Information, communication and media technology

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abstract This article examines the key research topics of studies of information, communication and media technology under the condition of the digital revolution. By reviewing two research traditions – information society theory and media audience studies – the article elucidates the conceptual and theoretical relevance of the 'spatial turn' for future directions of research on the social impact of information and communication technologies (ICTs) in our daily lives.

keywords information and communication technologies (ICTs) ◆ information society ◆ media audience studies ◆ public sphere ◆ space of communication ◆ spatial turn

Introduction

In this article I assess the tradition and legacy of studies of information, communication and media technology. In the first section, I examine how and to what extent the ideal of the information society has been realized since its birth in the 1970s. Through critically assessing the sociopolitical conditions of the present information society, the research agendas that we should take are elucidated. The second section of the article gives an overview of the studies of information, communication and media technology. To review past research, I pick up two strands of the research tradition that have focused on the relationship between information/communication and media technology. One is the macro-oriented theoretical investigation of the information society, and the other is the tradition of empirical audience studies, which is more micro-oriented. By way of assessing the research results and legacies of these two traditions, the third section examines the conceptual relevance of 'space' and the theoretical merit of the 'spatial turn' for the investigation of how and to what extent the information and communication technologies have changed society. Insofar as a common theoretical ground is lacking among the variety of discourses on information, communication and media technology, academic discussion on them might prove neither fruitful nor productive owing to a mutual misunderstanding and indifference between such discourses. The concept of social space is hoped to serve as a common ground on which the macro-research and micro-research can be integrated. In the fourth section, introducing the conceptual distinction between 'space of information' and 'space of communication', I suggest future directions for research to take.

Conditions of information and communication technologies in our everyday life

Is the ideal of the information society realized?

It is often said that we are now living in a so-called 'information society', in which the value of 'information' is regarded as more important than that of 'material' (Hassan, 2008). Describing the characteristics of present sociocultural conditions as the consequence of the information society seems to be a taken-for-granted view shared among larger publics. The growing significance of the concept of the information society

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can be understood as a typical phenomenon of the societal transition from modernity to postmodernity (Kumar, 1995). Looking around at our everyday life practices, it is not that difficult to identify many concrete phenomena and cases that show the consequences of the 'informationalization' of society (Castells, 1996). For example, accessing and browsing the Internet came to be a very ordinary activity among both the formal public and informal private spheres. Ubiquitous electronic networking is the indispensable infrastructure for the economic activity of not only producers but also consumers. The advent of the digital revolution made information and communication technologies (ICTs) more compact, usable, cheap and mobile. As a result, many sorts of ICTs have become indispensable tools and gadgets for us in communicating with other people. Celebrating such developments of digital technology in our everyday lives, the proponents of the digital revolution recently declared the coming of 'ubiquitous computing', which will realize even more pervasive, frequent and easy usage of the interactive media in the near future.

However, the ideal of the information society and the celebratory discourse that promises the coming of a brighter future is not at all new. We can trace the origins of that ideal back to the various policy papers and academic and journalistic discourses that focused on the changing socioeconomic conditions of capitalist society in the 1970s (Hassan, 2008; Kumar, 1995). In that sense, the continuing hype of digital ICTs and the dream-like ideal of a coming ubiquitous media society should be understood as a symptom of not a break but a continuity with previous stages of the modern capitalist formation of economy and society.

The continuing myth of technological determinism

While the contents of technological innovations and the sociopolitical impacts that their proponents so enthusiastically declare have changed over the decades, we can see an unchanging, basic assumption that has characterized the enduring discourse of the 'coming information society and brighter future' (Rheingold, 2000, 2002). It seems that the celebratory discourse on information technologies somehow naively assumes that the innovative technology is fundamentally changing our society. As is well known, this is a typical reasoning of what is called 'technological determinism'. According to the discourse of technological determinism, the society in which we live will change almost automatically as the technological innovation occurs. Therefore, in the case of the relationship between information technology and society, it is presupposed that newly emergent ICTs are drastically changing the mode and the style of communication in people's everyday lives. Certainly, the concept of technological determinism has been criticized for ignoring the significance of the historical-political context of society into which these technologies are introduced and consumed by the public. Researchers involved in science and technology studies (STS) have paid critical attention to the naive assumptions of technological determinism, stressing the process of social shaping of technology (Wajcman, 2008). However, the attractive nature of technological determinism concerning the social impacts of ICTs seems still to be alive and somehow powerful for both the proponents of the digital revolution and the larger publics who accept their persuasion. Ironically enough, in the technological conditions under which users seem to be given more 'freedom of choice' in utilizing a variety of media, the network effect of media technology is becoming more powerful than ever. This 'network determinism' is regarded as a challenging concept in analysing the social transition with respect to the changing nature of temporality caused by technology (Hassan, 2010). It could be understood as the latest version of technological determinism in that it regards the network enabled by technological innovations as a primary factor of social change.

One of the reasons why the deterministic view of technological impacts on society has been taken for granted – in spite of the criticism it attracts – is that a lot of academic, policy-making and journalistic discourses have created a myth about the relationship between technology and society (Slack and Fejes, 1987). Those discourses, many of which are more futurological than social scientific in their arguments, convey to the public that these technological developments can bring about fundamental changes in society through the technocratic solution of the socioeconomic problems with which the present society is faced. With respect to ICTs, the rising affluence of information brought about by the technological innovations has been equated with the social enhancement of human communication. Here we can point to an enduring presupposition that the more information we can acquire through technological developments of media, the richer and more humane our social communications become. The unchanging concept concerning the social impact of technological developments reveals the ideological aspects of the discourse on the information society, which only casts light on the positive and brighter side of the future to come.

The present reality of the information society

However, more than 30 years have passed since the myth of the information society was created; the reality of the present society in which we live does not appear as bright or as wealthy as the proponents have enthusiastically proclaimed. Certainly, we have come to use the Internet in our ordinary practice, and it has made our everyday life as consumers more efficient and convenient. However, it is not certain whether we have become more mature and wiser as citizens living in an information-saturated consumer society. As the digital technology advances, it becomes clear that, on the one hand, some strata of society gain the advantage to acquire more resources to realize their own objectives; however, on the other hand, other strata are compulsively put in a disadvantageous position owing to their lack of access to and usage of ICTs. It is repeatedly warned that there has emerged a kind of 'digital divide' as a result of the rapid development of information and communication technologies (Servon, 2002). Not only between the global North and the South but also within a single nation, we can see the rising trend of the 'digital divide' and the widening gap between the information rich and the information poor in our globalized world. Several empirical studies have tested the relevance of the 'knowledge gap' model in the present context of digital media (Bonfadelli, 2002; Pior, 2005). According to the empirical results of this research, it seems that knowledge gaps cannot be easily resolved solely by an increasing media choice or the prevalence of Internet use.

Considering the reality of the present situation with respect to the relationship between information, communication and media technologies, one cannot shrug off the feeling that the promise of a brighter future has been neither necessarily nor fully realized. In other words, the happy scenario that the proponents of technological innovations have long afforded might have a fundamental flaw in analysing the sociopolitical conditions of the information society.

It must be an indispensable task for sociologists with research interests in the information society to pay social scientific attention to the changing relationship between information and communication in our society. Through critically interrogating the social, economic and political conditions of contemporary society, it is expected that we can fairly judge the promise of a brighter future reiterated in the discourse on technological developments and offer a more realistic and reliable view of the liberating potential of ICTs.

Theoretical overview

The macro-oriented perspective of the theory of the information society

Crisis of the Fordist regime and the idea of the information society: In the 1970s, many of the advanced capitalist societies were confronted with a global economic crisis. It seemed that the post-Second World War regime of Fordism could no longer function efficiently, despite governmental financial intervention and policy-making to tackle the economic crisis. The Fordist regime of economy and society presupposes the functional combination of mass production and mass consumption of material goods. However, under the global recession caused by the oil crisis in 1973, the Fordist formation of the economy was confronted with a profound danger in maintaining its economic growth and political stability. To cope with the economic-political crisis that occurred in the 1970s and to transform capitalism into a different formation from Fordism, the advanced capitalist nations in Europe and North America were compelled to make the regulatory mechanisms of the capitalistic economic system more flexible and fluid. In other words, for capitalism to effectively accumulate its capitals, it was not static and fixed systems like Fordism that were needed but the invention of a more flexible, post-Fordist regime. Moreover, in the era of the Cold War between the capitalist bloc and the socialist bloc in the 1970s, the economic crisis of capitalism also meant the legitimacy crisis of the western ideal of liberal democracy in competition with that of eastern socialism. Therefore, overcoming the crisis caused by the Fordist regime of capitalism was regarded as not only an economic, but also a political task to accomplish by both political and business leaders in order to defend the legitimacy of the western bloc.

The concept and the ideal of the information society appeared in the economic-political crisis period of the 1970s. There emerged much academic and journalistic discourse and many policy papers that enthusiastically celebrated the advent of the information society. The concepts of 'post-industrial', 'post-Fordism' and 'postmodern' were often introduced in the discourse of the information society (Hassan, 2008; Webster, 1995). Any sort of 'post' might imply the break or rupture with the preceding stage of society. However, the basic concept of the information society, it seems to me, presupposed the legitimacy and desirability of the capitalist regime of economy and society, as opposed to the socialist regime of the eastern bloc. As a result, discourses of the information society function as the ideology that fosters the reconstruction of the economic system within the

frame of the present regime of capitalism. Although those discourses pointed out the drastic transformation of society facilitated by technological innovations, most of them could be understood as the political and ideological legitimization of the western capitalist nations (Slack and Fejes, 1987).

A canonical text on the information society is Daniel Bell's *The Coming of the Post-Industrial Society* (Bell, 1973). Although Bell used the term 'post-industrial' rather than 'information' to describe the changing trends of the capitalist society in the United States, his argument paved the way for both academic and journalistic discussion about the coming of the information society. He pointed out the rising significance of 'scientific knowledge' in regulating and maintaining the economic system. According to Bell's argument, technological innovations are expected to foster the realization of more rational decision-making and more flexible production systems by way of collecting, storing, sorting, analysing and using as much information as possible. In this sense, the 'post-industrial' society in Bell's sense can be assessed as a typical example of the 'information society' (Hassan, 2008).

Critique of the information society and its aftermath: Bell's argument on the post-industrial society had a wide-ranging influence on social scientific research into the structural changes of contemporary society. At the same time, the discourse of the information society, strongly influenced by Bell's discussion, has faced much criticism. While Bell himself did not seem very optimistic about the societal transition from the industrial to the post-industrial stage of society (Bell, 1976), his followers and epigones were more optimistic and ideological in proclaiming the desirability of the information society. In their discussion of the coming future brought about by the innovations of ICTs, it was hoped that every socioeconomic problem could be solved when the information society was fully realized. Against these eulogies on ICTs and social change, the critical sociological investigations (many of them influenced by the Marxist tradition of social science) have tried to point out the structural continuity between the preceding society and the coming information society (Kumar, 1995; Robins and Webster, 1999; Slack and Fejes, 1987; Webster, 1995). According to those discourses, although at the surface level there seems to be a drastic change of society as a result of the developments of ICTs, the basic structure and mechanisms of the capitalist regime has not changed at all. Moreover, it is strengthened by the technological innovations, and the political contradiction inherent in capitalism, which has been critically analysed by Marxism and other critical traditions of social scientific investigation, unchangingly continues and is reproduced. However, the fundamental problems of capitalist society are neither mentioned nor analysed in the discourse of the information society. Contrarily, it presupposes the desirability and feasibility of the coming post-industrial information society. In that sense, the celebratory discourse of the information society is, the critics insist, nothing but an ideological legitimatization of the capitalist regime in crisis.

In the age of globalization the significance of information is becoming greater than ever. As Manuel Castells analyses in his trilogy, *The Information Age: Economy, Society and Culture* (Castells, 1996, 1997, 1998), we are now living in the 'network society', in which the advance of digital technology enables users to connect globally to each other, not only in economic transactions but also in social and cultural interactions. It could be said that the technological developments bring about a more mundane phenomenon of globalization into our everyday lives. For those who happily live in the network society where the flow of information has risen hugely because of digital innovations, it might be a joy to consume and use the variety of information that is offered to them as a commodity. However, at the same time, the acceleration of digital innovation and networking makes the fundamental problems and contradictions of the globalizing world more visible and prominent. Although individuals and groups able to take advantage of the digital revolution can gain more opportunities and resources in seeking their objectives, those who are 'disconnected' from the global network are weighed down by the desperate socioeconomic situation, where they can hardly have any hope for better living standards (Castells, 1996). Contrary to the dream-like future scenario depicted by the proponents of the information society in the 1970s and 1980s, the present conditions of the globalized information society seem to be more gloomy and full of discontent and conflict. As the critical investigations of technology and social change have shown (Feenberg, 1991; Lyon, 2005), the technocratic solution to socioeconomic problems, so appreciated by the proponents of technological innovations, is not enough to realize a better society for all. As we now see in the reality of a 'runaway world' (Giddens, 2000), the innovation and diffusion of the new ICTs often function in such a way that the socioeconomic inequalities become greater as people come to use them. To understand the mechanism that reproduces inequalities in society, we have to pay close attention to the contradictions in the sociopolitical dimension with which the technocratic solution cannot cope.

The micro-oriented perspective of audience studies

The myth of the powerful media: It might not be inaccurate to say that we can depict the origins of academic interest in what is called 'mass communication research' in the public's rising concern with the social impact and influence caused by the newly emergent mass media in the first half of the 20th century (Ross and Nightingale, 2003). As the new media at each point became more pervasive among larger populations, the public at the same time became deeply concerned and worried about the powerful influence of the mass media. They naively believed that the media could change society and its inhabitants entirely. Here we can see the popular sentiment of the technological deterministic view of media effects in general. Therefore, the hypothesis of the 'hypodermic effect', which presupposed the direct and powerful effects of mass media on the behaviour of the audience, was almost taken for granted in the speculative considerations of media in modern society. However, as researchers engaged more and more in empirical studies of mass media and their effects on people, it became clear that the actual effects on the audience through media exposure are not as strong, and are more limited and restricted than the public and academics who believed the omnipotent 'hypodermic effect' had supposed it to be. A famous empirical study of the presidential election campaign in the United States by Lazarsfeld et al. (1944) paved the way for the more sober and scientific investigation of media effects in society. According to the research data that Lazarsfeld and his colleagues gathered (Katz and Lazarsfeld, 1955), the 'opinion leaders' who have diversified interpersonal networks with other people in their everyday lives and are trusted by other people, stand in the decisive position of determining how and to what extent the media can have influence on the people who receive messages delivered by media. Katz and Lazarsfeld's famous presupposition of the 'two-step flow of communication' succeeded in clarifying how and through which social processes the mass media are accepted and assessed by the audience (Katz and Lazarsfeld, 1955). Katz and Lazarsfeld showed that the effect of the mass media is not that drastic but, rather, is decidedly limited, and how the media can change the attitude of people heavily depends on the 'predisposition of the audience'. Their research was epoch making because it demystified the myth of the 'hypodermic effect' and stressed the significance of not the technological per se, but the sociocultural dimension in considering the influence of the mass media.

Politics of media audience: After revising the 'hypodermic effect' model, mass communication research has inclined to the theoretical view that regards the spontaneity and activity of media audiences as more important and decisive in discussing the effects of mass media. The research trend of the 'uses and gratifications studies' is a typical example that gives priority, not to the presupposed media effect per se, but to the ways of the audiences' usage of the media for satisfying their needs. In the tradition of uses and gratifications studies, media technology is no longer regarded as omnipotent in influencing the audience. Instead of being based on the theoretical presupposition that an all-powerful media can determine the way of thinking and acting of a passive audience, the uses and gratifications studies focused on the psychological satisfaction that the audience seeks in using media. Because of developments in the empirical research on media effects and the proliferation of uses and gratifications studies, mass communication studies could shed new light on the significance of the sociological aspects of communications and media technology (Blumler and McQuail, 1969).

However, the psychologically oriented perspective of uses and gratifications studies, which mainly focuses not on the sociopolitical dimension of media reception, but rather on the individual's dispositions and motivations in discussing the relationship between media and audience, and their behavioural scientific perspective, which regards the message delivered by the media as 'stimulus' and the reaction enacted by the audience as 'response', were criticized by the critical research of media and audience rooted in the tradition of British cultural studies (Hall et al., 1980). Stuart Hall's encoding/decoding model was a typical critique of the psychological and behaviour science-oriented framework of mass communication (Hall, 1980). The theoretical uniqueness of Hall's model is that it succeeded in incorporating the concept of cultural domination and subordination into media studies. He differentiated the sociocultural codes which audiences use in interpreting the media texts they receive into three types; dominant, negotiated and oppositional. Depending on which sociocultural code is prevalent, an audience's interpretation of media texts differs greatly. Hall stressed that the differences and variations depicted in the process of interpreting media messages should not be attributed to the psychological difference of an individual audience. The difference in the codes used by an audience in receiving the media texts could be regarded, Hall argued, as the result of the cultural power relationship functioning in society. Although the 'dominant code' is preferred and used by those who have sociopolitical power, the

'oppositional code' tends to be mobilized in the suspicious and critical reading of media texts practised by those who are in disadvantageous positions. It can be said that through his theoretical model of encoding/decoding, Hall tried to 'politicize' mass communication research so that it could critically analyse the ideological effects of mass communication that legitimizes the power relationship between the dominant and the subordinated classes in the present capitalist society. In that sense, the theoretical innovations initiated by Hall and followed and developed by other scholars of cultural studies (Morley, 1980, 1986) enabled the research of media and culture to be more critical in academic discussion and more progressive in political orientation.

As cultural studies became a global academic trend in the 1980s and 1990s, media studies also began to focus on the globalized media culture and the audience's acceptance and consumption of media (Ang, 1985). A variety of comparative research that analysed media reception and text interpretations has been conducted through empirical audience studies. By way of ethnographic descriptions of the audience's engagement with the media, researchers tried to clarify how and in what ways the reception of global media and the interpretation of media texts differ, depending on the differences of 'race', ethnicity, gender, class and nationality of the audience (Lull, 1995). Although the cultural impacts of globalization sometimes seem to be so excessively estimated as to imply that a globalized cultural homogeneity dominates over the diversity of local cultures, media audience studies can afford us a more balanced picture of globalized culture – one not based on the technological deterministic but rather the sociocultural constructionist view of the media's effects in the age of globalization.

Internet usage and its effects on communications: While the research strand of cultural studies has focused on the broader sociocultural aspects of communications and technology, mainly using quantitative methods like ethnography, the studies based on the tradition of mass communication research have engaged in quantitative analysis of people's use of digital media and its effects on communications in their everyday life. Against the backdrop of a digital revolution and the concomitant importance of electronic media in people's everyday lives, a variety of empirical studies have been done in order to investigate the effects of media usage in larger populations. In contrast to the more philosophically oriented 'cyberculture studies' (Silver and Massanari, 2006), which stress the sociocultural transformation caused by computer-mediated communication (CMC), the empirically oriented research based more on traditional theoretical and conceptual frameworks mainly focuses on specific topics, such as 'knowledge gap', 'intimacy and privacy', 'Internet safety' and so on, in investigating the newly emergent phenomena of digital media usage like email exchange, blogging and the variety of communications enabled by SNS (social networking service) (Bonfadelli, 2002; Livingstone, 2008; Patchin and Hinduja, 2010). These research studies make it clear that the new mode of communication realized on the Web surely affects the users' everyday life practice. At the same time, these empirical analyses have shown us that the effects of the new digital media are not so drastic as to completely replace the position that has been occupied by the older media like network broadcasting. While the 'cyberculture' school sometimes seems to presuppose the revolutionary potential of the Internet as omnipotent, the more sober research on digital media show us a more balanced picture of how Internet use changes our communication and culture in general (Bennett and Iyengar, 2008; Couldry, 2009).

Assessment of the research traditions

As discussed in the previous sections, at the macro-structural level, the theory of the information society has made clear the economic, social and technological processes that foster the growing significance of information in contemporary capitalist societies. At the micro-phenomenological level, the tradition of media studies, especially its branch of audience studies, has contributed to an empirical analysis that aims to elucidate media usage and its effects on communications of people. These two strands of social scientific research into information, communication and media technology have developed independently. Therefore, there seems to have been insufficient theoretical collaboration or discussion between them.

Time–space compression in the information society

However, we can see the convergence of theoretical viewpoints that each tradition has come to underscore in critically investigating the sociopolitical conditions of information and communication in a globalizing world. Here, I would like to focus on the conceptual significance of 'space' for both macro- and micro-perspectives of sociological research into information, communication and media technology.

Recent academic discussions of the information society rely heavily on the theoretical legacies of social geography, some of which are strongly influenced by the tradition of Marxism (Castells, 1996;

Hassan, 2008; Kumar, 1995). For example, the works of Harvey (1989) and Soja (1989) have influenced the discussion focusing on the sociocultural changes seen in the transition from the Fordist to the post-Fordist regime of economy and society (Benko and Strohmayer, 1997). In discussions of the structural transformation of the capitalist society, the newly emergent socioeconomic formations of 'space', as well as that of 'time', are regarded as one of the most decisive aspects of the changing world (Oke, 2009). The economic rearrangement generated by the development of ICTs brings about a change in the sociopolitical formation of time and space in society. Inventing the concept of 'time–space compression', David Harvey has successfully described the processes of economic, geographical and social change occurring in contemporary capitalist society (Harvey, 1989). In Harvey's discussion, the economic process of 'time–space compression' is considered not as technologically, but politically determined in the political economy of contemporary capitalism. In this sense, Harvey's postmodern geography seems to stress not the rupture but rather the continuity between modernity and postmodernity at the economic level of capitalism.

Appropriating the analysis of the socioeconomic formation of space and time initiated by the critical postmodern geography, the studies of the information society became more fruitful so that researchers of it can engage in the sociological interrogation of newly emergent social spaces. Socioeconomic formations of space under the changing economy and geography reconstruct the scope and the mode of communication of the people living in those social spaces. Although the actual practice of social communications enacted by people are not totally determined by the economic-political process of 'time–space compression', the formation of social spaces occurring under the post-Fordist regime is fundamentally changing and strongly limiting the way and the content of one's communication with others. To pay analytical attention to the emergent formation of space and changing communications must be an indispensable task for researchers attempting to critically illuminate the structural transformation of the information society.

Social spaces of media reception

The tradition of audience research has invested much attention in how and to what extent the technological developments can change the attitude and behaviour of audiences as well as society at large. However, its psychological perspective on and behavioural scientific view of media effects seem to have prevented the empirical investigations of media reception from analytically focusing on the social space in which acceptance and consumption of media occur. Academic intervention of cultural studies into the field of mass communication research has changed this situation so that analytical attention can be paid to the social space. For example, in Morley's empirical research of the influence of television news programmes, the domestic space of the family was seen as a very important research topic in considering the process and mechanism of media reception (Morley, 1980, 1986). According to Morley, contrary to the experimental setting that psychologically oriented reception studies prefer, the actual reception and interpretation of the television programmes by the audience occurs in the social context of the household, where the activity of 'watching TV' is done along with other domestic activities such as chatting to each other, cooking, caring for children and so on. The sociocultural power relation – for example, that of gender relations based on the patriarchal family system – strongly affects the process of the audience's choice and use of media in their family lives. Therefore, Morley insists through his research data that to clarify how and through which social processes television programmes are accepted by the audience, the research of media must incorporate the concept of 'domestic place' into the analysis of media reception.

Introducing the concept of social space in which the audience engages with media, the media study came to analyse not only the symbolic dimension of text interpretations but also the material dimension of mediated communications enabled by ICTs. To consider the social space made by technological developments of media is also indispensable for the research into globalized culture. As Arjun Appadurai pointed out in his cultural theory of globalization, the process of globalization drastically changes the 'scapes' of society at large (Appadurai, 1996). In the case of media and communication, the new ICTs challenge the previous 'media scape' and engender new ones. This changing process of scapes is nothing but the transformation of the social space in which mediated communications take place. Therefore, the cultural processes of globalization can be understood as the reconfigurations of space and communication fostered by the technological innovations. While the technology cannot determine the sociocultural contents of globalization, it prescribes the mode and scope of globalized communications.

Relevance of the spatial turn

Increasing analytical attention to and deepening research interest in space are often described as 'the spatial turn' in recent media and cultural studies (Falkheimer and Jansson, 2006; Warf and Arias,

2008). The recent shift of theoretical focus onto media and culture can be understood as the turn from the individual-action-oriented research paradigm, which has long been dominant in the field of mass communication studies, to the collectivity-space-oriented paradigm. Because of this turn, cultural studies of media and communication have shed new light on how and to what extent the technological developments of media can affect, change and transform the everyday life practices of the people who consume and use the emergent information and communication technologies (Morley, 2000).

Focusing on the social spaces, the sociological enquiry into information, communication and media technology has developed so that it can critically investigate the fundamental sociopolitical changes occurring in contemporary societies. Moreover, the relatively separate research traditions of information society theory and media audience studies are expected to engage in more academic dialogue in discussing the sociopolitical conditions of spaces that are constructed by ICTs and at the same time transform the mediated communication of audiences. In other words, the academic division of labour between the 'macro-oriented perspective' and the 'micro-oriented perspective', which sometimes seems to cause intellectual indifference to other perspectives owing to a lack of common research grounds, will be overcome. Increasing attention to and deepening interest in the concept of social space can surely function to bridge the discrepancy between the two research strands and might enable them to engage with the critical, empirical and collaborative investigations of information, communication and media technology.

Future directions

The theoretical task after the spatial turn

Although the spatial turn in studies of information, communication and media technology appears to be promising in developing future research directions, there seem to exist some theoretical tasks we have to tackle. Certainly, because of the introduction of critical perspectives of social geography, the theoretical and conceptual tools for grasping the change of social space under globalization have been drastically refined. Analytical conceptions that focus on the formation of spaces and communication have been recently invented (for example, Castells' 'space of flow'); however, many of them are, it seems, concerned mainly with the increasing significance of information as a commodity. As a result, the normative question concerning the conditions of social communication seems to be relatively neglected in the discourses on information and communication technologies. Here we can bring to mind the enduring myth about media technology, which reiterates the unwarranted presupposition that the more information we can acquire because of the technological developments of media, the richer and more humane our social communications become. However, it is apparent that the realization of information affluence is one thing, which is brought about by the marketization of technological innovations, and the realization of more liberating and democratic communication, which is only possible through political institutions and social arrangement, is another. Confusing these two aspects of the potential that is realized by the development of ICTs runs the risk of overestimating the positive side of the digital revolution occurring in the post-Fordist regime of economy and society. To avoid such theoretical risks, it is necessary to introduce not only an analytical, but also a normative conception with respect to the relationships between information, communication and media technology into the discussion.

The public sphere as the normative space

For this purpose, Habermas's theory of the public sphere is useful and suggestive (Habermas, 1989). As is well known, the concept of the public sphere, in which 'private persons' rationally discuss 'public affairs' as equal and free partners, is both historical and normative. Although Habermas pointed out the historical appearance of a bourgeois public sphere in modern western civil society, he also stressed the universal potential for liberation discerned in the modern type of public sphere. Habermas's view of modern mass media is far from technological determinism. He focused on the sociopolitical context in which the media were introduced so that the dialogical communications of people were widely and speedily mediated among the publics. Although Habermas's theory of the public sphere has faced a variety of criticism (Calhoun, 1992; Crossley and Roberts, 2004), his normative argument of the democratic relationship between the intersubjective communicative actions performed by the people and the social production of information to which the technological development of media may contribute, is very useful and suggestive in considering the present conditions of information and communication.

Based on the normative concept of the public sphere, we can cast new light on the socioeconomic conditions of the present information society. Certainly, the interactivity of the media has grown hugely due to the digital revolution. It has enabled a flow of information in society more pervasive in scope and larger in amount. However, it is not certain whether it has made the communicative relation

among the public more dialogical and democratic. Contrary to the optimistic view of enthusiasts about the political empowerment enabled by ICTs, some critics persuasively point out the danger to democratic communications caused by the increasing interactivity of digital media (Prior, 2005; Sunstein, 2007). According to these critics, although the development of ICTs creates new social spaces in which users can interact widely via digital media, it is not guaranteed that more liberating and democratic communication will be realized in those social settings. In reality, it seems as if the social spaces created by new information and communication technologies are nothing but the space of information, which is fundamentally different from that of communication. In other words, we can see the discrepancy between the spaces constructed by the flow of commodified information, which are facilitated by digital technologies, and by the dialogical communicative exchange of discussion, which are enacted by those who are eager to engage in democratic interaction with others.

Distinction between 'space of information' and 'space of communication'

To fairly interrogate the potential of the present digital society, it seems to be indispensable for researchers to analytically distinguish the space of information from that of communication and to clarify the difference and contradiction between the two spaces. In addition, it is expected that critical research should normatively assess the sociopolitical conditions and configurations of the two spaces.

As the usage of the Internet becomes more pervasive among larger populations, many people come to enjoy more interactive/mediated communication with others on the Internet. The recent hype about blogs, social networking services (SNS) and Twitter can be understood as a sociocultural symptom of the realization of technological interactivity (Marwick and boyd, 2011; Patchin and Hinduja, 2010). Some researchers try to point out the liberating potential of these 'social media', saying that the technological innovations of Web 2.0 enables Internet users to express their opinions more openly and directly to the public (Gauntlett, 2007; Kaplan and Haenlein, 2010). In other words, the prevalence of the social media on the Internet could be regarded as a great contribution to the realization of 'freedom of speech' for all people. On the other hand, some critics seem to be very sceptical about the sociopolitical potential of the technologically mediated interactivity that people enjoy via the Internet (Abe, 2009; Andrejevic, 2007; Everitt and Mills, 2009; Keen, 2008). According to these critics, while the communications enacted through blogging and SNS seem to be open and democratic in that the users of those social media voluntarily engage in a variety of mediated interactions, what users of those social media do is subtly managed and controlled by the informational and technological system they use. Every transaction and communication the individual user/consumer makes via the social media can be monitored, recorded and managed by the providers of social media for their own marketing purposes.

It is not so easy to judge which observation of the recent hype of social media on the Internet is the more plausible. However, it must be relevant and fruitful for future research on technological innovations and communications on the Web to introduce the analytical perspective that distinguishes the space of information from that of communication in assessing the potential of newly emergent digital media. Through critically investigating which sorts of space are emerging in accordance with the rise in the usage of social media, it is expected that the studies of information, communication and media technology can cast a new light on the sociopolitical conditions of the present information society. Sociological judgement must be possible insofar as the research can keep a normative edge in investigating the mediated social space emerging in the era of digital revolutions.

Although the enthusiastic proponents of the digital revolution have long declared and reiterated the myth that the more information we can acquire through the technological developments of media, the richer and more humane our social communications become, the past 30 years tell us that this is not the case (Kelly, 2009). Therefore, not to be trapped by the myth of technological revolution again, we must continue to refine our conceptual, analytical tools to grasp the emergent phenomena fostered by the innovations of ICTs and to sharpen the normative edge of sense to intervene in the contradictions caused by the 'informationalization of society' (Castells) and 'time–space compression' (Harvey), when we investigate the sociopolitical conditions of information, communication and media technology.

Annotated further reading

Couldry N (2003) *Media Rituals: A Critical Approach*. London: Routledge.

Couldry N (2009) Does 'the media' have a future? *European Journal of Communication* 24(4): 437–449. Couldry's investigation focuses on the role and function of 'the media' in contemporary societies, in which people can utilize a variety of media. While it sometimes seems that the effects and impact of

traditional mass media are declining as technological innovations like the Internet enable more diversified communications, Couldry has persuasively shown the enduring, powerful effects of media, though the media themselves have transformed, through his theoretical and empirical research on media and society.

Lash S (2002) *Critique of Information*. London: Sage.

Lash S (2007) Power after hegemony: Cultural studies in mutation? *Theory, Culture and Society* 24(3): 55–78.
The works of Scott Lash are very radical in questioning the sociopolitical conditions of the information society. Basing his argument in the social theory and philosophy of western traditions, Lash has tried to pave a new way to the critical theory of postmodern societies.

Napoli PM (2010) Revisiting 'mass communication' and the 'work' of the audience in the new media environment. *Media, Culture and Society* 32(3): 505–516.
In this article Napoli revisits the traditional term 'mass communication'. Recently it seems common among researchers in media studies that the term 'mass communication' is out of date as technological developments have engendered more 'personalized' mediated communications. However, Napoli tries to show an alternative interpretation that pays close attention to the new relationship between the media institutions and the users' practices of 'mass communication' under the present condition of the Web 2.0.

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résumé Cette contribution vise à clarifier les principaux sujets de recherche de l'étude de l'information, de la technologie de la communication et des médias en vertu des révolutions numériques. À travers l'examen des deux traditions de recherche, la théorie de la société de l'information et des études de l'audience des médias, le document met en lumière la pertinence conceptuelle et théorique du 'tournant spatial' pour les orientations futures des recherches sur les impacts sociaux des technologies de l'information et de la communication (TIC) dans notre vie quotidienne.

mots-clés espace de communication ◆ étude de l'audience des médias ◆ société de l'information ◆ sphère publique ◆ technologies de l'information et de la communication (TIC) ◆ tournant spatial

resumen Este artículo tiene como objetivo aclarar los temas clave para la investigación sobre los estudios de la información, comunicación y tecnología de medios, dentro del marco de la revolución digital. A través de la revisión de dos tradiciones de investigación, las teorías de la sociedad de la información y los estudios de audiencia de medios, el artículo dilucida la relevancia conceptual y teórica del 'giro espacial' para la dirección futura de investigaciones sobre el impacto social de las tecnologías de la información y la comunicación (TICs) en nuestra vida cotidiana.

palabras clave esfera pública ◆ espacios de comunicación ◆ estudios de audiencia de medios ◆ giro espacial ◆ sociedad de la información ◆ tecnologías de la información y la comunicación (TICs)