composed of global-local networks formed through heterogeneous and multiple networks. More importantly, we need to recognise that globalisation does not occur only in global cities, but in ordinary cities or villages, blurring the boundaries between local places and global spaces. For example, cable TV based on local territories acts as a crucial media technology which much more intensively and instantaneously connects the local places to global space through technological and cultural networks than any other media, especially producing real-time globalisation through satellite networks. In addition, we need to recognise that because a large number of homes are penetrated by electronic networks such as the Internet, cable TV and satellite TV, the home cannot be seen any more as the smallest, fixed and most static socio-spatial unit in the city. In fact, the ordinary city is globalised through such mundane homes.

Third, how do actual spaces come to be rendered porous and permeable by virtual spaces in actual-virtual circuits? This question may be addressed in terms of the tensional relations between centripetal (territorialising) and centrifugal (deterritorialising) vectors. Internet cafés makes spatio-temporal boundaries deterritorialised through hypertextual networks, and at the same time involve socio-cultural boundaries territorialised through invisible social boundaries. The Internet involves the tensional relations between those who want to deterritorialise symbolic landscapes in virtual spaces and those who want to reterritorialise them again through existing social and cultural values or institutional powers in actual spaces. Cable TV links local places on the one hand to heterogeneous networks involving multi-dimensional experiences, and on the other hand to homogenous networks involving one-dimensional experiences through global-local networks. Mobile phones produce individualised and decentralised socio-spatial networks like Deleuze's (1987) rhizome spaces, but they also can be used as control or power networks like Deleuze's (1997) control spaces. After all, the city as the urban matrix of actual-virtual circuits needs to be seen in terms of the tensional or contesting relations of centripetal and centrifugal vectors producing paradoxical or contradictory landscapes. This means that the city as the urban matrix of actual-virtual circuits is constructed socially as well as technologically where virtual spaces cannot be seen necessarily as transcending and overcoming actual spaces, but rather they tend to be restricted by the social and cultural contours of actual spaces, and furthermore to reproduce them. The city as the urban matrix of actual-virtual circuits is too light to be terrestrial and too heavy to be ethereal.

Fourth, how do human bodies, identities and boundaries come to be changed by human-machine hybrids? Producing human-machine hybrid spaces in cities, Internet cafés extend the sensory boundaries of the body in virtual spaces on the one hand, and shrink its social boundaries in actual spaces on the other hand. People's bodies and identities in the virtual spaces of the Internet tend to be multiple and fluid, but this process sometimes induces the control of the government over virtual spaces. Cable TV extends the boundaries of the body, deterritorialising local places where the body dwells through its techno-cultural networks. Mobile phones produce bodies-with-mobiles as human-machine hybrids, making them act as nodes in decentralised mobile networks within highly place-based mobile networks. They also give them the ambivalent desire to be connected to mobile networks as social networks and at the same time, to be disconnected from mobile networks as control networks. Mobile phone users tend to have various negative emotions, when such desires are satisfied. Here, we need to be doubtful of the possibilities of McLuhan's (1994) thesis of the 'extensions of man' and Haraway's (1991) manifesto of the 'post-gender world'. First, we can see that the boundaries, especially social boundaries, of the human body tend to be confined to local places in the cases of on-line interactions through the Internet and the mobile phone. This point means that existing territorial and social boundaries in physical spaces are still significant in on-line spaces. Urban landscapes in the city of cyborgs are also still 'gendered' in that males' bodies are more likely to be connected to electronic machines than females' bodies. For example, we saw that Internet cafés involve heavily 'male-dominated' landscapes. Interestingly, it was found that females tend to form 'text-based' electronic landscapes (like on-line chatting in on-line interactions or short message service in mobile phone use) more than males.

Fifth and finally, what are the properties of technocultural spaces in the hybrid city, composed of such global-local networks, actual-virtual circuits, centripetal-centrifugal vectors and human-machine hybrids? I have attempted to address this question through conceptual events such as paradox, fragmentation, multiplicity and uncertainty, relating the four events to the landscapes of Internet cafés, the Internet, cable TV (combined with satellite networks) and the mobile phone respectively. Of course, this does not mean that in a given technocultural landscape only a single event is generated, or that technocultural landscapes in the hybrid city can be characterised by only the four events. Here, what I want to argue is that the hybrid city cannot be explained as a coherent and cohesive space, but rather as multiple and complex spaces. This is because the hybrid city itself exists in between different categories or territories. That is, the hybrid city does not exist as A or B, but instead in between A and B which are deterritorialised towards each other through a-parallel evolution or co-evolution, and thus it can be seen as fractal and fluid. In this sense, the hybrid city can be defined as not a 'being', but 'becomings' always in motion through the continuous 'dis/appearances' or 'dis/connections' of heterogeneous networks. In Latour's (1993), Deleuze and Guattari's (1987) and Haraway's (1991) terms, the hybrid city is not only composed of a number of actor-networks, rhizomes or cyborgs, but also a kind of actor-network, rhizome or cyborg itself. That is, the hybrid city is the 'middle kingdom' in Latour's (1993: 77) terms.

12-3 Suggestion of theoretical implications

Here, I want to suggest some theoretical implications of this research, especially, focusing on the characteristics of 'network' cities or societies. First, we need to pay attention to not only 'macro-network societies' but also 'micro-network societies'. Although many thinkers such as Sassen (1991), Castells (1996) or Virilio (1997) have addressed the characteristics of network cities or societies, their approaches have overlooked how information technologies or electronic spaces have substantial effects on everyday life. This is because their approaches focus mainly on a global level and are greatly based on elitism. Although their theoretical perspectives have many implications for understanding the contours of the global space of flows or the functions of global cities as its nodes, their explanations are of limited use for the comprehension of the mundane landscapes of ordinaries cities or the everyday lives of ordinary people in the cities which cannot be covered by grand narratives. The landscapes of ordinary cities and people in relation to the use of media technologies such as the Internet or mobile phones are greatly influenced by the time-space patterns or rhythms and socio-cultural conditions of everyday life, although some technologies (e.g. Internet cafés and cable TV) tend to disturb existing temporal, social and cultural ecologies. What is important is that as such the effects of media technologies on (ordinary) cities and lives are so multiple and complex that they cannot be explained through a meta-narrative. In addition, since the existing explanations of network cities or societies are at large about Western societies, their approaches also have limits for the understanding of other societies likes Asian countries in which government-led strategies or polities are more dominant than Western countries. Thus, in order to comprehend the complex and varied landscapes of network cities or societies, we should consider more fully what is going on in other cities, societies or countries in the outside of Western ones.

Second, network cities need to be seen as composed of 'multiple' and 'complex' networks. We need to be aware of the point that network cities are composed of various kinds of networks with different capacities, practices and relations. That is, network cities are composed of not only technological networks (e.g. the Internet, cable TV, mobile phones, etc), but also economic, political, social and cultural networks, which have different styles of configurations and different degrees of embeddedness in local cities or places. This point is important, because it helps us to avoid the technological or economic determinism, which have been argued by 'anti-spatial' discourses (McLuhan, 1964; Toffler, 1970; Ohmae, 1990; O'Brien, 1991; Negroponte; 1995; Mitchell, 1995; Cairncross, 1998, Gates; 1999). Furthermore, we need to be conscious of the point that such networks entail not only centrifugal but also centripetal vectors within/between network cities, producing contradictory or paradoxical landscapes. This point is also important, because it makes us recognise the 'power-geometry' of electronic spaces and avoid technological determinism or utopianism. More importantly, we need to see that network cities should be explained not in terms of 'territorial scales', but in terms of 'relational networks'. That is, the spatialities and landscapes of network cities tend to be always dynamic, contingent, transient, and uncertain.

Third, time and space have often been thought of as opposed to each other by many thinkers, especially following Bergson's legacy in which time and space have been seen in binary terms such as qualitative vs. quantitative, continuous vs. successive, different vs. repetitive, memorial vs. material, dynamic vs. static and virtual vs. actual. In this formula, time and space are seen as qualitatively different, inherently incompatible and definitely separated (see Deleuze, 1988). The problem of Bergson's or Deleuze's idea is that while (qualitative) time can be modified into (quantitative) space, (quantitative) space cannot be changed into (qualitative) time (see Crang, 2001, 2005; May and Thrift, 2001). Rather, we need to recognise that space (like time) is qualitatively changeable according to the positions or relations of objects in space. In other words, time and space cannot be separated from each other and (thus) time-space is produced and changed according to the configurations of techno-social or human-machine networks. In this sense, the time-space of network cities needs to be regarded as relative, relational and dynamic, blurring the boundaries between actual and virtual time-spaces, not as absolute, fixed and linear like texts. In such network cities, time(-space) is 'reversible' and space(-time) is 'eversible' in the sense that their time-spaces are 'non-linear' or 'hypertextual'.

Finally, network cities as 'hybrid cities', which are shaped through the 'relational networks' between binaries territories such as between actual and virtual spaces or human and machine spaces, need to be seen in terms of the mutual construction or dialectical relations of the two kinds of spaces That is, network cities cannot be explained in terms of neither the replacement of actual or human spaces by virtual or machine space nor the authenticity or privilege of the former over the latter. Some thinkers such as Castells (1996), Virilio (1997a), Baudrillard (1994) and so on have lamented the death of the historicity or authenticity of actual spaces by the flows or simulacra of virtual spaces. For example, Slouka (1995) expresses this apocalyptic situation as '*War of the Worlds: Cyberspace and the High-tech Assault on Reality*', borrowing the title of Herbert George Wells' 1898 sci-fi novel. Of course, their arguments are insightful and significant to some degree. However, we need to recognise that not all that is solid in actual space melts into virtual space, and furthermore that the gravity of the space of places reterritorialises the scales, directions and speeds of the space of flows within/between cities. To borrow Ludwig Wittgenstein's (1988) phrase, "it is not going in a straight line but in a curve and … its direction is constantly changing" (in Harrison, 2000: 499).

12-4 Implications for urban planning policy

This research has largely focused on mainly descriptive explanations as to how cities are constructed by multimedia technologies, underlining that the cities themselves need to be seen in terms of hybrid spaces or fuzzy boundaries. However, it is possible to make some normative arguments vis-à-vis multimedia and urban planning policy, derived from the main finding of the research. Many of the recent urban planning policies, made by the central government or local governments, are based mainly on neo-liberalism. In this situation, media technologies and networks cannot be far from such neo-liberalist urban policies, but rather are closely combined with urban planning policies based on neo-liberalism, producing 'spatial digital divides' and 'network-mediated geometries' between/within cities. For example, in the case of Korea in which media capital and powers are concentrated in the capital city Seoul, the combination of media-technologies and neo-liberalism has produced network-mediated geometries 'between' the central city and other cities (e.g. the KII: Korean Information Infrastructure) and 'within' the central city (e.g. the DMC: Digital Media City). Here, I suggest two points in relation to 'spatial digital divides' or the 'network-mediated geometries' of power relations between/within cities, which should be considered in urban planning policies in relation to electronic networks.

One is about 'inter-urban digital divides' and the 'network-mediated geometry' of power relations between cities. Although a lot of electronic infrastructures and networks have been constructed in Korea since the late 1990s, most of the important electronic networks are constructed and concentrated around the capital city/region. Seoul as a central city in physical space has attempted to reproduce and recreate its centrality even in electronic space under the political ideology and economic principle of neo-liberalism. Many thinkers following techno-utopianism such as McLuhan or Toffler have argued that information technologies will facilitate the demise of hierarchical power relations. However, it seems that such arguments are not the case at least in Korea in the point that the structures and functions of electronic networks follow the hierarchical patterns and systems of physical territories. This point means that peripheral cities or regions come to be more technologically or culturally dependent on the central city. Furthermore, fatal technological failures in the central city could lead to technological failures in peripheral cities or regions, to say nothing of in the central city, leading to the collapse of the whole network and thus the 'cities of panic' (Virilio, 2005). The more electronic networks are concentrated in the central city, the more the effects of unexpected accidents in the central city on physical territories could be 'spatially unbounded and dispersed' and 'temporally instantaneous and simultaneous'. For example, in the case of the Internet, technological problems or accidents in the central city make impossible not only on-line interactions within the city, but also on-line interactions within/between other cities. Although the Internet has been explained as decentralised and heterarchical networks, its geometry greatly reflects the centralised and hierarchical networks of physical territories.

This kind of 'network-mediated geometry' of power relations between central and peripheral cities in electronic spaces can be found in the case of cable TV. Generally, cable TV has been seen as a local community network, based on decentralised or centrifugal networks. However, we should be conscious of the fact that cable TV tends to make local places much more dependent on existing centres. As homes in peripheral cities are connected to cable networks and programmes which are controlled and transmitted by key media actors in the central city through local cable TV operators, the peripheral cities are more closely dependent on the central city technologically, economically and culturally. Although cable TV was introduced for the cultural or political revitalisation of local places through its centrifugal networks, it seems that it has resulted in the 'delocalisation' of local places through its centripetal networks. As such, the contours of power-geometry in electronic spaces can never be free from the gravity of power-geometry in physical spaces. We need to see how the centrifugal or centripetal vectors between central and peripheral cities are made in the network-mediated geometry of power relations in electronic spaces as well as physical spaces.

The other is about 'intra-urban digital divides' and the 'network-mediated geometry' of power relations within cities, especially in relation to the 'network-mediated mobility' of bodies. This point should be understood in relation to the diffusion of personalised electronic devices and networks in cities. Although electronic networks such as the Internet or mobile phones have been rolled out in urban spaces, some urban locales or human bodies in cities are still excluded from the electronic territories, forming socio-spatial digital divides within cities. Although many people increasingly possess their own electronic devices, there are still those who cannot afford such devices. For example, old people tend to be more disconnected from electronic networks than young people, and females tend to be less connected to electronic networks than males. In this situation, while homes as private spaces in cities are increasingly connected to the Internet, Internet cafés as public spaces which can reduce capacity and coupling constraints on access to the Internet in the cities, could be on the decline, although they will not disappear.[1] Similarly, an increase in the number of

[1] There are several reasons why the increasing connection of homes to the Internet does not necessarily mean the replacement of Internet cafés as public electronic spaces with homes as

mobile phone users in cities could lead to a gradual decrease in the number of public telephone boxes in the cities. This means that people with less economic capacities, who cannot access the Internet in their homes or possess mobile phones, could be even more excluded from electronic territories in cities.

As such, the diffusion of personalised electronic devices and networks in cities can facilitate and exacerbate intra-urban digital divides. Recently, some local governments in Korea have been interested in the construction of 'ubiquitous' IT cities in which their citizens can be connected to electronic networks and access information anywhere and anytime. However, given that many electronic facilities and services in such ubiquitous IT cities are accessible and available through personalised electronic devices, the landscapes of socio-spatial digital divides or the gap of network-mediated mobility in the cities could be further exacerbated. The mobility and power of human bodies in cities can be considerably different according to the extent to and the way in which the bodies are connected to mechanical/electronic machines. Furthermore, such machines can be used as devices controlling the movements of bodies in electronically gated cities, for both bodies connected to or bodies disconnected from the electronic machines or networks. The term 'network' implies 'connections' on the one hand and 'disconnections' on the other hand. That is, the construction of information infrastructures or the establishment of electronic networks in cities does not necessarily mean increases in accessibility to them or in the mobility of people in the cities.

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private electronic spaces in cities. First of all, people, especially young people such as school/university students who use the Internet and Internet cafés more actively than any other social class, have economic and social constraints on using the Internet in their homes. Internet cafés can provide them with easy and cheap access to the Internet. More fundamentally, even though people can use the Internet at their homes, people are not always at their homes. When they are outside their homes, it is Internet cafés where people can easily and instantly access the Internet. When people wait for their friends, meetings or classes for some minutes or hours, they can use Internet cafés for killing time. In addition, while social relations in contemporary urban societies are being increasingly fragmented, people willingly or unwillingly want to find places where they spend time alone. In fact, it is difficult to find places to be alone, and Internet cafés can be used for such a purpose as a place in which people play on-line games or have on-line chats.

12-5 Agenda for future research

In this research, I explained how hybrid spaces or fuzzy boundaries are formed in networked cities. However, there are still some research questions which were not addressed here or need to be explored further in future research: for example, the spatial contours of digital divides within cities; the social and spatial activities of on-line communities in off-line spaces; and the meanings and roles of human bodies in electronic cities. Among such important research questions worth discussing, here I wish to underline the relationships of bodies, machines and cities which are connected to electronic networks. "The city is an active force in constituting bodies, and always leaves its traces on the subject's corporeality. It flows that, corresponding to the dramatic transformation of the city as a result of the information revolution will have direct effects of the inscription of bodies" (Grosz, 1992: 250-1; see also Grosz, 1995: 110). In this process, "the subject's body will no longer be disjointedly connected to random others and objects according to the city's spatio-temporal layout. The city network … will be modeled on the ordered by telecommunications" (Grosz, 1992: 252). Furthermore, if "objects and subjects come to shape each other not just in space and time but through defining space and time" (Crang, 2001: 197; see also May and Thrift, 2001), the time-spaces of cities are folded, unfolded and refolded through the interactions of bodies' practices and machines' networks. In these senses, I want to suggest some interrelated themes in relation to the landscapes of networked bodies and cities, which need to be further explored in future research.

First, we need to pay attention to what bodies in cities would be incorporated into electronic networks and spaces and what bodies would remain in the outside of the electronic territories. This question has to do with the ways in which the differences of the socio-economic conditions of networked bodies and otherwise bodies in physical spaces can lead to the differences of their mobilities in electronic spaces, and again the differences of their activities and social positions in physical spaces. Especially, in order to emerge as new nodes in global networks, some cities – for example, Singapore, Kuala Lumpur and Seoul in Asia – are competitively attempting to transform themselves into electronic cities, constructing various electronic networks and spaces. In this process, various gated electronic territories – whether they are business buildings/areas or residential ones – can be constructed in the cities, which are selectively accessible to some privileged bodies, and are unavailable to otherwise bodies. As such, we need to give attention to how the city is divided into 'gated' territories and 'ghetto' territories, which have different bodily landscapes and urban ecologies.

Second, given that networked cities are increasingly being 'produced', 'sorted' and 'coded' by software installed in the cities (Thrift and French, 2002; Graham, 2004b, 2005; Dodge and Kitchin, 2004, 2005), we need to draw attention to the colonisation of bodies by machines or the 'bio-politics' of 'embodied' code/space. In these embodied code/spaces, not only do bodies operate machines, but also the machines control the bodies, and not only do bodies identify machines, but also the machines recognise the bodies. In such embodied code/spaces, cities are hybrid or cyborg spaces in which the boundaries between bodies as subjects and machines as objects are blurred, and furthermore personal information and biological databases are collected, controlled and circulated. In such cities, the movements of human bodies in cities are directed, regulated and controlled by such embodied code/spaces, which can be open and operated by personalised keys which are usually based on individuals' social or biological information (for example, PIN numbers, citizen numbers, fingerprints, irises and so on), "reducing marginalized communities to a state of biological subsistence so that they are no longer political subjects but mere inhabitants struggling for existence" (Gandy, 2005: 32).

Third, when we see networked cities, we need to focus on not only 'hard spaces' composed of infrastructures, networks and systems, but also 'soft spaces' produced by the desires, emotions and feelings of human bodies wired up to electronic machines and networks in the cities. Until now, many studies of electronic cities have attended to the physical and material aspects of cities: for example, the location and distribution of electronic facilities or the spatial structure and system of electronic networks. However, such cities need to be seen as embodied spaces in the sense that human bodies in the cities come to have new kinds of emotions, formed in virtual spaces or electronic networks. As I have suggested in this research, when people are dis/connected to electronic machines in their everyday lives, they come to have various emotions. In this sense, networked cities need to be approached in the perspective of 'emotional spaces' as well as 'intelligent spaces'.

Finally, we need to look at how human bodies' practices and desires to be connected (or disconnected) with electronic machines make cities that are fabricated by relational, multiple and complex time-space networks within/between cities. Although this does not mean that existing time-space frames and senses in cities are totally distorted by such a process, it seems to be true that the connections of human bodies and electronic machines produce ephemeral, contingent and dynamic time-space networks in cities. For example, while personal electronic devices are possessed and used by individual bodies, the time-space networks of the city come to be increasingly relative, relational and changeable. The time-space landscapes of networked cities cannot be conceptualised in terms of absolute or fixed time-space frames, and networked bodies also cannot be perceived as 'beings' located in the coordinates of Cartesian time-space. Rather, the time-space landscapes of networked cities and bodies need to be seen as 'becomings' in motion.

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