

Sakari Taipale

# Transformative Technologies, Spatial Changes

Essays on Mobile Phones  
and the Internet



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Spatial Changes

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Essays on Mobile Phones  
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UNIVERSITY OF JYVÄSKYLÄ

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## ABSTRACT

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Finnish summary

Diss.

This doctoral thesis argues that mobile phones and the Internet transform the ways we perceive, conceive and experience the formation of social space. As a concept, social space has been in the focal point of social sciences since Simmel and Durkheim. It has been exhaustively applied to understand the forms of social assembling in different periods of time. The thesis consists of an introduction and four articles, which all address ICT-related transformations in social space in the information age.

This study explores transformations in the formation of social space through a three-fold conception of social space, originally presented by Lefebvre (1974/1991), and later applied in technology studies (e.g. Wise 1997; Nunes 2001; 2006). This approach emphasises that social space should not be studied by only analysing its material basis and conceptualisations. In addition, transformations in the configurations of social space should be studied through people's experiences. To examine these three aspects of social space, the study takes advantage of the multiple triangulation method. In addition to theoretical approaches, qualitative and quantitative data is applied variously in the four enclosed articles.

The results of the study highlight that in ICT-mediated interactions, material boundaries set a decreasing amount of obstacles for the creation of social space. In contrast to the pre-information era, many boundaries can be overcome with ICTs and people may experience togetherness without the immediate physical proximity of others. Furthermore, the study indicates that this adds to the importance of the purpose of social space as a cohesive factor. As fixed boundaries are regulating the participation in social space to a lesser extent, it is the purpose of gathering together that is emphasised in the fabrication of social space. Lastly, the study reveals the problematic nature of the phenomenon. As ICT-created social spaces are easy to access, they also attract people with a great variety of interests to join in. The emergent diversity of people may give rise to conflicts and disorder within a social space. This is to say that people also experience transformations in social space variously.

Keywords: mobile phone, the Internet, networked social space, transformative technologies

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- ARTICLE I** Taipale, Sakari (2007) The Cellphone: Is it an Urban Phenomenon? In R. Pertierra (ed.) *The Social Construction and Usage of Communication Technologies: Asian and European Experiences*. Manila: University of the Philippines Press, 82-99.
- ARTICLE II** Taipale, Sakari (2009) Does Location Matter? A Comparative Study on Mobile Phone Use among Young People in Finland. *The Journal of New Media and Culture* (accepted).
- ARTICLE III** Taipale, Sakari (2006) The Mobile Phone, Disorder and Moral Panic: The Hybridization of Communication Culture in Nigeria. In M. Järvelä and K. Kuvaja (eds.) *The Flows of Transformation*. Jyväskylä: Department of Social Sciences and Philosophy, University of Jyväskylä, 133-157.
- ARTICLE IV** Taipale, Sakari (2009) Recognizing Human Culture on the Internet. *The Nordic Journal of Cultural Policy* (accepted).

# 1 INTRODUCTION

## 1.1 Technologies transforming social space

New information and communication technologies (ICTs) have changed the way we perceive, conceive and experience everyday life. Mobile telephones and the Internet have been at the frontline of this change. They have altered the patterns of daily interaction, generated new types of digital bonds, and intensified human-computer interaction (e.g. Kopomaa 2000; Kasesniemi & Rautiainen 2001; Kasesniemi 2003; Katz 2003; Fortunati, Katz & Riccini 2003; Haddon 2004; Ling 2004; 2008; Nyíri 2003a; 2003b; 2005; Rheingold 2002). As transformations have been so pervasive in scope, social scientists have also tried to conceptualise them in various ways. James E. Katz and Mark Aakhus (2002a, 303-305) have used the term, *apparatgeist*, to describe transformations in various social institutions within the prevailing technological context. Apparatgeist refers literally to the spirit of the machine that has an effect on both the designs of the technology and the significance accorded to them by people. Apparatgeist is fuelled by people's inherent desire for social association, and thus it is closely connected to the idea of perpetual contact.

What does the spirit of the machine then mean in terms of spatial configurations of the social world? In the 1960s, Marshall McLuhan (1962) suggested that due to the rise of new technologies, the world would become an ever smaller place and that we will begin to live in a global village. Later, the scholars have suggested that the new ICTs would lead to the decreased meaning of national borders and other fixed entities (e.g. Ohmae 1990; Urry 2000a). In contrast to these macro-level studies, this study analyses changes in spatial relations from the perspective of social assembling that takes place at individual and community levels.

The study argues that the intensified relationship between human beings and ICTs, or in broader terms *apparatgeist*, transforms the ways we perceive, conceive and experience social space. The emphasis of the study is on the

theoretical elaboration of the concept of social space, though the theoretical analysis is enriched with an array of empirical examples. By exploring the interrelationship between ICTs and the forms of social association, the study contributes to the social scientific understanding on information societies. The study highlights the significance of new technologies and communication in the reshaping of social fabric in the information societies.

The study operates with two major concepts which are social space and information and communication technology (ICT). In short, social space can be defined as a space that is occupied by people through the mutual processes of inclusion and exclusion. Social space studies have a long history in the social sciences, which will be elaborated carefully later in this study. ICTs, in turn, are understood here as mediums of social interaction mediated across a series of technological networks. Although the study is conscious of an ever wider variety of technological innovations covered by the term ICT (e.g. Fitzpatrick 2003, 131; Dutton & Peltu 1996), the analysis is limited here to only the mobile phones and the Internet.

At times, the concept of ICT is paralleled with the term of computer-mediated communication (CMC) (Jones 1998). This is done especially when the communicative and interactive aspects of new technologies are wanted to be underlined instead of many technological features of artefacts. The notion of CMC underlines that ICTs have both a material (technological) and immaterial (communicative, symbolic) aspect, which equally influence spatial configurations in multiple ways (e.g. Jones 1998, 14-15; Brügger 2002). In terms of materiality, it is in place to notice that portable ICTs have detached human interaction from the fixities. The immateriality of ICTs, in turn, is manifested in a possibility to constant availability and contactability, not forgetting a certain feeling of freedom provided by mobile communication appliances.

In fact, one of the main reasons to study technology-related changes in social space is that ICTs have started to disengage human interaction from physical fixities. A growing number of ICT appliances are designed and built to be portable. With the help of mobile communication appliances, people can be reached over physical distances and geographical obstacles rather easily, although at communicative and virtual levels only. For example, distant relatives or overseas friends have become closer in a communicative sense due to the connective capacity of ICTs. This kind of *transformative capacity* of ICTs has made it clear that spatial distance should not be considered solely as being physical. Spatial relations are formed around and through virtual, imaginative and communicative aspects of interaction as well (Urry 2000a, ch. 3-4; 2000b, 186; 2007, 46-54). In consequence, this transforms the ways how we perceive, conceive and experience the composition of social space.

The broader goal of this leading study is to build a theoretical framework for an academic dissertation and to summarise its main results. Besides this leading study, the dissertation is comprised of four articles that are enclosed. The articles provide a range of information about spatial changes in the technology-mediated world with relation to the specific aim of each article. The

aim of the leading study is to show how the articles are thematically and theoretically bounded up with one another, and how they add to our understanding on ICT-related transformations in the formation of social space. In other words, the leading study aims to construct both a theoretical framework for and a synthesis of the articles, which elucidate the transformative capacities of ICTs in terms of social space.

The theoretical framework is built on classic sociological theories on social space and more recent studies, understanding the dynamics of contemporary societies as a technology-mediated process. Georg Simmel's insightful essays on social interaction in urban spaces, the configurations of social space and sociability (Simmel 1964; 1994; 1997) form a cornerstone of the study. Later, for instance, Scott Lash (2005) has applied his writings while analysing the changing nature of human interaction in the information age. Simmel's value is also recognised in many mobile communication studies, not least in those considering the mobile phone as a fashion statement (Fortunati 2002a; 2005a; Fortunati, Katz & Riccini 2003; Katz & Sugiyama 2005) or as a source of new technology-mediated social ties (Ling 2008). Though much has changed since Simmel, this study argues that we may still benefit from Simmel's writings when exploring transformation in the formation of social space in a technology-mediated social relationship.

The study recognises that classical accounts, like those of Simmel, need to be supplemented with contemporary ideas to make them applicable and plausible in the information age. In this work, this is executed by making good use of earlier research work, where ICT-related transformations in social space are considered as network-based and mobile processes. Whereas earlier social assembling took place mainly in face-to-face relationships, today's apparatus emphasises the technology-mediated forms of social interaction where people are networked via ICTs (e.g. Ling 2008). More precisely, this doctoral thesis utilises studies about network societies (Castells 2000a; 2000b), technological mobilities (Urry 2000a; 2000b; Peters 2006) and technology-space relations (e.g. Graham & Marvin 1996; Westwood & Williams 1997; May & Thrift 2001; Adey & Bevan 2006). It is believed that in this way it is possible to understand how ICTs influence the formation of social space in the information age. At the same time, this links the study to a wider debate about the role of ICTs in the globalised world without neglecting the long history of social space studies.

The study approaches ICT-related transformations in social space from three perspectives. These perspectives are derived from the previous theoretical analyses on social space and its production (Lefebvre 1974; Wise 1997; Nunes 2001). First, the study looks at the *material* aspect of social space formation. This is to make clear how ICTs as material artefacts are bounded to certain fixities and physical conditions, yet they also hold a great capacity to liberate people from a physical setting through immaterial communication. It appears evident that both the materiality and immateriality of ICTs influence the formation of social space in the information age. Second, the study analyses *conceptual practises* that make spatial transformation visible and understandable. When the

material foundation of social space is subjected to changes, it is conceptual practises that should be adjusted to render these transformations. This part of the study is mainly carried out by examining how scholars have tried to catch the essence of ICT-related transformations in spatial relations. Third, the study examines the *experiential* level of ICT use in order to figure out how transformations in social space are lived through in everyday life. To reach this aim, the study analyses a few examples about everyday mobile phone and Internet use. These reveal the way how changes in spatial relations are also witnessed at an experiential level of life.

However, it is not realistic to believe that just by combining information from the three standpoints one could produce an all-encompassing picture of the phenomenon. This kind of approach will also leave various aspects uncovered depending on the scope of the empirical data, methods used, and literature available. Nevertheless, it can be believed that the complex dynamics of ICT-related spatial transformations can be better reached in this way compared to a single standpoint strategy. The exploration of the material aspects of new ICTs only, for example, would easily lead to a technologically overloaded analysis where the role of technology is overemphasised (technological determinism). Focusing on the experiential aspect of social space transformations, in turn, would easily mean neglecting technology at the expense of the human dimension (social determinism) (Wise 1997, 72-73). For these reasons, the study takes advantage of the multiple triangulation strategy that provides different tools to catch different aspects of spatial transformations. In this way, the study aims to create a multifaceted picture of transformations in the structure of social space in the information age.

## 1.2 Transformative technologies

The concept of transformative technology (e.g. Glotz, Bertschi, & Locke 2005, 11; Pertierra 2006, 1-9; 2007b) is employed to situate the study between two sociological paradigms with different understandings on agency. The paradigms are known as the social construction of technology (SCOT) and an actor network theory (ANT). SCOT has its roots in the 1980s. It underlines the idea of social forces which shape technology (Bijker, Hugher & Pinch 1987), and thus it falls in the category of social constructivism. Accordingly, social constructionists say that it is the interaction between and within social groups that shapes technological artefacts, how they are perceived and used (Bijker 1992, 76). Also the history of the actor network theory dates back to the 1980s. Actor network theorists accentuate the role of non-human entities as the agents of socio-technical systems (e.g. Law & Hassard 1999). In principle, this theory gives an equal role to both social and technological agents regarding technology-related transformations in social structures. It is the characteristics of ANT that neither human nor non-human agencies have a predetermined

position or function in the network. Actor network theorists believe that positions and functions are given in the negotiations between actors (Latour 1996, 177). This means that technologies may also have an effect as to how human beings use and perceive them.

These two paradigms differ significantly from each other regarding their ontological basis. SCOT as a social deterministic approach criticises the superiority of technology as a driving force of development. It argues that technological changes result also from the appreciation of a social actor. It is how people value, resist or reject technologies that influence the shaping of new technologies. ANT, in turn, is trying to distance itself from social and technological determinisms through the concept of generalised symmetry. According to it, the significance of a human and nonhuman actor for changes should not be presupposed, because their roles are given or negotiated in the network of all kinds of actors. In fact, it can be argued that ANT acknowledges the role of both technological and social determinism, and wants to consider them as equal factors.

The transformative technology approach falls between these two paradigms. It does not consider technology and human beings as equal actors. Rather, it acknowledges the significant role of new technologies as *enablers* and *mediators* of social change. It is the ICT users who take advantage of the inherent capacities of technologies eventuating in alterations in social reality. In this way, the approach circumvents major problems related to the unconditional acceptance of a non-animate agency in ANT. The most serious of them is to know which actors have an effect on a particular situation; human or/and non-human (Wise 1997, xv).

In this analysis the main focus is on the alterations in the formation of social space. The study considers that people utilise mobile phones and the Internet in order to modify the formation of social space to be more favourable to them. In practice, the composition and limits of social space are negotiated and redefined in CMC in multiple manners. If people want more private space, they may use ICTs to cocoon themselves from the hectic surrounding life (Perterra 2006, 101). People may also use ICTs to extend the limits of social spaces with a purpose to unite people with a similar interest. Through various social rituals in CMC people strengthen social ties within a given social space (Ling 2008). Transformative capacity, in other words, is associated here with a possibility to influence the formation of social space.

Transformative capacities of new technologies are part and parcel of network societies in the information age (Castells 2000a, 30, 69-76). Compared to the period of industrialisation, the formations of social spaces are less bureaucratic and less hierarchically organised in the new world order. Ties bonding people together are increasingly computer-mediated and flexible by nature. Ties are created, maintained and also dismantled, more often than ever before, with help from mobile phones and the Internet. Furthermore, exceptions towards the internal uniformity of social space are remarkably lower in the information age. Social networks and their spatial formation can be shaped



individually without external pressures of similarity. In terms of Durkheim (1984), the computer-mediated forms of interaction and association appear as the manifestations of organic solidarity. In organic solidarity that is premised on highly differentiated social roles and contractual relations and ICTs provide a medium to administer a social relationship from both near and afar.

The transformative capacity of mobile phones and the Internet is also recognised in densely inhabited Southern countries, where people lack private space and family relations are tight (Pertierra 2006, 77-95). In Durkheim's vocabulary, this kind of social order engender mechanic solidarity; solidarity that results from the pressure of being similar to others. In Southern societies, and other communities where mechanic solidarity is still a predominant form, transformative technologies can be utilised to extend the limits of geographically and socially restricted spaces. Mobile phones and the Internet provide a medium to overcome such boundaries and make some distance to physically present others. Under the regime of mechanic solidarity, ICTs make possible the sense of togetherness with people who are not physically present. Furthermore, they enable individualised social networks outside the family and without the external pressure of sameness.

Transformative technologies modify the configurations of social space configurations, for instance, by affecting its boundaries. Like Simmel says, boundaries contribute to the integration of social space: a bounded space makes any social space and its social order more concrete and deeply experienced (Lechner 1991, 197). It may well be that boundaries play a different role in computer-mediated interactions (compared to non-mediated face-to-face interaction) where social space can be created and transformed over national and communal borders, as well as religious and linguistic regimes. It is proposed below that the concept of a network could be a useful concept to iron out how the use of transformative technologies influences the formation of social space in the information age (see Chapter 2.5).

The study also stresses that transformative technologies and their impact on spatial relations are increasingly of a global interest. It is not only the industrialised North that is witnessing the transformative capacities of the ICTs but the Southern countries as well. Recent studies show that in Southern countries, mobile phones and the Internet are used to sustain social ties with distant relatives working overseas or immigrating in the industrialised countries. There are also examples of how ICTs have been used in political campaigns, in some fraud endeavours, and how people in secluded and remote locations of the South have taken advantage of new technologies to boost their rural livelihoods (e.g. Aminuzzaman 2002; Pertierra et al 2002; Pertierra 2006; Ellwood-Clayton 2003; 2004; Donner 2003; 2005; Obadare 2004; Barendregt 2005).

Moreover, it is crucial to notice that ICTs denote different things for those to whom the mobile phone and the Internet are only mediums to the outside world, and for those living prosperous cosmopolitan lives even without new ICTs. The mobile phones and the Internet were first adopted in the most

prosperous countries and densely populated urban areas, just as the diffusion theories suggest (Simmel 1904; Norris 2001; Graham 2002). In the course of time, they have become trickled down from the well-off to ordinary people, and dispersed from the centre to the periphery and from the North to the South. This is to underscore that *apparatchik*, understood as a transformative power of ICTs regarding social fabric, is a worldwide phenomenon. This is the case even if the *apparatchik* may be manifested and experienced in different ways in different places.

### 1.3 Structure of the study

This study is organised into eight chapters. After this introduction, the *second chapter* begins with the setting of research questions and objectives for the study. Both research questions and objectives are organised according to the three aspects of social space. The research questions are also anchored to classical sociological studies on social space. Thereafter, more recent attempts to understand the formation of social space in the networked information societies are brought in.

The third chapter is given over to the contextual framing of the study. First, new ICTs are presented as part of a globalisation process. Like Castells (2000a) argues, ICTs form an infrastructural backbone of the globalised world, which he generally calls the information age. ICTs have enabled an immediate and efficient exchange of information, which has then intensified and broadened the interconnectedness of the world. Consequently, our understanding on spatial relations is subjected to change as the social assembling, among other things, takes place progressively more and more in technology-mediated relationships. Second, the chapter points out two “turns” in sociological thinking, which are both characteristics of globalisation and fuelled by new ICTs. These shifts in thinking are known as spatial and mobility turns. Third, the chapter points out how these developments have ended up intensifying human-computer relationships, and how an understanding of social and spatial relations are to a greater extent coloured by new ICTs. (e.g. Haraway 1991; Katz 2003a; 2003b; Airaksinen 2006)

The fourth chapter presents earlier social scientific approaches in mobile phone communication and Internet research. The chapter covers a whole spectrum of studies, and points out how the entire field has matured within the last decade. Furthermore, the chapter highlights the importance of gender as part of ICT studies. It is shown that gender is an important issue when ICT-mediated shaping of social space is considered. The ways we use and name ICTs appliances, as well as the ways we experience social space around us through ICTs, are gender-bounded. Besides gender it would have been possible to pay heed to other factors, such as social class, education and nationality, which make differences between ICT users in the era of global capitalism.

Gender was selected to a closer examination because of its most obvious connection to the spatial organisation of everyday life.

The fifth chapter is about research methodology. The study as a whole, the four articles included, is based on multiple methods and data sets. This kind of approach is also known as a multiple triangulation (Denzin 1978, 304). Two of the articles are theory-oriented and two others are based on empirical data. The articles with theoretical starting points aim to increase our understanding on the spatial dimension of the new ICTs through literature reviews and conceptual analyses. The articles with empirical bases apply qualitative and quantitative methods. One takes advantage of survey data and statistical methods, while the other relies on news material and qualitative methods.

The sixth chapter makes a summary of the articles by presenting them in relation to the theoretical framework of the study. Three of the articles focus on the spatial dimension of mobile phones. The last article addresses the same phenomenon from the perspective of the Internet. Although the articles differ in their theoretical, empirical and methodological premises, they share a theoretical question of ICT-related spatial transformations: how the ICTs transform the material, conceptual and experiential levels of social space.

The seventh chapter summarises the key findings of four articles and concludes the entire study. It points out how the formation of social space is being transformed at the presented three levels. Furthermore, it hints that transformative technologies may lay more emphasis on the purpose of social space in contrast to its boundaries.

The eighth chapter concludes the entire dissertation study. It ponders whether there is any need, or some tools, to affect the formation of ICT-mediated social spaces in future. As the study shows, ICTs makes the social space rather flexible and a relatively easy accessible formation. In consequence of these material changes, the space may become filled up by people with rather different or even contradictory interests. This, in turn, can be an alarming experience and is considered as being unacceptable by others. For this reason, the chapter contemplates possible mechanisms which could be used to control accessing such social spaces and to strengthen their boundaries.

## 2 THEORETICAL FRAMEWORK OF THE STUDY

### 2.1 Research questions

ICTs do not only connect people at a virtual level, they also reshape the forms of social association (Holmes 2001, 32; Pertierra 2006, 82-83; Pertierra 2007b, 190). It is particularly these many tiers of human-computer interaction that have caused scholars to consider the social space as a dialectical process of *material, conceptual and experiential* aspect of space (Nunes 2001, 59-60; Wise 1990, 76-77). ICTs are not only a new material basis for the creation of social space, but they also influence the ways people interpret and experience it.

The above mentioned aspects of social space are derived from Henri Lefebvre's (1991) analysis on the production of social space. The original study aims to bridge the gap between the theory and practice of space, not to analyse the role of technologies in the production of social space. Marc Nunes (2001; 2006) has later underlined the importance of the same dialectical process with relation to ICT-created and mediated social space. His arguments are premised on the characteristics of social fabric in the information age. As the social relations are increasingly networked in the information age, the formation of social space cannot be properly studied or understood from single standpoints. Networking alters the material form of social assembling, as well as has an effect on the ways we perceive and experience social relations.

Furthermore, ICT studies often describe computer-mediated social spaces as something that associates with the mental realm of life (Nunes 2006, 8). Social activities are to a certain degree detached from the physical structure of everyday life and transferred in virtual reality when voiced, for instance, that people surf in cyberspace, create new virtual communities, and are linked with each other in virtual space. Yet, in order to gather how the formation of social spaces is shaped by ICTs, we should pay heed to how people experience these changes in their everyday life (Holmes 2001, 15; Nunes 2001, 59-60; 2006, 19-43). This cannot be studied only by looking at material and conceptual

transformations, but by combining them with the analysis of experiences. Furthermore, this is where a multiple triangulation strategy can show its eligibility.

This study takes into account all three aspects while looking for answers to the research question, that is: *how the use of mobile phones and the Internet affect the formation of social space?* As the research question indicates, the study is not about any specific form of computer-created space, like cyberspace or virtual space. The focus of study is not on a much studied division between the public and private of spaces, even though it is substantially blended by ICTs (e.g. Ling & Pedersen 2005). Instead, the study aims to analyse ICT-related transformations in social space at a more general level. The analysis aims to reveal those changes in the material level of social space creation, which create a need to conceive the social space in novel ways, describe it through novel concepts, and which transform the ways we experience it.

To cover the different aspects of social space formation, the main research question is divided into the three sub-questions, each representing one of these aspects. The sub-questions are as follows:

- 1) How the materiality of ICT appliances and immateriality of computer-mediated communication influence the formation of social space? (*material*)
- 2) How ICT-related changes in the formation of social space have been conceptualised? (*conceptual*)
- 3) How the use of mobile phones and the Internet affect experiencing spatial transformations? (*experiential*)

The first sub-question tackles the material aspect of social space from two directions. On the one hand, it addressed how the fact that ICT appliances, despite of their increasing portability, are engaged to the material world and many fixities (e.g. place of residence, technological infrastructure, chargers, antennas and cables) affect to the formation of social space. On the other hand, it addresses how (immaterial) communication through ICTs, which allows the creation and maintenance of social space basically from anywhere, influences the configurations of social space. These issues are mainly addressed in Articles I and II.

The second sub-question is about the *conceptual* aspect of social space. It is the transformations in the material basis of social space that have initiated a need for re-conceptualisations. By analysing previous studies and their conceptual practices, the study aims to document a set of characteristics associated with ICT-related modifications in spatial formation. In addition to the analysis presented in this leading study, Articles I and IV bring out examples of such conceptualisations where ICTs are linked with various spatial characteristics.

The third sub-question addresses the *experiential* sphere of social space. In many studies and public discourse, the transformative capacity of new

technologies is mainly considered as a positive issue; mobile phones enable perpetual contactability and the Internet is presented as a necessity to reach individual sovereignty in the information age. However, the possibility to extend the social sphere of life beyond geographical and other physical boundaries also contains risks and may engender a new type of uncertainty as well. Extended ICT-mediated spaces can differ remarkably from locally-bounded spaces, for instance, regarding their actors, cultural and behavioural norms. Therefore, it is important to also explore the experiential aspect of social space. This study sheds light on the experiential aspect of social space especially in Article III.

## 2.2 Research objectives

The overall aim of the study is to explore how human-computer interaction reshapes the formation of social space. Among scholars and ordinary people, this is predominantly associated with the capacity of ICTs to overcome physical obstacles for social association. By using mobile phones and the Internet, people can transgress a wide array of boundaries that are considered to be relatively stable structures in the offline environments. With the help of ICTs, social association can be extended beyond the immediate physical surrounding. However, in this analysis it is considered insufficient to study transformations in material premises only. The study also aspires to achieve more knowledge on the conceivable and experiential aspects of transformations in the social space.

Second, the study aims to show that the increasing computer-mediatedness of social space is not a problem free and solely beneficial phenomenon. It was already Simmel who highlighted that spatial ordering does not only reinforce social order; it also clarifies the dynamics of conflictual relations (Lechner 1991, 197). This study aims to analyse if the computer-mediated overcoming of the boundaries of social space could also end up unbalancing its order. It is likely to take time and effort to normalise the order of transformed space. Transformations may also serve as a breeding ground for conflictual relationships, which have to be ironed out before the order of social space can be re-established. Examples of this problematic part of transformative technologies are revealed especially in Articles III and IV.

The specific research objectives are based on the knowledge of the transformative capacities of ICT in the networked information societies (e.g. Nunes 2001; 2006; Ling & Pedersen 2005; Pertierra 2006; 2007b; Castells 2000a; 2000b; 2004). The objectives represent the three aspects of social space formation in the light of previous literature. Furthermore, the objectives also include a single methodological goal. The purpose of this goal is to make us contemplate how a multiple method approach fits in the analysis of social space as a dialectical process of the material, conceptual and experiential.

The specific objects of the study are:

- To study the interplay of ICT-related spatial transformations and human beings, as well as how their attachment to the material reality affects theoretical understanding on social space (*material aspect of social space*)
- To itemise spatial characteristics associated with the ICTs, and analyse how they are reflected in the formation of social space (*conceptual aspect of social space*)
- To describe a variety of ways how mobile phones and the Internet transform spatial understanding, including the aspects of the North and the South. (*experiential aspect of social space*)
- To test the strengths and weaknesses of methodological triangulation, including conceptual analysis, statistical and qualitative methods in the social scientific ICT-studies (*methodological objective*)

The rest of this chapter is dedicated to clarify how the research questions and objectives are linked to the theories of social space. The theoretical overview shows how the conditions for social assembling have significantly changed with the shift from the modern industrial world to the information age. The advent of new ICTs has resulted in an increased computer-mediatedness of human interaction and its partial detachment from physical fixities. In consequence, the limits of social space is to a lesser extent determined and delimited by stable and physical entities, such as the nation states, city borders, walls, or fences. This makes it evident that theories of social space have to be brought to the information age.

### 2.3 Theory of social space

The history of social sciences is replete with studies on social space. For Georg Simmel (1997, 138) the examination of social space is one part of his major project of exploring the conditions of human sociation. Pierre Bourdieu (1985; 1989) focuses on a set of resources that define the position of an individual in the multidimensional social space. Michel Foucault (1981), in turn, underlines the role of power relations and governmentability in the dynamics of social space. In general, these studies are premised on the observation that human beings and their interactions are spatially situated. In addition, they consider that social space emerges when it is occupied by people with a mutual interest, sometimes called a purpose, and that the boundaries of social space are determined in the processes of inclusion and exclusion.

Social scientific studies on technology have also paid special attention to the dynamics of social space. Nicola Green (2002, 290-291), among many others, writes about the potential of mobile computing and mobile communication to transform everyday space. She argues that social space is both extended and it

seems to remain locally continuous in computer-mediated communication. This is to say that the transformative power of ICTs does not refer to a complete makeover in the shape of social space. Rather, it suggests a selective reshaping of social space, where significant focal points of social space, such as its bounds to a local social, cultural and linguistic context, can be sustained even if the space is simultaneously extended in computer-mediated interaction. Literature also pinpoints a wide array of mechanisms of inclusion and exclusion that are used to regulate people's access to social space in technology-mediated interaction (e.g. Haddon 2000; Fortunati 2002a; Williams & Williams 2005; Höflich 2006).

Even if ICTs and social space studies are many in number, there are only a few serious attempts to bring together the different aspects of social space transformations (cf. Wise 1997). This thesis aspires to this, with a special relation to mobile phones and the Internet, by taking advantage of Henri Lefebvre's triad typology of space production. The typology appears to be difficult to apply in empirical research as Lefebvre or other scientists have not provided clear examples as to how to measure or evaluate the different aspects of social space. Yet, the typology provides a potential theoretical and conceptual framework to explore the technology-mediatedness of social space in the information age.

Lefebvre has been a very influential scholar, especially in the area of urban studies. More recently, his ideas have been applied when analysing technology-space interaction (Wise 1997) and social spaces as networked formations (Harasim 1993; Nunes 2001; 2006). In this book, entitled as *The Production of Space*, Lefebvre (1991) builds what he calls as a unitary theory of space by combining the ideas of physical (natural sciences), mental (psychologist) and social space (sociologists) conceptions at a theoretical level. The message of the book is that the various aspects of social space should not be treated separately. The full understanding of the formation that social space requires empirical analyses that reconcile different views to the social space. Later, Lefebvre's study on urban space has been criticised for having a Marxist shade (Castells 1979).

Lefebvre's main argument is that instead of the pure idealistic and materialistic understandings of space, the experiential aspect of space should be analysed. An idealist understanding depicts the space as an abstract conceptual construction (mathematical, semiotic, discursive etc.) whereas materialists tend to think that the space needs to be fulfilled with objects, whether they are human beings or non-human objects (a Newtonian "empiric" space). Lefebvre argues that the real space occurs somewhere between these two philosophical traditions, where the concept and the practice intersect. Therefore, the social space for him is "not a thing but rather a set of relations between things". Lefebvreian social space takes place within the juncture of three forces; material "spatial practice", conceptual "representation of space" and experiential "representational space" (Lefebvre 1991, 33-46).



In affinity with Mark Nunes (2001, 59-60), this study proposes that Lefebvre's *conceptual triad* offers a useful analytical solution to comprehend transformations in the formation of social space caused by the computer-mediated communication and interaction. It makes us understand that mobile phones and the Internet do not only produce new representations of social space, like concepts such as virtual spaces or cyberspaces suggest. It reveals that ICTs transform the shape of social space on a material level by separating and connecting people in novel ways. Furthermore, the conceptual triad highlights that technology-mediated spaces must be explored as lived and experiential spaces too. The space is not social if it is not experienced as an outcome of social interaction.

Table 1 presents a summary of three aspects of social space with relation to the study and its research questions. The table summarises how the aspects are recognised and manifested in everyday life. This is to make it explicit that studying different aspects of social space necessitates various types of data and methods. Furthermore, the conceptual triplet is employed to organise the findings of the study in accordance with the research questions. The findings are presented in Chapter 7 one spatial aspect at a time.

TABLE 1 The relations between the social space theory and the research questions

<i>Spatial Aspect</i>	<i>Recognition</i>	<i>Manifestation</i>	<i>Explored</i>
Spatial practice	Perceived	Material	Research question 1
Representation of Space	Conceived	Conceptual	Research question 2
Representational Space	Lived	Experiential	Research question 3

To begin with the first one, *spatial practice* refers to the processes of production and reproduction of space by separating individuals and creating new connections between them. In ICT studies, this should be understood as having reference to both human beings and to the technologies they employ. On the one hand, ICTs are used to create a new connection between people and, on the other hand, to disconnect ourselves from others when seeking some privacy.

In his book, Lefebvre (1991, 38) illustrates this aspect of space through an example of government-subsidised housing projects. Government-subsidised housing projects disconnect people from one another by offering them a private accommodation. In consequence, new means to re-connect people has to be provided as well. For example, the road network is extended to cover new residential areas and more public transportation services are supplied.

In the information age, mobile phones and the Internet reflect material transformations in the formation of social space in a most noticeable fashion. In

particular, they provide novel ways of connecting and disconnecting oneself from others. Regarding the practices of disengagement, it is noticed that in the urbanised and densely inhabited environments, people have taken advantage of ICTs to insulate themselves against the chaotic and hectic world around them. In the public places, in turn, people may use and toy with their mobile handsets in order to ignore the surrounding noise and the throngs of people. It is also demonstrated that teenagers may submerge themselves in the private world of mobile communication if they lack some private space at home. (Ito 2005, 136-140; Julsrud 2005, 97; Taylor 2005, 86-91; Pertierra 2006, 77-95)

When people separate themselves from the outside world through the use of mobile phones, it often means the shrinking of social space. A social space created through the mobile phone is typically a space of two persons only; the user and the recipient. In this respect, the mobile phone is slightly different to other media technologies such as television. Even if excessive TV-watching is also associated with the diminished amount of family time and other social activities, at times, TV has some cohesive power too. TV programs form a shared experiential basis for social interaction. Even if people watch TV alone in separate places, they may share the same experiences and feel togetherness in arrears.

Secondly, new ICTs provide possibilities to create new ties and enlarge the scope of social space. This seems to be a great response to the individualised life styles of the information age that is said to be characterised by an increased mobility of people, diasporic relationships and a lack of social ties (Urry 2000a; Putnam 2000; Sheller & Urry 2006a). As people travel more than before, work in multinational companies, and try to stay in touch with distant family members and friends, mobile phones and the Internet provide them with a much needed connective capacity for maintaining these kinds of modern relationships. In other words, ICTs also characterise today's material practices of creating new connections between people, and in this way they reproduce the formation of social space.

*Representations of space*, sometimes also known as conceptualised space, is said to be the dominant mode of space. Representations of space stem from the processes of production and are linked to that social order where its spatial relations are produced. Knowledge, signs and codes are inseparable parts of the representations of space, their formation and understanding. This is because we need a shared language to conceive social space and its transformations (Lefebvre 1991, 38-39).

Professionals, such as scholars, engineers, architects and planners, play an important role when it comes to the conceptual representations of space (ibid.). They provide people with information, terminology and patterns of thought that help to understand the formation of space and change in it. However, professionals can also make misinterpretations and overstatements, which should be corrected later. This is because with the continuous accumulation of new knowledge, we may need to change or specify our understanding on any subject matter. As the whole phenomenon of ICTs is still rather new, it is likely

that conceptualisations about the transformative capacity of ICTs may be to some parts inaccurate or misleading.

Nevertheless, it is assumed here that the current conceptual practices also reflect ICT-related transformations in social space. Because of the novelty of ICTs as shapers of social space, it is evident that social scientists, computer engineers, and media still have a relatively big role in conceptualising this phenomenon. In the empirical part of the study, this examination is targeted mainly at social scientific conceptualisations. Regarding the enclosed articles, Article I and IV in particular, address the conceptual aspect of spatial relations. The articles pay attention to the inherent characteristics of ICT appliances and how they comply with conceptualisations presented by scholars. Such issues as urbanity vs. rurality of new ICTs and the detachment of social assembling from physical settings are addressed. In Article III, the role of media in shaping the spatial relations is also revealed.

*Representational space* refers to space that is lived through and experienced in everyday life. In contrast to the material and conceptual aspects of space, representational space is directly linked to the experiences of everyday life. It reveals how people manage with their social relationships and interactions, which to a greater extent are pursued in technology-mediated interaction. More precisely, representational space is a space of its inhabitants and users. It represents exactly what sociologists and media theorists mean when arguing that digital technology has changed what it feels like to live in modern society (Kirkpatrick 2008; Poster 1995; Urry 2000a; Lash 2002). The social space and its computer-mediatedness become “real” only when they are experienced.

Representational space overlays the physical space by making symbolic use of its objects (Lefebvre 1991, 39). In the information age, this means that new technologies set material conditions for social association. However, it is the ways of using ICTs for social association and the following consequences that reflect the everyday experience of computer-mediated social association. In other words, the representational spaces discloses how people confront the social space and transformation in it. For this reason, the lived social space can be seen as a strategic location from which different aspects of space can be encompassed, understood and even transformed simultaneously (Soja 1996, 68).

Additionally, Manuel Castells (2000a, 403-406) has underlined that everyday life is progressively lived and experienced through ICTs. He argues that everyday experiences are products of computer-mediated images, sounds, texts and videos. Behind this experiential change, there are various transformations in the material level of everyday life, particularly new ICTs with their rapidly developing features and an increasing data transmission capacity, which make our everyday lives replete with technology-mediated experiences. This is especially the case in the industrialised technology-rich North. Yet, as Article III points out, people in the South also seem to live a rather ICT-mediated life.

Nonetheless, Lefebvre’s study on the production of space has also evoked some critical tones. Especially social geographers, who have applied his

concepts extensively, have taken him under the spotlight. A part of the criticism sticks to his way of writing. Tim Unwin (2000, 13-15) argues that Lefebvre's theory of space is elusive. His most biting criticism is targeted at the restrictions and intentions of Lefebvre's study. Unwin claims, and rather fairly, the theory is Eurocentric and has little to say about the less-developed parts of the world. Unwin also contends that Lefebvre's theory suffers from urban bias as the specialties of rural ways of life are not covered by it.

In the name of fairness, it has to be said that Lefebvre's theory of social space as such is not adequate to make an all-embracing account of social space in the information age. First, his theory does not itemise the role of technologies in social space building. Second, the theory is not aware of a new global order of the world, where ICTs hold a lot of connective capacity in social assembling. Thus, some other theories are required to show what has changed with the rise of ICTs and how new technologies modify the configurations of social space.

In this task, the study relies upon Georg Simmel's (1997) classical study of social space and Manuel Castells' (2000a; 2000b; 2004) more recent theory about network societies. First, it is showed that the boundaries and purpose of social space were earlier treated as almost equal factors when it comes to its formation. This becomes evident in Simmel's analysis. Then, by utilising Manuel Castells' theory on the information age, it is explored as to how the adoption of boundary-crossing ICTs has powerfully begun to influence the shape of social space, both its boundaries and purpose.

## 2.4 Boundaries of social space: a Simmelian perspective

It is said that Georg Simmel was the only classical sociologist who dealt systematically with the concept of space (Lechner 1991, 195). Spatial analysis is a cross-cutting theme in his writings. It can be located both from his most well-known essays on fashion, urban life and money, as well as from particular studies on space. In his essay *The Sociology of Space* (Simmel 1997, 137-170), Simmel particularly elaborates on the dynamics of interactivity and the formation of social space in the age of urbanisation and industrialisation.

Simmel bases his ideas of social space on the understanding that human action is always spatially situated. Spatially organised ways of life make human interaction predictable and creates a sense of belonging. The spatial and geographical setting also sets constraints for the assembling of human beings (Simmel 1997, 141-151). In the times of industrialisation, the ordinary people were not as mobile as today, and social association took place most often within the limits of towns and villages. Nationwide social networks were not very common, to say nothing about international relationships.

For Simmel (1997, 138), social space is a pivotal element of sociation. He cultivates the term of sociation to describe how people grow together in unity. This means that social space creates a framework for sociation. It creates a sense

of unity when it becomes filled with people. In the information age, ICTs have become a central mean of sociation. New ICTs mediate and determine human interaction by bonding people together. By using mobile phones and the Internet, people gather together and fill up the same space with their presence. Through new ICTs, people also experience the social spaces as being shared and social.

In Simmel's (1997, 141-146) philosophy, social space is divided in two parts; one is its social purpose and the other is boundaries. The social purpose is a shared reason that makes people gather together and boundaries regulate access to social space. Simmel underscores that space is an activity of the mind; it refers to the human experience of being together. Boundaries, in turn, close people off against the surrounding world as well as hold people together. More precisely, Simmel talks about natural boundaries, like rivers and lakes, and political boundaries, which can be seen as resulting from negotiations (Simmel 1997, 138-141). Elsewhere Simmel (2007, 54) also addresses the role of a boundary as a kind of psychological line marking the relationships between two persons or sides that must not be crossed.

In the information age, it is the transformative capacity of ICTs that turns social spaces into flexible structures. Compared to the times of Simmel, social association may take place over natural boundaries rather effortlessly, owing much to ICTs and other mobilities (e.g. private cars, airplanes, bullet trains). Moreover, interactive communication technologies allow people to negotiate boundaries of social space rather individually and instantly. These negotiations may be informal, e.g. take place in an online chat room, mobile phone conversation and an exchange of text messages, as well as take place anytime and anywhere. In consequence, the social spaces might have become more vulnerable to individual transformations.

In fact, Simmel also notices that natural boundaries are not inevitably obstacles for the development of a sense of unity. Simmel reminds us about the mountain dwellers who do not comply with natural boundaries when wandering over the hills and mountains. However, they share the same social space with other dwellers through the shared social purpose. Simmel says, that they are united by the "the peculiar unity of love for freedom and conservatism" and "passionate attachment to the soil" (Simmel 1997, 142). This is to say, that the absence of strong natural boundaries is not a precondition for social space. People may experience togetherness through a strong common purpose, even if the connective effect of the boundaries is weak.

Nomadic lifestyles have also become common in the information age (Kopomaa 2000, 6; Pertierra 2006, 82-83; Urry 2007, 38). They affect the production of social space in at least two particular ways. First, people travel more and further than ever before (e.g. Urry 2007, 3-7). Living environments have extended, people travel across the world, experience new cultures and learn new languages. This means that the limits of social space are breaking out from the geographically bounded local settings, while everyday living space extends from a local community to a cross-national and global sphere. Second,

communication technologies have introduced virtuality to travelling (e.g. Urry 2000a, 70-76; 2007, 163). With the aid of ICTs, people may maintain locally-bounded social relationships from a distance, as well as create new social spaces in diasporic relationships with others. In other words, the corporeal proximity of others is no longer a strong precondition for close and active relationships, which produce a sense of unity for the building of social space.

With a reference back to Simmel's theory on the boundaries and purpose of social space, it can be argued that the increased mobility particularly transforms the meaning of boundaries for the formation of social space. As natural boundaries do not delimit the formation of social space as strongly as they used to do, the purpose of social space may become a more influential factor for the formation of social space. Since people do not naturally belong to computer-mediated communities, the purpose of joining them needs to be justified. The purpose of social space needs to make up a "cohesiveness hole" resulting from the lost bonding effect of natural boundaries.

The diminished role of natural boundaries in computer-mediated social spaces formation has been noticed by ICT researchers too. Timo Kopomaa (2000, 6, 42) has argued that the mobile phone contributes to the nomadic urban lifestyle. He regards the mobile phone as a device of "placeless use". For him, the mobile telephone corresponds to urban ways of life, characterised by directionless wandering in the city space. Electronic flâneur is another term that has been employed to describe new challenges to get attached to the social space of a city (Kopomaa 2000, 20). In Mitchell's (1995) study, the term is associated with the transformation where computer-mediated networks are becoming a dominating form of city life. In contrast to materialised forms, such as natural boundaries, people are bonded with the networks that are mouldable and instable formations.

The role of boundaries in the computer-mediated building of social spaces makes us realise the insufficiencies of Simmel's argumentation in the context of the information age. The inadequacy of Simmel's argumentation is related to increased mobility, both corporeal and computer-mediated, that have brought us apart from the restraining role of natural boundaries. In this, Simmel (1997, 170) argues that the advantages of a settled person are greater compared to a mobile person since the spatial fixity provides him with certain rights. This is premised on a belief that a historically defined and geographically bordered nation state provides privileges for its citizens. Yet, the information age has begun to undermine this assessment. Today, mobile people with portable ICTs may create and maintain a shared purpose for social association. Furthermore, they may even fill up the same social space in the networked environment, regardless of their physical distances or corporeally diasporic relationships, with the help of ICTs.

Accordingly, in the information age mobility is considered as a necessity which makes a full participation in society possible (Urry 2007). Access to technological mobilities, such as mobile phones and the Internet, is increasingly seen as a right that should be provided to all. Due to the increased mobility of

people, social association takes new types of forms, where the physical co-presence of others is replaced with technology-mediated interaction. In this equation, there is less space for strong fixed boundaries and more for flexible, individual and technology-mediated practices of social association. Thus, it is believed here that social spaces should be studied rather as networked and computer-mediated formations in the information age.

## 2.5 Networked social space: a Castellsian perspective

Manuel Castells has built a theory about the restructuring of organisational forms of society in his three-volume magnum opus *Information Age* (2000a; 2000b; 2004). The leading idea of the book is that networks are becoming the dominant organisational form of contemporary information societies. Castells argues that networks comprise of the new social morphology of contemporary societies, and that all “dominant functions and processes in the information age are increasingly organised around networks” (Castells 2000a, 500).

In his theory, Castells highlights the role of ICTs in social interaction and association. Social interaction is to a greater extent performed in and between technology-mediated networks. These networks are characterised by an accelerated exchange of information. In his writings, this is depicted through the concept of flow, which refers to the distribution of various entities, such as capital, images, sounds, objects and social relations (Castells 2000a, ch. 6). It follows from Castells’ argumentation that the social space should also be considered as a networked formation that stems from the computer-mediated interaction with others.

For Castells (2000a, 441), space is a true expression of the society, not only its reflection. Space is an immanent element of everyday life that follows the general dynamic of the networked society. It is not only a conceptual innovation used to describe the organisation of the world, but it is also an organisational form that can be experienced, although Castells himself does not elaborate on the lived aspect of networked societies much. In Lefebvre’s terms, a networked space would then be a material form of society, its conceptual expression and an experiential part of everyday life. Castells himself outlines the meaning of space in the following way:

Spatial forms and processes are formed by the dynamics of the overall social structure. This includes contradictory trends derived from conflicts and strategies between social actors playing out their opposing interest and values. Furthermore, social processes influence space by acting on the built environment inherited from previous socio-spatial structures. Indeed, space is crystallized in time. (Castells 2000a, 441)

In other words, social space is a historically-informed, increasingly technology-mediated formation of interactive social actors. In Castells’ thinking, differing interests and values bring us back to the question of boundaries of social space.

Compared to what Simmel presented a century earlier, physical and natural boundaries have an apparently diminishing role for the formation of social space in the theory of network societies. For Castells, the limits of networked social spaces are rather very flexible, negotiable and mouldable. The boundaries also seem to be relatively political; they can be negotiated between people who are connected through mobile phones and the Internet, and who are to a lesser extent segregated by natural boundaries.

In the information age, social networks are open structures that can extend or shrink. Social spaces as networked formations can take in new members if they are able to communicate in the network. If people have nothing to contribute to the functions of space, or if their interests and values are contradictory with those of the space, they may be excluded from it (Castells 2000a, 501). So as the physical boundaries of social space are more rare in technology-mediated network environments, it seems to be the social purpose of space, as well as people's capability to invest in the activities of space, that influence progressively more and more the formation of social space.

To highlight that computer-mediated and networked social spaces do not require the instant material support or physical presence, Castells (1989, 126-171) has presented a neologism *the space of flows*. He has summarised the meaning of the space of flows perhaps most understandably as follows:

The space of flows, characteristic of the network society, links up distant locales around the shared functions and meanings on the bases of electronic circuits and fast transportation corridors, while isolating and subduing the logic of experience embodied in the sphere of places. (Himanen 2001, epilogue by Castells)

The space of flows is to describe "the material organization of time-sharing social practices that work through flows" (Castells 2000a, 440-448). Through this concept, Castells wants to bring together those practices that occur simultaneously in the networks, but which in terms of location are dispersed and disintegrated. New ICTs reintegrate the functional unity of these distant practices without presuming their geographical propinquity or any material support. The space of flows is replacing the space of places as the dominating form of spatial organisation in the networked societies.

Flows and networks as the forms of spatial organisation of social action make up an interesting theoretical setting to further study the research questions of this study. Regarding the first sub-question, it can be asked how various kinds of flows and networks as *material practices* influence the formation of social space. In contrast, Simmel (1997, 149) underlined the importance of certain fixities as marking out the positioning of social space. In the information age, information flows and computer-mediated networks seem to provide a much more fluid and erratic basis for the social space building.

Second, the concept space of flows encourages us to examine *conceptual practices* which are applied to describe the spatial organisation of the ICT-mediated social world. Are the present representations of computer-mediated social space in line with Castells' writings about the network society and the space of flows as a dominant form of spatial organisation? Do the studies on



mobile phones and the Internet support the idea of networked social spaces, their flexible and negotiable boundaries? This is an essential part of the second sub-research question of the study.

Third, Castells' argumentation on the space of flows gives reasons to elaborate more carefully on the *experiential* level of social space. Is it serious that networked and computer-mediated social spaces are detaching our experiences from the embodiments of sphere of places? Further, to what extent can the networked social space be understood without making any connection to the sphere of physical places? These issues are tackled as part of the third research question of the study.

To conclude, the theoretical framework of the study rests on the classical division between the boundaries and purpose of social space developed by Georg Simmel. The framework assumes a shift in their relative importance for the formation of social space. This shift is associated with the growing role of new information technologies as mediators of social interaction and assembling. In line with Manuel Castells' theory of networked societies, the study suggests that ICTs, especially mobile phones and the Internet, transform the role of boundaries as shapers of social space. Due to the capacity of ICTs to overcome various fixed boundaries, such as national, natural and cultural ones, it is the purpose of social space that gains progressively more and more importance in the forming of social space.

## **3 CONTEXTUALISATION OF THE STUDY**

### **3.1 Globalisation and technology studies**

This chapter situates the study in the broad field of the social sciences. Present-day social scientists commonly argue for a shift from the industrial to the globalised and technological world order, which modifies both spatial and temporal relations in a remarkable fashion. It is suggested that this new modernity, often described through the term globalisation, disconnects space from the place as it allows interaction without localised presence and between absent others (Giddens 1990; Bauman 2000; Castells 2000a).

New ICTs, especially the mobile phones, are characteristics of this transformation. They reshape and mediate our understandings of time and space by making interaction possible from almost anyplace, to almost anywhere, and also at almost anytime. In fact, some social scientists (May & Thrift 2001; Massey 2005; Peters 2006) have vigorously underlined the interdependence of temporal and spatial transformations. For instance, May and Thrift (2001) propose that time and space should be studied side by side at all times. This is because the space is always experienced within certain temporal contexts, and time conception varies between the spaces. In the age of globalisation, ICTs make us more aware of different temporalities and spatialities as they considerably affect the patterns of social interaction and association.

In this study, globalisation is understood as the deepening, broadening and accelerating interconnectedness of the world (Held & McGrew 2002, 1), where ICTs are playing a major role as tools for networking and social association. With reference to ICT studies, globalisation can be approached in two ways. On the one hand, globalisation can be considered as a driving force behind technological innovations and the dissemination of new appliances and applications. On the other hand, it can be argued that the development of new technologies, especially microchips and microprocessors, have been

prerequisites for the emergence of the global economy and the global exchange of information of all kinds. Regardless of the direction of causality, it is clear that globalisation cannot be fully understood, first, if the social space where we live and use technology remains unexplored and, second, if its impact on human beings and societies remains vague (Vincente 2004; Kirkpatrick 2008; Battaglini, Goebel, Järvelä & Taipale 2006).

This study considers globalisation as a pervasive socio-technological change that modifies our understanding on spatial relations and intensifies human-computer relationships (Borja & Castells 1996, 1; Castells 2000a, 101). It is a project of constant interplay between localities and globalities, mediated by various technologies reconstructing our spatial understanding. For the ordinary people, the mobile phones and the Internet represent the most tangible side of globalisation. The Internet has laid the foundation for instant and borderless social association on a global scale. And the mobile phone, although its usage is often confined to local settings (Fortunati 2005b), mediates information across localities and embodies various global trends, such as music and fashion. It is exactly these technologies which have transformed people's everyday life the most by making it more worldwide, connected and rich in technology.

Furthermore, the overview of globalisation and technology studies reveals two major shifts in sociological thinking on the formation of social space. The first of these shifts can be termed as a *mobile turn* thesis as it argues for an increasing number of mobilities in the globalised world. It is axiomatic that technological mobilities have a crucial role in this line of thinking. The second shift is called *spatial turn*. It complies with Manuel Castells' arguments on the space of flows as it indicates a transition from the study of places to the study of spaces. These particular shifts in social scientific thinking are presented next to demonstrate that the understanding on the formation of social space – and spatial relation in general – is subjected to re-evaluation in the globalised world order.

### **3.2 Shifts in thinking: mobile turn**

Mobile turn as a shift in sociological thinking is known primarily because of John Urry's (2000a; 2000b; 2003; 2007) studies. Urry (2007, 19) argues that sociologists have neglected the role of mobility and communications in the contemporary globalised societies. He talks about a new mobility paradigm to stress that travelling in time and space takes place increasingly through non-corporeal forms of mobility. In contrast to mechanical and corporeal travelling, an array of technological mobilities, such as mobile phones and the Internet have lifted travelling to a new level in the information societies. Today, travelling takes place to a greater extent in virtual and imaginary manners. For example, computer-mediated communication, live video streaming, and instant messaging and chatting are new non-corporeal ways of travelling from place to

place. Furthermore, they have made possible the technology-mediated social association.

The mobile turn is a viable concept while trying to understand spatial transformations in the networked societies. This is mainly because new ICTs have changed the conceptions of time and distance when it comes to travelling. In corporeal and physical movement, travelling time and distances are rather clear and definite variables. It is relatively easy to measure the duration of a journey in terms of clock time and geographical distances with established units of measure.

On the other hand, in virtual and imaginary travelling, time-space relations are relatively complex and difficult to measure. Journeys carried out through the Internet or mobile phones often prove to be momentary activities. A journey from place to place will typically last only a split second or remain completely unnoticed (Nunes 2001). Paul Virilio (1998, 45) has also elaborated this spatial-temporal phenomenon. He argues that in the present technological cultures, distance and time are difficult to perceive as nothing really resists electronic movement in time and space. This means that in ICT-mediated virtual travelling, travelling time shrinks to almost nothing, which makes different places occur next to each other.

Following from this, new ICTs substantially complicate spatial recognition. As natural boundaries do not restrict travelling in technological timespace very strictly, the destinations of virtual travels may appear difficult to anticipate and identify. For example, when you call a particular mobile number, you cannot be sure where the receiver actually picks up the call. In the context of the Internet, it is equally difficult to be sure where your chat partner or email receiver actually resides. These questions are also addressed in Articles III and IV, which further affirm that the time and the space are inseparable variables.

The mobile turn thesis does not argue for a decrease in the amount of corporeal travelling. Rather the opposite, John Urry (2000a, 75) argues that the mobile turn manifests itself as a simultaneous increase in corporeal and non-corporeal travel. The argument is supported by statistics that indicate that the amount of air, railroad and road-based travelling has kept increasing on a global level simultaneously with the quick expansion of mobile and internet technologies (Urry 2007, 3-4; Eurostat 2007). What is apparent is that people move both faster and further. This is the case in terms of both corporeal and non-corporeal ways of travelling (Urry 2007, 4).

From the perspective of social space it also important to notice that the virtual and corporeal forms of travelling are getting mixed. Travelling may occur at both levels simultaneously (Urry 2004, 35). Ling and Haddon (2003, 253) have suggested, based on an empirical study that the impact of mobile phones is quite neutral in that phone calls contributing to physical travelling are balanced by calls reducing it. Their study also hints that many of travel-related mobile calls end up modifying travelling, unlike the fixed phone made calls. It is also pointed out that the blending of virtual and corporal modes of travelling

is a rather context-dependent issue. Mobile communication, for instance, may be allowed in public transportation if the local culture is not expecting silence (Paragas 2005, 119). These examples illustrate that ICT-mediated social association may also take place on the move.

To sum up, ICT-based mobilities have slowly started to disengage us from locally-bounded social spaces by providing us with non-corporeal forms of mobility. The mobile phones and the Internet have expanded the range of social assembly activities from a local to a global context. This means that social space can be built and reshaped on the move, irrespectively of physical boundaries, and without the physical immediacy of others. The ICT-mediated forms of travelling have broadened the possibilities for social assembling, although also made it a more instantaneous practice. As Castells (2001, 126) and Urry (2007, 135-136) both argue, in most countries the geographical proximity of others is no longer the dominant shaper of social relationships.

### 3.3 Shifts in thinking: spatial turn

Disengagement from a local and corporeal context has also contributed to another shift in sociological thinking. This shift is called *spatial turn* as it refers to the transition from the concept of place towards the concept of space. Furthermore, spatial turn comes close to Castells' neologism, the space of flows presented in this study earlier. Both spatial turn and the space of flows refer to the domination of space over place as a result of the increased mobility and accelerated exchange of information which bring isolated places closer together.

Nigel Thrift (2006, 139) has argued for the significance of this move by underlining the role of "a constantly expanding universe of spaces and territories, each of which provides different kinds of inhabitation". In his analysis, Thrift shows how various corporeal mobilities, such as ships, trains and planes, have contributed to the establishment of new inhabitations and in that way generated new spaces and territories to be studied. He also underlines how various hybrid forms of these mobilities alter exchange processes within and between these spaces.

ICTs as a rather new type of mobility also contribute to the building of new spaces which are then occupied by people with similar interests. In computer-mediated communication, many spaces are planned in advance and built deliberately on a certain shared purpose. Yet, it must also be noted that a technology-assisted detachment from localities adds to the unexpected and unintentional encounters with other people. As in computer-mediated communication, the fixed boundaries have a reduced role in regulating social association and distances separating social spaces can be overcome in almost no time, people originating from different countries and socio-cultural territories encounter with one another more and more unexpectedly. In other words, localities and places are not determining the shape of and access to the ICT-

mediated social space as powerfully in CMC as they do in a non-mediated environment and in face-to-face communications (e.g. Law & Mol 2001). This aspect of social assembling is addressed in Articles III and IV.

However, it has to be emphasised that the localities have not completely lost their meaning in social space building with the rise of new ICT mobilities. Even if these rather novel mobilities modify the formation of social spaces in a revolutionary way, people still tend to identify themselves through places, and the place of living in particular (May & Thrift 2001; Peters 2006). Manuel Castells (2000a) writes about this, what he calls as a space of places, as follows:

The overwhelming majority of people, in advanced and traditional societies alike, live in places, and so they perceive their space as place-based. A place is a locale whose form, function, and meaning are self-contained within the boundaries of physical contiguity. -- But because function and power in our societies are organised in the space of flows, the structural dominance of its logic essentially alters the meaning and dynamic of places. Experience, by being related to places, becomes abstracted from power, and meaning is increasingly separated from knowledge. (Castells 2000a, 453, 458-259)

In other words, Castells says that ICTs have extended the sphere of social action from local places to global networks that are organised around the space of flows. By doing this, ICT contribute to the invasion of the “realm of the far”, as a source of the unfamiliar and threats, into the “realm of near”, which traditionally is understood as a field of safety (Bauman 1997; Morley 2001, 428). Interestingly, Castells also underlines experiential transformations that derive from changes in the material basis of human interactions. In computer-mediated social spaces, it is increasingly difficult to interpret one’s experiences by basing them on locally-bounded information only. New experiences are developed when the “realm of the far” and the “realm of the near” are mixed. Thus, the local and global, familiar and unfamiliar, safe and dangerous appear basically equidistant from the user in networked and ICT-based social spaces.

The mobile phone and the Internet prove the importance of the two turns in sociological thinking. The mobile phone in particular is an outstanding representation of technological mobilities in the age of globalisation. Its status as a socio-cultural symbol is similar to a private car that characterised the freedom of movement in the industrial era. The mobile phone is carried everywhere, it connects people regardless of time, detaches us from the localities and brings various globalities closer to us. The mobile phone also characterises the undesired side of spatial turn. Just like the Internet, it has begun to transmit the “realm of the far” into the “realm of the near”. In this way, like Article III presents, it makes the transformations in the experiential level of social space tangible and real.

The Internet has steadily developed in the same direction as the mobile phones in terms of mobility. First, it has enabled the virtual, imaginative and communicative forms of mobility for a growing number of people. Home computers, public internet access-points and cybercafés provide access to these computer-mediated mobilities in various manners and in different parts of the

world. Second, physical mobility has become a part of the Internet as it is integrated into the third generation mobile phones and other portable handsets. The proliferation of mobile internet solutions is also based on the building of wireless networks and hotspots that allow Internet access without cables and plug-ins. After all this, it is also clear that the Internet is a part and parcel of spatial turn. It has lifted the human interaction and social association from the local to the global level by making a great number of users interconnected worldwide.

In the above, the study aimed to show the fundamental role of the two turns within the social scientific discourse of globalisation. At the same time, the mobile phones and the Internet were addressed with the purpose to prove their substantial roles in the recent spatial and mobile shifts in thinking. In general, there seems to be two ways of taking these two turns into account in the research work. The first one is rather pragmatic, where the study would aim to reveal how ICTs are used in different contexts to facilitate social relationships and social association. However, these kinds of one-dimensional studies are already many in numbers. Thus, this study aims to a more holistic account on the transformations in social space formation by also exploring how these turns are reflected at a theoretical level. With the help of the enclosed four articles, the study provides a theoretical analysis on how transformations in the configuration of social space are perceived, conceived and experienced in the information age.

### **3.4 Intensified human-technology relations**

Transformations in social space, attributable to a socio-technological process of globalisation, would be nothing without human beings. Kim Vicente (2004, 33) has pointed out how our traditional ways of thinking – a mechanistic that looks purely at the realm of technology, and a humanistic focus on interpersonal relationships - have ignored the relationship between technology and human beings. To catch the essence of this relationship, technology should be subjected to human values and interests. It necessitates the understanding on human beings and technology as increasingly inseparable and progressively interacting factors. Technology should not be considered only as a mean but as an inherent part of the humanity. Similarly, Latour (2002, 248) has proposed that technology should rather be an adjective than as a substantive. Accordingly, there is no sense to define some entities or situations as technologic in contrast to others that are, for instance, moral, political or economic.

In this analysis both ICTs and the users are considered to form the material basis of the social space. Yet, it is the human actor who perceives, conceptualises and experiences transformations in social space, although these activities are increasingly mediated by technologies. In other words, ICTs are not considered as having an independent agency or an active role in social

space transformations. ICTs merely supply the user with numerous possibilities for employing technology in social activities (cf. Arminen & Raudaskoski 2003). In the end, it is the user who opts for the most appropriate of these opportunities based on his subjective evaluation of the state-of-affairs. The relationship between the human being and technology has intensified as ICTs, transformative technologies, have become to mediate our everyday life and social interaction.

The beginning of the intensification of the human-technology relationship can be traced back to the era of industrialisation. With the rise of paid work and prosperity, people begun to afford new technological innovations that were formerly considered as being lavish and were beyond the reach of many. Luxurious technological artefacts were first adopted by the upper-class people, and were first introduced to professional purposes. Due to various trickle-down effects (Simmel 1904, 151-152) and slowly accelerating globalisation, the same artefacts entered into the wider market and were adopted by larger groups of people.

Sociologists have ended up to depict the extensive adoption of new technologies through the terms *domestication* and *taming of technology* (e.g. Pantzar 1996; Haddon 2003). The main idea in both concepts is more or less the same. Taming covers more extensively the various spheres of life whereas domestication refers primarily to the domestic sphere of life. Domestication processes have also been explored regarding mobiles, fixed telephones and personal computers (e.g. Frissen 1994; Silverstone & Haddon 1996; Haddon 2003; Habib & Cornford 2002). The domestication of ICT appliances can be seen as a way how the machines become a part of our everyday life (Katz 2003a; 2003b). It can also be said that the domestication of ICT appliances is one of the early manifestations of the apparatgeist.

The advent of micro- and nanotechnologies questions the sufficiency of the terms domestication and taming as an attribute of intensified human-technology relations. Being very small in size, new digital artefacts are not only domesticated or tamed, but progressively *integrated* with and in the human body. James Katz (2003a, 1) has listed a few ways how “machines are becoming us”. First, machines become extensions and representatives of the communicators. As an example of this, the Finnish word for a mobile phone, *kännykkä*, carries a meaning of an extension of the hand or prosthesis (Mäenpää 2001, 119; Oksman & Rautiainen 2003, 104). Second, small-scale machines are physically integrated with the user in the forms of clothing and even directly with the body. PDAs, palmtops, headsets, and ear huggers all illustrate the intensified relationship of human beings and technology. Third, Katz argues that machines become us through new fashion that assimilates the achievements of new technologies. This means that we are becoming the wearers of new technology and small-sized machines.

When the domestication and integration of new small-size ICTs appliances proceed far enough, human-computer relationships become very intimate. This is sometimes described through the term *cyborg* (e.g. Clark 2003;



Haraway 1991; Airaksinen 2006). The term cyborg refers to an idea that the machines are not just becoming us, but machines and we are progressively considered as a single unit. Airaksinen (2006, 28) argues that the human being should be understood as a bio machine, similarly to computers and mobile phones as silicon machines. Taking this a starting point, he argues that the existing literature on human-computer interaction actually seems to differ only up to what extent they consider us as human beings and to what extent machines. Haraway (1991, 149-164) employs the concept of the cyborg to underline that the human being is a creature of social reality as well as a creature of technological fiction. Haraway uses the communications technologies and biotechnologies as examples of tools re-crafting the human bodies. For her, the cyborg is to a great extent about a lived experience as the technologies and fiction change what is accounted as human beings.

Even if the cyborg studies include many fundamental elements, they manage to grasp that the intensification of human-computer relationships alters not only the material level of life, but it also transforms the conceptual and experiential levels. The material basis of our everyday life is built on an ever more technological platform that provides us with a non-corporeal means of interaction and association. And the convergence of the human being and technology also implies to changes in a conceptual level. The introduction of the cyborg is only one example of how to describe the transformed relationship between the human being, social interaction and new technologies. Furthermore, and especially through Haraway's cyborg studies, it illustrates that the incorporation of technology into the everyday social life transforms our experiences of the self and the surrounding world.

## 4 SOCIAL SCIENCES AND TECHNOLOGY

### 4.1 Maturing field of social sciences

Recently, there has been a barrage of research work of the mobile phone, and as Goggin (2006, 3-6) writes, the central focus of this work has been on the social dimension of mobile communication. The main body of mobile communication studies comes from the field of sociology and neighbouring disciplines. This observation implies a growing acknowledgement of the role of new technologies in social change, that was depicted through the process of globalisation and mobility changes in the previous chapter. Regardless of the numerous advantages of ICTs, intensified human-computer interaction also emerges as a potential source of social problems (e.g. Goggin 2006, 107-125). These two aspects of technological development have inspired social scientists to study the mobile phones and the Internet extensively.

Numerous social scientific anthologies on personal ICTs have been published since the turn of the 21<sup>st</sup> century. One of the very first collections *Wireless World: Social and International Aspects of the Mobile Age* was edited by Brown, Green and Harper (2001). It was followed by an avalanche of other article collections such as those edited by James E. Katz, *Perpetual Contact* (together with Mark Aahkus) (2002b) and *Machines That Become Us* (2003c), and those of Kristóf Nyíri (2003a; 2003b; 2005; 2006; 2007) within the framework of *Communications in the 21<sup>st</sup> Century*. Fortunati, Katz and Riccini (2003) arrayed a set of papers into a book called *Mediating the Human Body* in 2003, and Ito, Okabe and Matsuda (2006) gathered up a collection of mobile phones in Japan. More recently Pertierra (2007a) edited a book on Asian and European experiences in ICT use. These are only a few of an impressive selection of books published in the field.

In addition to anthologies, many monographs have been published since the beginning of the new millennium. Timo Kopomaa's *The City in Your Pocket: Birth of the Mobile Information Society* (2000) is a pioneering study in the field. It

was soon accompanied with an array of other studies across the world. Raul Perttierra et al (2002) wrote a book about Philippine texting culture in 2002, and Koskinen, Kurvinen and Lehtonen (2003) published a prognostic study on mobile images a year later. Jon Agar's (2003) *Constant Touch: A Global History of the Mobile Phone* also came out in 2003. Eija-Liisa Kasesniemi and Pirjo Rautiainen (2001), in turn, explored diverse text-messaging practices among the Finnish youth around the same time. And Adam Burgess (2004) contemplated public fears and risk experiences a few years later. Common to most of these books and a myriad of published articles is that they have focused on some specific aspects of the mobile communication, like texting, mobile images or risks. Attempts to make a holistic description about the sociology of mobile phones have been few though not inexistent (e.g. Geser 2004).

A review of literature quickly reveals that the social scientific ICT studies have reached a certain level of maturation. Kopomaa's (2000) book remained as the only serious attempt to describe and understand the impact of mobile phones on society for a long period of time. Compared to a range of books and articles following it, it added to a holistic understanding on the social aspects of mobile communication. Kopomaa's book analyses a variety of social processes contributing to the birth of the mobile information society in Finland.

Much more recently, social scientists have been ready to try this again. After numerous specific and much focused studies, new state of affair accounts have come out leaning on the rapidly accumulated information on mobile communication. Rich Ling's (2004) study *Mobile Connection: The Cell Phone's Impacts on Society* is one of them. It combines experiences in mobile communication from all over the world, having a specific focus on the Norwegian society. Gerard Goggin's (2006) book *Cell Phone Culture: Mobile Technology in Everyday Life*, for one, is a synthesis of cultural-oriented mobile phone studies. It points out many pitfalls and provocative suggestions presented in earlier studies. Manuel Castells', Mireia Fernández-Ardévol's, Jack Linchuan Qiu's and Araba Sey's (2007) volume *Mobile Communication and Society: A Global Perspective* indentifies universal trends of mobile communication despite its otherwise summarising style. Though its contribution to a generation of new knowledge is limited, it brings out at least one very important issue that is equity. Mobile communications studies, and more broadly ICT studies, are required to understand how the equal development of information and computer-based societies could be reached in the globalised and networked world order. ICTs have a remarkable capacity to either narrow down existing social gaps or aggravate existing social problems if their development and usages are followed by studies and regulated by policies. A gender issue is particularly pivotal in terms of equity in the information age.

## 4.2 Developments in gender issues

A feminist theory on the gendered use of technology calls into question the idea of masculine technological standards. Donna Haraway (1997, 37-38), for instance, has pointed out that women unfitting technological standards does not mean the same as living in a world without standards. In the case of women, this has typically meant either adapting rather masculine standards or being marginalised from the world of the newest technologies (Scott, Semmens & Willoughby 2001, 7). To develop more gender-neutral technological standards, applications and the culture of use, it is important to figure out how men and women differ from each others as ICT users. In this, the mobile phone and the Internet cannot be compared to preceding technologies, such as television, radio or motor vehicles, due to their greater degree of individuality and portability (cf. Fortunati 2008, 26).

Gender-based differences in the world of ICTs are considered here as examples of social problems related to equity in the information age. The mobile phones and the Internet, for instance, have raised such questions as to whom new ICTs are designed, where men and women use new ICTs, and with whom they are in contact with. This chapter analyses the recent history of the gendered use of mobile phones and the Internet, especially from the material and conceptual aspects of social interaction and association. Unfortunately, previous literature does not provide much information about the experiential aspect of ICT use from a gender perspective.

Besides the gender issue, it would be possible to pay attention to other factors, such as age, social class and nationality, which may also contribute to the unequal development of information societies. Gender was selected to the subject of closer analysis because of its evident relation to the spatial organisation of everyday life. From the perspective of material labour, domestic chores (e.g. cooking, shopping and ironing) and paid work are often associated with different gender roles. Yet, the mobile phone allows us to see gender and the division of labour as a much more complex issue too. In terms of immaterial labour or immaterial reproduction, the mobile phone underlines such issues as social interaction, communication, exchange of information, civic and political engagement. Immaterial labour is relevant to all ICT users, although it may occur at different levels to both men and women (Fortunati 2008, 31-32).

To start with the mobile phones, studies across the world show that the mobile phones were aimed at well-off white men, who eventually also become the early adopters, sometimes called as yuppies (e.g. Roos 1993; Castells et al 2007, 41-43; Fortunati 2008, 25). Regarding mobile have-nots, studies show that women were less likely to become mobile phone owners than men at the end of the 1990s (Leung & Wei 1999, 219). In Finland, statistics point out that women were still a step behind men in the mobile handset usage rates in 2000. In the age cohort of 30-70 year-olds, women used mobile phone less than men. However, among the younger people there were no remarkable differences

(Nurmela 2001, 20). According to Oksman and Turtiainen (2004, 333), the situation had turned into the opposite by 2002. At that time, the use of the mobile phone and the Internet was already more common among girls than boys in the youngest age group. In the USA, Robbins and Turner (2002) report that women have represented the majority of mobile phone users since 1997. Before that men formed a clear majority of users, though they only had a slight advantage in population statistics. Later, Fortunati (2008, 25) has summarised that young women, adolescences and children were able to bridge the gender gap in the adoption of mobile phones, computers and the Internet in a very short time. Among the youngest generations of mobile phone users, women show only very modest signals of difference to men, if any, when it comes to the mobile phone behaviour. The generation really matters in this issue.

The naming policy of first mobile phone terminals also strongly reflected the masculinity of the emerging field. In 1982, Nokia launched its first "mobile" car phone with the name of Mobira Senator. This model was succeeded by others such as Mobira Talkman and Mobira Cityman. As it appears, these names also have a strong connotation to masculine positions in the society. As the mobiles become integrated more deeply into everyday life, the diversity of the users exploded, and terminals were also labelled with the gender neutral combinations of letters and numbers, such as Nokia 3110, Ericsson T28 and Samsung SGH-X510. With the increased number of women and trend-conscious consumers, special phone series were also started to tailor for women. Samsung' fashion phone SGH-E500 for women is an example of this, as well as Motorola's Pink SLVR, Nokia's L'Amour and Distinctly Bold collections (e.g. Katz 2006a, 71-74). After all, Fortunati (2008, 26) argues that women have managed to negotiate the entire body of the mobile phone. Today, the mobile phones are cute, colourful, fashionable, and new mobile applications and services are developed to meet "feminine" needs (e.g. calendars for menstrual cycle, calorie calculators).

Recent literature signals a softening of such strongly gendered characteristics of CMC. What applied to the fixed phones and to the early years of mobile communication, does not inevitable apply to today's communication patterns and habits. On the one hand, compared to fixed phones, men and boys might be more trend-conscious and socially-oriented users when using the mobile phone. Kasesniemi and Rautiainen (2002, 184) imply in their study that Finnish boys would be more emotional and deliberate, especially in their personal relationships, when text messaging is compared to their offline behaviour. On the other hand, it is argued that the mobile phones have encouraged women, especially teenage girls and children, to play games (Castells et al 2007, 48-51), which was previously an aspect of ICT use that was almost solely considered as a masculine sphere of life.

The history of the Internet is likewise characterised by masculine innovativeness and the pursuit of power. In the early years of the Internet women were conspicuous by their absence. The roots of the Internet go back to the military activities predominately understood as a masculine sphere of life

(Scott, Semmens & Willoughby 2001, 4-5). In the 1950s, a US military person started to ponder how recently introduced computers could be utilised in order to manage the complicating interconnectedness of the world. Shortly after, the United States established the Advanced Research Project Agency (ARPA) to compete with the successful space programme of the Soviet Union. ARPA created a wide-area network called ARPANET which worked as a test platform for new networking technologies linking a variety of universities and research centres. Thereafter, the history of the Internet is replete with the names of men. It is argued that many crucial parts of the Internet were developed by young fellows who were motivated by the belief in the inherent good of science and technology as a motor for the progress of entire humankind. (Castells 2001; Himanen 2001; Rheingold 2000; 2002)

Various studies point out that women have taken advantage of mobile phones and the Internet differently to men. Most clearly the studies point out that women adopt and use mobile phones more often than men because of its safety and controlling function (e.g. Puro 2002, 23; Ling 2004, 45). Furthermore, the mobile phone, like the fixed telephone, is more commonly used to facilitate the social interactions among woman than men (Ling 2001, 135; 2002, 39; Castells et al 2007, 45-46). There is also some evidence that single women own mobile telephones more often than single men (Plant 2001, 42). In general, it seems that women integrate ICTs appliances and their various usages with their feminine needs and interests.

Furthermore, Kasesniemi and Rautiainen (2001, 183-186) pointed out some clear differences between girls' and boys' when they studied texting behaviour among Finnish adolescences at the end of the 20<sup>th</sup> century. Boys' text-messages were characterised by short, informative and practical content, whereas girls seemed to prefer more thoughtful, impulsive and discursive text messages. Similar results have been discovered, for instance, in Norway, where girls send more text messages, include more salutations, closings and other details in messages (Ling 2005). In Norway, it has also been studied that for boys the importance of the mobile phone relates primarily to its functional, practical and instrumental qualities. Girls lay emphasis on the expressive and symbolic aspects of the mobile phone, especially when it comes to social relationships and interpersonal ties (Skog 2002, 268).

In general, literature indicates a certain degree of feminisation of mobile communication, although gender differences are not completely ironed out. Plant (2001, 57) shows that the mobile phone is making men more talkative and chatty in their relationships than they were without the mobile phone. In the context of Israel, actual calling habits and the attitude towards communication indicates some patterns of the feminisation of its use. Lemish and Cohen (2005, 518-519) say that the mobile phone is no longer a masculine working tool, but conceived rather as a networking tool, stereotypically understood as a feminine function. In Japan, Ito (2005, 135) argues that the pager and the mobile phone, which were both originally designed as business-oriented appliances, were shortly adopted by teenage girls, who have then strongly influenced the design

of subsequent devices. Rice and Katz's (2003) add that that statistical differences in the adoption of mobile phones between men and women have efficiently diminished similarly to those of the Internet.

This is to say that literature hints at a blending of traditional stereotypical gender roles in computer-mediated communication. This seems to correspond with Donna Haraway (1991, 154), who argues that the miniaturisation of new technologies provides a new opening for female participation in the information society. In the industrial age, new technologies were typically heavy and masculine by nature, whereas in the information age they are considerably smaller in size. This allows the better integration of new technologies with the everyday life of both men and women.

This might also mean that gender differences in the use of computer-mediated communication technologies are more subtle in form. Even if the most flagrant inequalities and gender-based differences, like those in ownership rates, have started to vanish, much more cunning and specific differences may be discovered. For instance, there is evidence that even if girls tend to play online games and chat on the Internet like boys today, they receive more long-time enjoyment from the games and they prefer text-based and role playing games to action games (Thurlow, Lengel & Tomic 2004, 131). In this respect, the field of mobile communication and Internet studies is not yet mature enough.

### 4.3 Spatial relations and gendered use

In this study the differences in the use of ICTs between men and women is addressed from the perspective of social space and spatial relations. ICTs, like other technologies, can be classified as shared, if there is more than one person per appliance, or individual if the device is in private use only. From the perspective of social space, gender-based differences appear to be most evident regarding *shared technologies*, which sometimes are also known as familial machines (Urry 2007, 95). The Internet, for example, is still to some extent a shared technology. It is accessed through a shared computer within families, cyber cafes and school computer labs. This is still the case even if the burgeoning supply of personal, mobile Internet solutions are slowly disengaging the Internet from the sphere of household and other shared spaces.

Earlier studies on domestic technology use have signalled that the computer is relocated from a private room to a shared room when a housewife is among the computer users. One way of understanding this is through the traditional division of spaces within the household. As a woman's daily home chores still take place more commonly in the shared rooms than those of men's, the computer is also placed in such a room if women are among the computer users (Dobashi 2006, 224). This is one implication in that masculine usages of new ICTs still provide some explanations for social space arrangements within the household (van Zoonen 2002, 19).

Yet, Frissen (2000, 71) shows that many of the most traditional gender differences in the use of communication technologies have become neutralised with the social space of family life. Today, differences seem to emerge most typically at the level of experiences. Material conditions make an increasingly smaller difference between men and women. Based on her interviews with Dutch adults, Frissen argues that men and women perceived differently the blurring of boundaries between work and family, which affect the ways how phones are used. Particularly in a busy household, both men and women use the phone to household purposes, though women consider them more often as a duty or obligation. This is one of those more subtle forms of gender differences in ICT use that take place in the information age.

Gender can also make a difference regarding the use of *individual technologies*, although the personal appliances reduce the need to negotiate about the place and timing of use. When the ICT terminals are as common and evenly distributed as the mobile phone in most developed countries, the gender differences are more likely to relate to the patterns of use and the everyday experiences of usage. At the material level, individual technologies like the mobile phone manifest themselves as relatively gender equal technologies. Yet, at the level of experiences the usage of ICTs may be still considered discriminative.

Literature shows, for example, that mothers' and housewives' opinions about the mobile phones are principally linked with their roles as the maintainers of family ties, especially in the case of mother-child relationships (e.g. Nordli & Sørensen 2003, 19; Lemish & Cohen 2005, 518; Dobashi 2006, 229). In fact, women make and receive more travel-related calls than men, which are associated with their roles as the coordinators of domestic life (Ling & Haddon, 2003, 247). This kind of gendered uses and perceptions are linked with the formation of social space formation too. Women act as the arrangers of family life within the domestic social space and therefore they also utilise the mobile phones more than men to increase the internal cohesion of family. For men, the mobile phone seems to appear more often as a medium of self-inclusion. While being outside the domestic space, doing overtime or being on a business trip, men use the mobile phones to include themselves into the family life.

The presented analysis shows a three-fold development in gender issues. Firstly, some of the most striking gender differences in conceptual practices have started to mitigate. For instance, men's role as a sole breadwinner is no longer reflected in the naming policies of the mobile handsets. Secondly, some of the deeply rooted gender-based practices in technology use are still reflected in the information age. Even if the mobile ICT tools would allow personal strategies to re-arranged traditional family roles, woman's role as the main organiser of daily family life is still reflected in the patterns of mobile communication. Thirdly, there are some weak signs of the blending of traditional gender-based usages of ICTs. Men's mobile communication has become richer in emotion and sociability, and women's online behaviour has absorbed elements from the masculine spheres of the Internet.



Gender difference in the use of ICTs, with reference to social assembling, was addressed here to reveal the social problems of technology-mediated interaction. ICT as a gender-based project is one of those social problems that would require more systematic examination (Sheller & Urry 2006a, 14). Yet, this concise analysis showed that the rise of new digital technologies has either not eradicated or drastically aggravated social problems of gender-based use. ICTs have rather transformed existing social problems and made them more personally experienced and subtle in form. This stems from increasing possibilities to personalise technologies and use them in individual fashion in comparison to the shared and familial technologies (Taipale 2008, 28). Thus, the rationale of the mobile phone and the Internet studies emerges from the transformative capacities of new technologies and their influence to the equal development of societies.

#### **4.4 Social policy as solving social problems of technology**

In the modern sense of the word, social policy is a field of social sciences that undertakes research questions at the crossroads of various disciplines. Social policy is not a self-sufficient scientific discipline, but it adopts theories and methods from its neighbouring disciplines, especially from sociology, with the purpose to explore various social problems occurring in societies (Hudson & Lowe 2004, 4). This means that the concept of social policy is stretched to cover the policies and practices of social interaction in general, not only social security and welfare issues. This definition also covers the technological mediation of social interaction in the information age as well as various social problems related to it.

The mobile phones and the Internet as the shapers of social space are at the junction of social sciences, technology and communication studies. This kind of multidisciplinary approach may, however, also give rise to divergent expectations towards the methods, background literature and results of the study. This doctoral study is linked to the field of social sciences especially through its theoretical and conceptual choices as well as the applied methods. The analysis of the concept of social space in the context of ICTs, explored by means of social scientific methods, provides information about the re-organisation of social fabric in the information societies.

Defined as above, the task of the social policy today is to pinpoint social problems in the globalised networked societies (Hudson & Lowe 2004, 15-32). This means that computer-mediated communication should not be tackled merely as a positive phenomenon. New technologies and their use also involve a range of potential social problems, like those described above in relation to gender. It is widely acknowledged that ICTs impede the equal development of information-based societies in various manners. For instance, differences in the adoption and methods of ICT use are considered as a real threat when it comes

to equal participation in the information societies. These social problems of the information age are often conceptualised through the term digital divide (e.g. Graham & Marvin 1996, 189-206; Loader 1998, 3-4).

The rationale of mobile phone and the Internet studies as a part of social policy is, accordingly, connected to the socially equal development of information societies. It is central to understand how societies manage to provide welfare to their citizens and combine that with the dynamic technological development. In literature, this is regarded as one of the most distinctive factors between information societies (Castells & Himanen 2001, 181-184). More precisely, from the perspective of social policy, the essence of the information societies lies in their ways to use new ICTs to either improve or worsen the conditions of different social groups (Kasvio 2005, 13).

When defined in this way, social policy calls for more research-based information about social problems stemming from the intensified human-computer interaction. This chapter brought out some social problems related to the adoption and use of the mobile phone and the Internet. The issue of gender equity, addressed most in-depth, is one example of how new ICTs reflect "traditional" social problems, which have been in the focus of social science for a long time. Earlier literature also shows that such traditional social ills as poverty and under-development (Saloma-Akpedonu 2007; Law & Peng 2007; Aminuzzaman 2002), health risks (Burgess 2003), and terrorism (Cohen & Lemish 2005; Katz 2006b, 69) are also being mediated by ICTs in the information age.

Furthermore, this chapter has made it known that the mobile phones and the Internet can also reveal some new features of old social problems. It was shown that the use of mobile phones and the Internet is to a lesser extent reducible to the stereotypical masculine and feminine usage. Instead, ICTs seem to bring out some new and more subtle gender-based differences like those perceived at the level of experiences. In other words, it is the task of the social policy to not only dissect how ICTs mediate well-known social problems, but also how they transform them.

## 5 METHODOLOGY

### 5.1 Multiple triangulation

With regard to methodology, this study is based on the triangulation method, sometimes also known as the mixed-methods approach. This method was selected as it fits best together with the characteristics of the study that consists of many separate articles. The enclosed articles are founded on different empirical research data, they differ in theoretical foundations, and they also take advantage of different social scientific methods. It is therefore essential in this leading study to bring these articles together also in terms of methodology, and analyse the possibilities and constraints of the multiple method approach.

A multiple triangulation is the most precise term to depict the methodological and material richness of the study (Denzin 1978, 304). It refers to a simultaneous triangulation of various research data, methods, theoretical and methodological approaches. This chapter focuses on arguing for the usability of the multiple methods and multiple data approach in the analysis of the formation of social space. Furthermore, the chapter aims to critically analyse the weaknesses of the multiple triangulation.

The conceptual roots of the triangulation method originate from the invention of geological surveying and navigation techniques (Blaikie 1991, 117-118). The spatial construction of the world was mapped much more accurately when it was discovered that one point can be located on the basis of two other points when the distances and the angles of a triangle are known. Interestingly, a similar triangulation technique is also used to track down the location of the mobile phones. A mobile positioning system relies on the information received from the nearest base stations. Similarly, the triangulation as a research method refers to the reduction of uncertain information by searching for complementary information from other sources.

There are some erroneous beliefs regarding the explanatory capacity of the triangulation method. Every now and then, it is argued that the triangulation aims to confirm or disconfirm the previous research results or results achieved

in the same study with other methods. This type of approach is known as a triangulation for *convergence* or *cross-validation* (e.g. Erzberger & Prain 1997, 143-144; Sale, Lohfeld & Brazil 2002, 48). It seems to have a positivistic starting point as it rests on an idea of a single reality which then leads to an idea that different methods produce the consistent results of the same undefined reality (Silverman 1985, 105). Statistical survey methods can be applied to this kind of purpose to some extent, although not always very successfully. In this respect, their usefulness depends on how precisely a research setting and questions are replicated from one study to another. Qualitative methods, on the other hand, always produce different pictures of parallel realities which are not commensurable.

From the ontological point of view, an approach that allows for the existence of multiple realities match better with the aims of this study compared to the triangulation for convergence. This is because the material, conceptual and experiential aspects of social space are considered to be representing the different sides of the same phenomenon. Each of them can provide a single picture, which are parallel with one another but not commensurable. Therefore, it is also believed that different methods and research data are required to study them properly.

First, material refers to the perceivable and tangible level of spatial reality, which can also be measured with quantitative methods. Second, conceptual implies to a level of social reality that is comprehended through the linguistic practices and theoretical models of thinking. It consists of various representations of the space that are most accurately studied by qualitative methods. Lastly, the experiential aspect of social space should be seen as an everyday lived space that can be further examined through the case studies. The case studies make it possible to catch individual and collective experiences regarding transformations in the formation of social space.

*Complementary* triangulation is a response to this kind of methodological need (e.g. Erzberger & Prain 1997, 144-145; Sale, Lohfeld & Brazil 2002, 48). It relies on an idea that qualitative and quantitative methods should not be understood as ways to study the same phenomenon from the same perspective. Rather, they investigate different aspects or different levels of reality by supplementing each others. Annels (2006, 56) speaks about the same issue in a slightly different fashion. She argues that the mixed-methods studies are justified if they juxtapose understandings that acknowledge the complexity of the phenomenon studied. Triangulation over qualitative and quantitative methods is only in line with a pluralist understanding that allows many parallel realities (Olsen 2004).

The model of complementary triangulation is illustrated in Figure 1. The figure was originally presented by Erzberger and Praib (1997, 145), who used it to describe how the qualitative and quantitative methods produce parallel snapshots of the same research object. Furthermore, Erzberger and Praib stress that the selection of methods is dependent upon the theoretical assumptions underlying the object under investigation. In an article based study, the

separate articles can also differ in their theoretical assumptions and research objectives. This proves the importance of creating a solid theoretical framework for the entire study when merging results from separate articles. In this study, the theory of social space and the transformative capacity of ICTs were presented as a theoretical framework for binding the articles together.

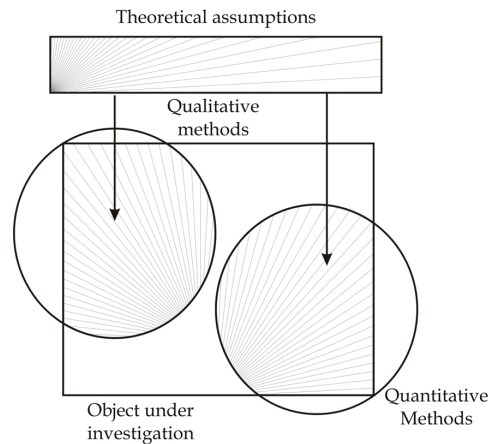


FIGURE 1 Complementary triangulation (Source: Erzberger & Prain 1997, 145)

Each article of this study presents one or more pictures of ICT-related transformations in the structure of social space. Some articles focus more on material, and others on the conceptual and experiential aspects of the phenomenon as projected in Chapter 2. In this way, the studied phenomenon becomes covered piece by piece, although not completely, during the study. Some parts of the phenomenon may not be explored due to the limited amount of empirical data and the selected three perspectives to social space. Yet, it is believed here that by using the multiple methods and data sources, the study manages to build a more comprehensive picture of the dynamics determining the formation of social space. The aim is not to produce a single harmonic picture of ICT-related spatial changes, but rather to bring out the plurality of changes in the formation of social space.

To conclude, it is clear that a multiple triangulation approach cannot cover the studied phenomenon without leaving something undiscovered. In this study, for instance, the voice of technology users is not reached as it could be by means of ethnographic or anthropologic methods. It is also worth noting that the multiple triangulations are inclined to produce some “extra” information. Figure 1 is illustrative in this respect as it depicts how the various methods may reveal something that is not part of the studied research object. Furthermore, the enclosed articles partly overlap with one another, especially when it comes to the theoretical and conceptual analysis of social space.

## 5.2 Theoretical and conceptual analysis

The whole study is based on the extensive review of literature. A bunch of theoretical studies pondering social space and the role of mobile handsets and the Internet in the spatial formation of social life are ploughed through. Theoretical analysis is carried out to understand the dynamic of social space formation as a process of the material, immaterial (concepts) and experiential in the information age. Theoretical analyses on the relationship between mobile phones, the self and spatial aspects of society are presented in each supplementary article, in addition to the theoretical account of this leading study (Chapters 2 and 3).

Conceptual analyses are implemented to understand the *conceptual* formation of social space in computer-mediated interaction in particular. According to the presented theoretical background, the conceptual formation of space is to a great extent produced by scientists and technocrats. By analysing invented and applied concepts and describing the spatial aspects of ICTs, it is possible to map out how the conceptualisations correspond with the experienced transformations and material aspect of the social space.

The articles cover the conceptual issues mostly by looking at how various ICT uses and terminal appliances are represented in the literature. In Articles I and IV the conceptual spatiality of new ICTs is addressed from the perspective of appliances. The articles show how the researchers have tried to understand the spatiality of ICT appliances, their portability and materiality. As time has passed since the articles were written, this leading study updates some parts of the conceptual transformations.

Every time the earlier literature is chosen to be studied and reviewed, there is a risk that they do not adequately represent the whole gamut of literature. For this reason, articles are to a certain extent vulnerable to criticism of selectiveness. For instance, Article I mirrors the picture of urbanity of mobile phones reflecting what was presented in early mobile phones studies (Mäenpää 2001, 108; Kopomaa 2000, 6). Later, the researchers have noticed and underlined that the mobile phone is not exclusively an urban phenomenon (Oksman & Turtiainen 2004, 320). In other words, the picture of the urbanity of the mobile phone would be different if analysed based on the literature available today.

Article IV, for one, tackles problems in the recognition of culture in the Internet. In this article the risk of selectiveness is not as high as in Article I as far as the reliability of the study is considered. This is because Article IV is not based on ontological assumptions about the spatial essence of the Internet. Actually, the article itself sketches the spatial nature of the Internet by analysing earlier texts and by learning of the everyday experiences on internet behaviour. In this respect, Article IV also provides information about the experiential level of social space.

### 5.3 Quantitative and qualitative analysis

By means of statistical analysis, the study explores the *material* aspect of social space by analysing users and their attachment to certain residential locations. Article II focuses on this topic in particular. It is explored with the help of fully-structured survey data on how young people use the mobile phones in urban and less-urban locations. The survey was collected in 2005 (N=421) and targeted at young persons living at four different cities and towns in Finland. The age of respondents varied from 15 to 25 years.

The analysis of this data set is based on a range of statistical methods. Principal Component Analysis (PCA) is used to classify different types of mobile phone usages. Analysis of Variance (ANOVA) is used to test differences in usages between urban cities and remote smaller towns. The Multiple Regression Analysis (MRA) is used to model the predictors of different types of usage, and further study how the users from two different location types differ and resemble each other.

By qualitative methods, the study searches for more information on how people *experience* the transformative capacity of mobile phones, and new technologies in general. This is tackled in more theoretical Articles I and IV, but most directly in Article III through its case study. Article III differs from the others in terms of research material and the level of analysis. It benefits from online newspaper material dealing with the advent of mobile phones in Nigeria and a set of consequences. The newspaper material reflects people's experiences, although it cannot be compared to information that could be acquired by interviewing people face-to-face. The research material comes from the BBC's online news archive which is supplemented with a range of academic studies. With the help of this data, the article describes how transformative technologies, like the mobile phone, may unbalance the order of locally arranged social space in unexpected and unwanted ways.

Article III follows the principles of thematic content analysis. On a practical level, applications of content analysis vary to a great extent. Earlier literature divides the content analysis to three types: data-based, theory-based and theory-informed content analysis. In addition, the types of content analysis have been broken down to qualitative and numeric ones (Tuomi & Sarajärvi 2002, 109-116). Article III is founded on a theory-informed approach and it is purely qualitative in nature. It begins with the theories of social order and moral panic, and then continues to analyse the content of data in order to point out how new ICTs may reorganise the prevailing social order. The use of data and the theory-informed starting point of study are presented more carefully in the article itself.

In conclusion, the multiple triangulation does not presume either inductive or deductive approaches, but allows empiric studies to enrich theoretical reasoning (e.g. Article III), and theories to work as points of departure for empiric studies (e.g. Article II) (e.g. Teddlie & Tashakkori 2002, 7-

33; Hammersley 2008, 32-33). In this study, the strength of the multiple triangulation becomes evident in the parallel use of many methods and data sets when studying the three aspects of social space. The transformations in material structure are possible to be examined both by qualitative and quantitative methods, conceptual practices through conceptual analysis and literature reviews, and experiential changes by observing qualitative information about people's experiences in ICT-mediated social assembling and interaction. Yet, the triangulation method requires a large methodological tool kit from the researcher. Its major challenge is related to the interpretation of parallel pictures created by using different data sets and methods. The true value of the method is thus only possible to evaluate after presenting the findings of the study. The method can be considered successful if the parallel pictures about the transformations in social space contribute to a better understanding on the transformative capacity of ICTs.



## 6 SUMMARY OF ARTICLES

### 6.1 Article I

Article I tackles the issue of social space by analysing an urbanisms thesis presented in the early mobile phone studies. The heart of this thesis is that the transformative capacity of the mobile phone was associated with the urban sphere of life in the early mobile phones studies. The thesis, inexplicitly presented in various studies, says the mobile phone responds particularly to the urban life styles that necessitate spatial co-presence and temporal synchronicity (e.g. Kopomaa 2000; Fortunati 2002b; Mäenpää 2001; Townsend 2002; Okada 2006). These needs are said to originate from the spatial division of everyday activities (home, work, leisure time) and increased individuality that has modified the traditional forms of social assembly. The fact that people physically live more densely and socially more sparsely in the urban areas would have created a particular demand for mobile phones.

Article I presents through a statistical review and literature analysis that the spatiality of the mobile phone is a much more multifaceted phenomenon. First, the study points out that the mobile phone is a spatially evenly distributed commodity, especially in the westerns countries such as Finland. Statistics do not uniformly speak for the urbanism, but rather the spatial pervasiveness of the mobile phones. Nevertheless, the patterns of use and the provided mobile services may still vary remarkably between the urban and rural areas as the newest technology and content services are first introduced in the urban areas. Second, the study underlines that the mobile phone, although being a highly mobile appliance at a formal level, is tightly fixed in the material structure. The study shows that the mobile phones are bounded to the physical and stationary infrastructure of the material world in many ways. And the use of mobile phones is spatially-informed as well. The mobile is not used randomly but by taking notice of social surroundings, whether it is urban or not. Third, the article hypothesises that the privacy functions of the mobile

phone are perhaps more important for the urban users who aspire to protect themselves in a stimuli-rich environment. Connectiveness, then, might be similarly important for the rural dwellers to whom privacy is naturally given.

Instead urbanisms, the paper hints that the mobile phones should be considered as more universal, transformative technology. The mobile phone and its usages are connected in many ways to the user's identity and spatial understanding. As a transformative technology, the mobile phone should be considered as capable to transform, as well as to maintain and dismantle, the user's spatial understanding and social relations. For example, urban people may either reinforce their urban identity by responding to the needs of urban lifestyles or they can use the mobile phones to overcome the limits of urban and rural spheres of life. This means that mobile phones may also transform the identity of urban users by transmitting some rural influences into it.

## 6.2 Article II

Article II explores the use of mobile phones in two Finnish cities and two smaller towns among the young users (15-25 year-olds). The article deals primarily with the material formation of social space as it analyses whether and how the user's attachment to a certain type of socio-geographical location affects the ways of using the mobile. The users from urban and less-urban locations are set in a comparison. The study is based on survey data and statistical methods.

First, the article classifies the typical purposes of mobile phone use, named as use for sociability, entertainment and time coordination. Then, it compares if these patterns of use differ between the young persons from two types of locations. A statistically significant difference was found regarding the use for entertainment and time coordination. It appeared that both types of mobile phone use were more common to the users of smaller towns. Next, the article explored the predictors of each type of usage by controlling a set of variables with the help of MRA. Among many other things, it was found out that the amount of recreational activities typical for urban life (e.g. going to bars and restaurants, hanging out with friends) explain all three types of use. However, this or any other type of controlled variables did not eliminate the significance of the place of residence as a predictor. The users from smaller towns were still more active mobile entertainers and temporal coordinators of their everyday life than the young persons from bigger cities.

The article is also linked with the findings of Article I. The mobile phone seems to respond to different types of social needs in different socio-geographical locations. Compared to the urban users, the users of smaller towns seem to lack alternative sources of entertainment. This may be compensated with the use of mobile phones for entertainment. Furthermore, the article hints that the use for time coordination is not especially associated

with the urban life settings. The users of smaller towns took more advantage of this type of use, which may relate to their longer physical distances and the scarcity of public transportation that set a higher demand for temporal coordination. Lastly, it can be said that the article does not support the idea that the connectiveness of the mobile phones would be more beneficial to the rural users, to whom privacy is naturally given as foreshadowed in Article I. In contrast, the results of this article implicate that the mobile use for sociability is equally common in the two different types of location.

### 6.3 Article III

For the most part, Article III deals with the lived level of social space. It tackles the issue of moral panic and how it may be initiated by taking advantage of the mobile phone technology. The study is anchored to moral panic and hybridisation theories. It explores how globally arranged new ICTs, when mixed with the specialities of local communication culture, may launch an unexpected series of events and cause moral panic. Furthermore, the study shows by means of a case study how people and certain institutions live through these changes, and how they experience them.

The case study is based on empirical material collected from the BBC's online news archive. The material deals with the advent of mobile phones in Nigeria, and the rumour that was spread soon after. According to the rumour, picking up a call from an unknown number may cause severe injuries to or even the death of the receiver. In Nigeria, this rumour triggered a set of reactions understood as one form of moral panic in this article. The rumour is employed as an empirical example of the presented theoretical thinking about moral panic, and as an illustrative of ICT-mediated moral panic.

The article proposes that locally arranged social space and its order were subjected to transformations in Nigeria when the mobile phones mediate unfamiliar and foreign influences into it. It is the hybridisation of local communication culture with threatening foreign influences that caused turmoil in the local context of Nigeria, and engendered a need to re-establish the social order. In terms of spatial analysis, this means that local spatial orderings can be unbalanced by the external and unfamiliar impulses transferred by the new and globally structured ICTs. ICTs reduce the locality of experiential social space by adding to it global influences and subjecting it to global threats.

The article presents that a locally arranged social space may be transformed in various ways by global impacts. It is proposed that this depends on two issues: the modernity/traditionality of the local communication culture, and fixity/rigidity of its social structures. These two dimensions are represented in a fourfold table, where each fold represents different types of hybridisation and possible subsequent disorders (pp. 150-151). The article portrays them as standard types representing different forms of

transformations in the local social settings. If the locally arranged social space is responsive to new external impacts, the hybridisation may take a dynamic form and possible disorders in the space are progressive by nature. On the other hand, if the local social space is restrained in terms of the external impacts, the hybridisation may become a resistant process. As a consequence of this, the possible social disorders within the local space may be experienced as unwelcoming or even intimidating.

The article proposes that disorders are either tamed or turned into breeding grounds for new orders despite of the type of hybridisation. The former means that the disorder, caused by a non-local intimidating impact, is suffocated properly. As the impacts on a social space are only throttled and not dealt with adequately, transformations might be experienced as threatening and confusing. The former, on the other hand, means that external influences are assimilated into a local space in a more determined manner. Transformations and possible disorders are processed with a purpose of making them more transparent and understandable. This means that technology-mediated changes in a locally-arranged social space and culture of it are more likely to be considered as constructive and harmless.

#### **6.4 Article IV**

Article IV pursues the matter of how the global and the local are mixed in computer-mediated communication. The focus of the study is on the Internet, and how it affects spatial configurations relevant for the reorganisation of human culture. In particular, the article analyses the Internet as a space of culture and social activities, and argues that the Internet has a two-fold and paradoxical relation to the concept of space. On the one hand, the Internet brings people and the variety of cultures into the same space. All people and different cultures are equidistant from each other on the net. On the other hand, the Internet appears as a space of dispersion. The Internet is packed full with miscellaneous and disorganised information, a great variety of human cultures included. This, in turn, distances human cultures from each other and consequently complicates cultural recognition on the Internet.

The article elaborates this phenomenon from various perspectives. Globalisation studies have commonly ignored the role of culture while paying most attention to economic and technological transformations. Yet, the Internet as a technological backbone of globalisation is a cultural construction and it efficiently mediates culturally-loaded information. In other words, the rationale of the article is based on the multiculturalism of the Internet and the possibility of the conflicts over the meaning as regards to different cultures on the Internet.

The article presents that some of the obstructions for cultural recognition relate to the overflow of cultural material on the Internet, and others to the incompatibilities of the inherent properties of human culture with those of the

Internet technology. In the beginning, the article points out how cultural codes and symbols are blended with global and technological influences on the Internet. When represented on the Internet, cultures are subjected to reshaping and relocation. This transforms cultures into hybridic formations which include both local, global and technological elements. Due to this kind of hybridisation, cultural material is increasingly difficult to recognise from the Internet compared to the unmodified forms of offline human culture.

After this, the article points out how people stick to their cultural reservoir adopted in the offline reality also while acting on the Internet. This appears as a challenge for cultural recognition on the Internet for two reasons. Firstly, the material aspects of human culture are not representable on the Internet in full detail. Human culture loses a part of its characteristics when transferred into and presented on the Internet. Secondly, detachment from physical surroundings and social context complicates cultural recognition. In the offline reality, cultural symbols and signs are experienced in a certain socio-physical context, whereas on the Internet cultural material is typically experienced either alone or in a distant relationship with others.

To conclude, the article argues that the Internet makes cultures somehow equal in their presence, but not different enough to be easily recognised. The main challenge seems to be attracting someone's attention to cultural symbols and signs on the Internet and in particular to know how they are perceived. This can also lead to conflicts over the meaning or even cultural shocks, as people are not aware of the symbolism of all online material, as well as because a remarkable part of cultural symbols may have been removed in the digitisation processes.

## **7 FINDINGS**

### **7.1 Transformations in space**

This chapter summarises the results of the entire dissertation project. First, the transformations at the material, conceptual and experiential levels of social space are studied one by one. In this effort, the chapter makes good use of the enclosed articles and other literature. Second, the chapter aims to analyse as to how the parallel pictures generated through the three standpoints to the social space and the triangulation method add to our understanding of the technology-mediatedness of social association. In other words, the contribution of the entire study to the sociological theories of space and mobility is analysed.

The study has argued that the social space emerges from material reality, which is structured and expressed through conceptual practices, and then experienced in multiple fashions. ICTs transform all these three aspects of the social space. Despite of the ICTs capacity to detach the social interaction from the material structure, it is most important to notice that ICTs do not negate the material aspect of life. Quite the contrary, ICTs add a great deal of immateriality to the social fabric as they allow co-presence without the physical proximity of others. Following from this, new conceptualisations have mushroomed with the purpose to describe transformations in the social space. For example, concepts depicting technology-mediated connectedness and ICT-mediated social assembling over physical and geographical boundaries have multiplied after the advent of ICTs. Furthermore, the ways of experiencing the social space have gone through alterations. ICTs allow us to experience things beyond the immediate social and geographical context. By means of ICTs, we can experience the snippets of the remote realities too. In Simmel's (1994, 8) terms, mobile phones and the Internet have opened new doors from the limited and separate existences of modern people.

First and foremost, the study showed that transformations in the formation of social space are both social and technical by nature. This main

observation applies to all three levels of social space formation. ICTs are the enablers of boundary-breaking human interaction and the new technology-mediated forms of social assembly, though they shall be considered only as mediums. The social actors, human beings, are required to take advantage of the transformative capacity of ICTs before the transformations can take place. This means that changes in the formation of social space do not evolve from technological innovations as such, but from the interaction between technological enablers and human actors. In the technology-mediated world, social actions are actually bound together as much by the technical and the social. Neither the purely social nor the exclusively technical is a determinant of social interaction in the last instance (Law & Bijker 1997, 290).

Social space is thus formed and transformed in the interplay of technological and social. In literature, the majority of examples illustrate the intentional shaping of the limits of social space. On one hand, studies have focused on the changing boundaries of public and private space (e.g. Green 2002; de Gournay 2002; Taylor 2005). Large public social spaces are transformed into smaller private spaces by using the mobile phone. Kopomaa (2000, 17) writes that the mobile phones may extend the intimate, social sphere of life at the expense of the public sphere. Pertierra (2006, 101) and Green (2002, 289) hint that people may cocoon themselves against surrounding impulses of public life, especially in urban areas, by concentrating on their mobile phones. Particularly, Pertierra (2006, 77-95) points out that in densely populated areas and small-sized residences, people use mobile phones to compensate for the lack of private space or their own room. Mäenpää (2001, 117), for one, suggests that mobile phones users seek protection against the public, for instance, from cars, which act as safety bubbles for mobile phone use. In addition to this, he suggests that the mobile phone is used to fill empty moments, when one has nothing particular to do. On the other hand, literature also proves that ICTs are employed to extend constricted social spaces. For example, people network and set up new virtual communities on the Internet in order to make their private life more public, and to extend and affirm their social networks (Quan-Haase & Wellmann 2004, 199; Haythornthwaite & Wellman 2002, 32-22).

Nevertheless, technology-related transformations in the social space are not always intentional or desired in the information age. The formation of social space and its order may be modified through ICT technologies from afar and in faceless relationships to others, as Articles III and IV elucidate. New social relationships and other information attained through ICTs may then be experienced as threatening or even hostile. This is particularly the case when these novelties originate from a different socio-cultural context than the user himself or if new social relationships are anonymous. Mobile rumours, mobile bullying and scurrilous online material are only examples of this. With regard to the social space configurations, it is important to notice that these kinds of undesired uses may also result in social isolation. When considered as intimidating, the boundaries of social space may be reinforced, the number of

social contacts can be reduced and free access to the social space might be controlled more strictly.

In brief, the use of new ICTs influences our understanding on the formation and limits of social space powerfully. The transformative capacity of new media technologies has challenged traditional conceptual approaches, such as public-private space dichotomy, employed to describe the form of social space. Social space is to a greater extent marked by the mobility of its members and communication acts, and progressively to a lesser extent by the unaltered composition of its members and the fixed boundaries. This also reveals that the transformations in social space excellently reflect the onset of the mobility paradigm and the spatial turn in sociological thinking (e.g. Urry 2000a; 2000b; 2007; Thrift 2001; Peters 2006; Sheller & Urry 2006b). When mediated or created with the help of ICTs, the social space is subjected to movement and transformations in shape.

## 7.2 Material transformations

*From the material to the immaterial (informative).* In the information age, the boundaries of social space are not only natural, geographical or physical constructions, but they are to a greater extent also psychological and technology-mediated formations. Compared to immediate face-to-face relationships where the material boundaries set clear limits for social association, it is more the joint purpose of gathering together that matters in the computer-mediated building of social spaces. However, this purpose might be either very loosely or tightly formulated as pointed out in earlier studies (Harasim 1993, 29).

There are two reasons for this change. First, as people in ICT-mediated interactions, especially on the Internet, are not always acquaintances or known to one another, the purpose of joining together must be very specific. In non-mediated interactions people are physically closer to each other and social assembling is often based on mutual trust that consists of kinship, friendship or some other form of familiarity. In technology-mediated interaction, social assembling cannot always be founded on similar familiarities. Therefore, the purpose of joining together must be more definite and trustful relationships can only be established little by little. In mediated interaction, trust becomes more of an issue as the contextual information disappears with the spatial and temporal remoteness of the partners (Licoppe & Heurtin 2002, 100; cf. Giddens 1990).

Second, the use of ICTs has turned out to mean the overcoming of material boundaries, which adds to the relative significance of the purpose of the space. In non-mediated relationships, the material boundaries are key factors in bonding people together. They demarcate one social space from the others. However, in mobile phone and Internet mediated interactions, people are



crisscross networked over all kinds of material boundaries, which undermine their relative meaning in the shaping of social space.

The four articles bring out many examples of this change, where the material conditions have less importance and the immaterial interests relatively more importance regarding the stability of ICT-mediated social spaces. For example, Article III illustrates as to how the social order of space that was based on the geographical and cultural boundaries was muddled up with the help of mobile phone technologies. In this particular case study, the stability of locally arranged space was unbalanced as the material boundaries could block out the intimidating rumour that penetrated from afar into the locally organised social spaces.

Article IV, in turn, presents that the lack of material boundaries can cause genuine difficulties for cultural recognition on the Internet. The article describes that the Internet as a highly immaterial and information-rich social space does not provide users with those material boundaries and reference points that facilitate cultural recognition in the offline contexts. In the offline contexts, people take advantage of national, regional and cultural borders to evaluate the cultural quality of the social space. In the multicultural space of the Internet, similar information is relatively more difficult to recognise. The boundaries are fragmented and relevant cultural information is presented in an unorganised manner. In other words, people lack material boundaries for determining the limits of social space in computer-mediated relationships, particularly in the Internet-based social interactions. Therefore, the basis for social assembling is more and more often found from the shared purpose.

*Towards networking.* ICTs are also tools that make the individual configurations of social space possible (Wellman 2001). When using the mobile phones and the Internet, people have various ways to influence with whom they want to share a social space and interact with. For instance, the mobile phone number may not be passed to everybody, people may choose those who they want to chat with on the Internet and they may also log into such websites that are most likely to only consist of like-minded people. Mobile phone users can particularly choose where they call from, but they have less control over the calls and messages they receive. Yet, mobile phone users may control whom they wish to “enter” their private spaces by accepting or rejecting incoming calls, text and multimedia messages (Mäenpää 2001, 122).

The formation of social space, in other words, is not so much about physical connections with others when computer-mediated. Rather it is about interest-based networking with other people. Wellman (2001, 246) has pointed out that the lack of social and physical cues online makes it hard to find out if other people have similar social characteristics. However, the absence of these characteristics allows relationships to develop from shared interests rather than be stunted at the outset by differences in social status. For this reason, Wellman also conjectures that the focus on the shared interest, in contrast to the similar characteristics, can enhance the equality within the social spaces online.

Purpose-based networking over the physical boundaries is also in line with Simmel's (1997, 152-154) argument that physical distance - or the absence of physical proximity - is not necessarily an obstacle for the sharing of social space. Simmel writes that people with "the power of fantasy and the devotion of feelings can overcome the conditions of time and space in a manner that quite often seems almost mystical". In other words, people with the help of their imagination can come to share the social space and sense togetherness. However, Simmel continues that such spatially distant relationships may cause a certain calmness and reticence between people. As people remain unknown, faceless and distant to each other, the connection between them cannot easily evolve into a trustful relationship.

ICTs have raised the meaning of the "power of fantasy" into a new level. They provide technological means, such as live video streaming and real-time online conversations, to add some reality to imaginative relationships. With the help of ICTs, people are able to come closer to and more familiar with physically distant people with whom they have something in common. The calmness and reticence of distant relationships is thus possible to mitigate and turn into more intimate relationships through the use of ICTs.

The mobile phone and the Internet have demystified the imaginative aspect of social space by providing concrete technological means for intimate and imaginative relationships. Through mobile communication, multimedia messages, instant messengers and video streaming, people are able to create the new spaces of intimacy. The growth in imaginative social relationships and interaction is also a pivotal element of the mobile turn. It is characteristic of the new mobility paradigm that social assembling is facilitated with the new forms of communicative and imaginative mobilities (Sheller & Urry 2006a).

New ICTs transform the social texture of space by making it more informational, imaginative, and networked in form. This transformative capacity of ICTs is separated from the material form or presence of others, and it involves great levels of miniaturisation and portability (Urry 2007, 173). Networked social spaces are also very individual and flexible formations. The networked space changes its shape if the interaction between its members is interrupted, for instance for technical or contextual reasons, or if there is a lack of common purpose to share the space. People sustain their positions in the networked space only as far as they share the values and goals of the space (Castells 2000a, 501-502). In addition, it is emphasised here that the networked social spaces are not only built, but also experienced individually. In the information age, each person participates in numerous social spaces, but lives them through his unique experience of life.

*From fixed to mobile.* In the information age, many connections with people are not based upon physical propinquity (Urry 2007, 47). Social spaces can also be established and filled up by people from basically anywhere where new ICTs are available. The formation of social space is based to a lesser extent on the physical conditions and fixed locations, and to a greater extent on the

exchanges of information. Whereas in the past the fixed location was a condition for the communication, it is now rather a moment of the communicative process (Perterra 2007b, vii). This means that social space can be created, shaped and attached to on the move.

Regarding the transformative capacities of ICTs, the possibility to diminish the dependency between the acts of social assembling and various physical fixities is one of the most fundamental functions of ICTs. The mobile phone in particular has allowed us to communicate, interact and rally together while being on the move. The online network spaces are thus available every time we go online. Therefore, the portable ICTs terminal can also be considered as technologies of mobile social assembling. On the other hand, we must bear in mind that the use of ICTs is also informed by many fixities. Social assembling through ICTs is firmly anchored to the material structure, for example, through cables, link masts and antennas. This reverse side of the portability is echoed in Article I, which addresses how many localities and material fixities are marking the use of mobile communication tools.

Nevertheless, mobility is a central aspect of social spaces in the technology-mediated world. This can be better understood when compared with George Simmel's analysis on social space that describes the social association in the age of industrialisation. In his analysis, Simmel emphasises the role of fixed points for the shaping of social space. For example, rivers, streets and individual house names provide natural reference points for social association. They act as a rendezvous for people living in the neighbourhood. In Simmel's analysis, a rendezvous signifies both the encounter of people and the location of meeting (Simmel 1997, 148-149).

In the information age, the role of fixed points and the rendezvous are still crucial in the shaping of social space as far as face-to-face relationships are concerned. However, in computer-mediated interactions such fixed points are substantially more difficult to utilise in social assembling as people get in touch with one another through ICTs, which do not set preconditions for people's physical whereabouts. In fact, the lack of fixed points, such as a rendezvous, seems to be an example of the quality of the social structure of networked societies.

Social networks are first and foremost dynamic structures with no permanent fixed points (Castells 2000a). This lack of fixed reference points is also reflected in the patterns of social assembling. When using the mobile phones and the Internet to associate with others, people often try to position themselves and others in terms of space. For instance, studies show that people tend to locate the physical locations of others in the opening sequences of mobile phone conversations (e.g. Lauriel 2001, 500-501; Weilenmann 2003). Similarly, in the Internet-based chats and instant messaging, people inquire into the location of others in order to spatially situate the social space.

The enclosed articles also address this transformation from the fixed to the mobile spaces as well as challenges related to it. Article IV argues that social space as a materially unbounded formation contains both benefits and risks.

Benefits relate to a better possibility for social association regardless of one's spatial location. People may efficiently join together in the networks of communication providing that they have access to ICTs and a common interest of being associated. Risks, in turn, relate to the decreased levels of recognisability and familiarity. These issues are dealt with in Articles III and IV. In social spaces online, it is likely that the diversity of people who share the same social space becomes greater than typically in the offline spaces, which are shaped by and within certain cultural and geographical regimes. In the technology mediated world, such boundaries are lowered and sometimes completely inexistent meaning that a vast group of people have the possibility to come and share the same social space. Furthermore, and as Articles III and IV show, this can lead to the cultural conflicts – conflict over the meaning of space – or even escalate into a moral panic if people are not prepared to tolerate the cultural pluralism, different values and beliefs within the space.

This is to make evident that the social spaces also typically involve some conflictual relationships. The lack of restrictive boundaries has made the online social spaces widely accessible and mouldable, which is then likely to undermine the inconsistency of social space. Scott Lash (2005, 17) has put forward an idea that Simmel's conception of flux could be utilised to highlight the conflictual relationships of the information age. Unlike the concept of flow, which is typical for rather positive current analyses of globalisation, flux underscores the tensions of intersubjectivity. When considered that social spaces are progressively more and more personalised, and that people play part in many social spaces online, tensions between people may evolve.

***Social distances.*** Social distances between the members of networked social space vary in computer-mediated interactions. On the one hand, ICTs facilitate initiatives for social assembling by lowering the threshold for social interactions and contact. For instance, there are many studies indicating that the mobile phones are employed in various ways, also disruptively and unashamedly, in education settings in different parts of the world (e.g. Wei & Leung 1999; Katz 2005; Campbell 2006). Like in an instant education setting, it is argued in public discussions that student's threshold of contacting teachers has also lowered outside the classroom. On the other hand, ICTs have the capacity to dissociate people from one another. First, ICTs can be deliberately used to keep a distance to others; mobile phones are switched off, calls are not picked up, and emails are not read or replied to. Second, ICTs also provide people with a channel of alienation. The social life may be transferred into the Internet to a dangerously large extent if a person, for one reason or other, lacks social contacts in the offline world.

The enclosed articles present some examples of the shortening and stretching of social distances. Article IV uses the Mohammed cartoon case as an example of the potential of the Internet to trigger social conflicts. It reveals that in the online social space, people with conflicting interests may unpredictably end up having close interactions, which in the worst case can turn into a hostile exchange of information. In Article III, the rumour case from Nigeria shows

how the mobile-related rumour ended up bringing people closer to one another. Those who were afraid of being infected started to inquire for help from the health care centres and hospital, and ended up being in close interaction with the local authorities. The article also shows how with the help of mobile technology the initiator(s) of the rumour managed to remain distant and outside the chaotic consequences of the rumour.

To sum up, social distance and its meaning for the social space were also addressed in Simmel's analysis. For him, social distance was inversely related to the amount of information of each other. Simmel (1964, 312-329; Murphy 1964, 1257) considered self-revelation and self-restraint as necessary qualities of all social relationships. They are needed to keep control of social distance. As this study has foreshadowed and public discussions about cyber-bullying and similar phenomena make us aware of, balancing between excessive openness and uncommunicativeness is a major challenge when acting in the networked social spaces. It is especially the logic of networks that makes this issue central. When social relationships become computer-mediated, there seems to be no distance between people at all (Castells 2000a, 501); social assembling is uncomplicated and everybody is reachable without delay (Virilio 1998, 45). It is this extreme ease of social contact that causes us to forget the norms and self-restraint in the online social spaces.

### 7.3 Conceptual transformations

New concepts emerge as new ICTs reshape the material formation of social space and ways we experience them. Lefebvre (1991, 38-39) underlines that the conceptual aspect of social space ensues to a great extent from the work of experts and academics. In this study, it is social scientific conceptions in particular that are examined with relation to the transformations in space. Existing literature provides many sociological attempts to define spatial changes in social assembling. For example, concepts such as *apparatusgeist*, perpetual contact (Katz & Aakhus 2002b), connected presence (Licoppe 2004) and transformative technologies (Perterra 2006; 2007b) have been introduced to grasp novel changes in social structure.

ICTs have given scholars a reason to ponder new technology-mediated ways of experiencing coherence (Ling 2008). Since this research subject is still novel scholars have also presented various interpretations on the subject matter. First, in early studies the transformative capacity of mobile phones was often associated with the urban sphere of life among the scholars as Article I points out. Later, scholars have adopted a broader spatial understanding on the mobile phone (e.g. Oksman & Turtiainen 2004, 320; Pain et al 2005, 827). Second, there is still a divergence in opinions about whether the mobile phone adds to individualism or social cohesiveness. Ling (2008, 5) summarises that some sociologists consider that mobile communication gives rise to more

isolated and private modes of life, while others believe in its bonding capacity which is said to stem from various ritualities in use.

There is also variance in conceptualisations regarding the issue of whether changes in social interactions are caused by or mediated through ICTs. Ito and Okabe (2005, 258-259) presents that those transformations that are generated by ICTs are not conceptualised as extensively as such transformations where ICTs are considered as mediators of particular social change. In addition, they specify that new kinds of social settings enabled ICT-mediated communication, although remarkably different from prior physical settings, are inadequately theorised. They propose the term *technosocial situations* as “a way of incorporating the sights of theories of practice and social interaction into a framework that takes into account technology mediated orders”.

This concept also clarifies the essence of transformative technologies, and how they alter the formation of social space. Social space can be understood as an outcome of a technosocial situation, not least because of the momentary nature of many ICT-mediated social spaces. In these situations, transformative technologies, especially mobile phones and the Internet, combine the social and technical aspects of assembling in innovative ways which results in new formations of social space.

As heralded in the theoretical framework of the study, these new forms of social space have a resemblance to the form of the network. The concept of networked social space, employed in this study, underscores the absence of definite boundaries, and describes the mouldable and dynamic structure of social space. Networked social spaces are formed of nodes, that are human beings, and whose place in the space is determined by their contribution to the functions of the network and its purpose. People belong to the networks as far as they share its communication codes, values and purpose, and they are able to communicate within it (Castells 2000a, 501).

Networked social space is a technosocial formation, where ICTs work as the enablers of flexible participation, and where the shared purpose of social space matters more than any fixed boundary when it comes to the membership of social space. Ito and Okabe (2005, 260) continue formulating the characteristics of the term technosocial situations by associating with the rise of new kinds of places. According to them:

Mobile phones do undermine prior definitions of social situations, but they also define new technosocial situations and new boundaries of identity and place. To say only that mobile phones cross boundaries, heighten accessibility, and fragment social life is to see only one side of the dynamic social reconfigurations heralded by mobile communications. Mobile phones create new kinds of bounded places that merge infrastructures of geography and technology, as well as technological practices that merge technical standards and social norms. (Ito & Okabe 2005, 260)

Ito and Okabe’s conceptual account supports the idea that ICT-mediated social spaces are bounded to the material infrastructure and fixities, though they are formed in the interaction between technical and social practises that are to a greater extent immaterial and informational. Furthermore, it clarifies that

transformative technologies produce new kinds of social spaces that are based on certain social norms and technological standards which are mixed up with each other. Technological standards, as understood here, basically refer to the technical preconditions of networking with the help of ICTs. Social norms, on the other hand, are considered as referring to that shared normative structure behind the purpose of joining together.

The enclosed articles also address conceptual changes regarding spatial relations in ICT-mediated social assembling. Article I tackles the question of the spatial characteristics of mobile phones from the perspective of identity. Like Ito and Okabe above, the article refers to the building of identities of which boundaries are redefined in computer-mediated communication, but which are still attached to the geographical and instant social context. The article argues that mobile phones as technological mediums possess the capacity to reshape human identity in various ways, also in relation to spatial attributes (see typology in Article I). Furthermore, mobile phones are used to affirm locally-bounded, socially and geographically informed identities, though they also permit the reshaping of identity over spatial borders. This may either mean major changes in the spatial level of identity, but it is also likely to result in hybrid forms of identity where locally informed identities are mixed with various distant and global influences mediated by ICTs. For example, rural dwellers may become a little bit more urban and global by adopting such foreign lifestyles and participating in global social space online. To put it another way, networking technologies give rise to a new kind of social space that is neither purely local nor global, neither completely immediate nor technology-mediated. If anything, these social spaces are transformed, tailored and personalised according to the user's particular needs and desires in ICT-mediated communication.

Article II implies a similar need to understand the formation of social space as a process of ICT-mediated networking. By leaning on statistical methods, Article II shows that the young people living in less-urban locations use the mobile phone in ways which can be seen as compensating for the lack of urban recreations. Basically, young people absorb such elements through computer-mediated communication that they would have lacked if being strictly bounded by the physical setting. It is computer-mediated communication and virtual mobility that allows them to extend their limits of social space beyond the physically bounded localities, and build up such networked spaces they want to identify with and belong to.

The conceptualisation of ICT-related phenomena may also be exaggerated in the hands of experts. Article II presents how uncritically the mobile phones were labelled urban in the early mobile phones studied. As we have seen, the geographical boundaries and divisions are an increasingly unsustainable way to define the spatial organisation of ICT-based social interaction. In fact, boundaries have not lost their relevance in the organisation of everyday interaction at the corporeal level (e.g. face-to-face interaction) but in computer-mediated communication social relationships do not respect them. Social

utilities like Facebook or MySpace are exemplary of this kind of change in the formation of social space. Applications like these allow networking between friends and relatives regardless of their physical location. The shared interest that connects people to these online social spaces is a more important factor in this respect.

To conclude, the rise of new ICTs has created a need to conceptualise the formation of social space as a networked and ICT-mediated formation. The concept of transformative technology - the capacity of new ICTs to influence the shape of such spaces - can be employed to better understand the changed situation. As proved, with the help of ICTs people erect a great variety of social spaces of which has an internal composition they can alter both by adjusting the boundaries and the purpose of the space. Regarding the adjustment of boundaries, low boundaries ensure the higher number of participants, whereas the high boundaries mark out a number of potential contributors. Even if ICTs tend to lower the physical boundaries of social space, there are other factors, such as the technological arms race, linguistic, cultural and political barriers, that set imitations for taking part in the online social spaces.

#### **7.4 Experiential transformations**

The experiential aspect of social space brings out as to how human beings live through transformations in the practices of social association. Therefore, it is also known as a lived space, which consists of an assemblage of experiences about the correspondence between the material and the conceptual space. Lived space is a kind of strategic location from which one can encompass and understand all other levels of space simultaneously (Soja 1996, 68). In the information age, the lived space can be understood as referring to the ways how people come into contact with ICT-related transformations in social assembling.

As anticipated in Chapter 5, an article-based study together with the triangulation method is perhaps not able to produce an all-embracing picture of the transformations in social space. This appears to be particularly true regarding the experiential aspect of social space, which in this study is mainly addressed by the one article only. Many experiences are culturally-informed and individual by nature. Regarding individuality, for example, the connective capacity of mobile phones means different things for a technology savvy young cosmopolitan person and to an elderly person living in a remote village. The cultural dependency of experiences, in turn, becomes evident when considered that transformations which are regarded as alarming in the South may not cause any disorder in the North. This can be read from Article III.

However, the articles also reveal crucial issues regarding the transformations in the lived space. The articles prove that the lowered and blurred boundaries of social space can lead up to the erratic forms of social space, which can be experienced as risky and insecure. The Internet in



particular has introduced a new and rather weakly regulated way of gathering people together. In online social spaces, which are organised to a greater extent around global networks, the diversity of people might become high, adding to the experiences of precariousness. Contrary to the offline surroundings, there are relatively few natural, legislative and linguistic boundaries restricting social assembling in computer-mediated interactions.

The mobile phones, in contrast, are not so likely to generate such erratic forms of social spaces as the Internet. This is because the mobile telephones are typically used to socialise and interact with close friends and relatives, not with strangers (Ling 2008). In general, the mobile phone mediated social spaces are more constant and predictable formations than those mediated by the Internet. However, the mobile phone may also contribute to the establishment of completely new social relationships. In the Philippines, it is shown that Filipinos use the mobile phone to be in touch with strangers, especially by text messages (Pertierra 2006, 11; Ellwood-Clayton 2003, 231-232). However durable or fragile these mobile-made ties may be, they represent a new form of social association in the information age.

This volatility of ICT-mediated social spaces is studied more precisely in Articles III and IV. Article III presents as to how foreign people with fraud purposes penetrate into a locally arranged social space through mobile phones in Nigeria. As the boundaries separating the social space from the outside world were relatively low in mobile communication, these people managed to disseminate a threatening rumour from afar so that it caused panic within the social space and unbalanced its social order. Furthermore, Article III showed that the rumour most likely originated from a foreign country and that it managed to mystify the new and exotic mobile phone technology. New technology combined with faceless rumour mongers caused feelings of insecurity and fear among the members of local social spaces. At the level of everyday life, the impacts of the rumour were relatively tangible. Health care services were crowded by worried people, police forces were encumbered and people did not appear at workplaces as they tried to avoid answering the mobile phone. In other words, people lived through these ICT-related transformations in spatial relations in a very concrete manner.

Article III also makes it evident that cultural differences in the experienced transformations in social space differ between culture and societies. The article shows that if locally-arranged communication culture is not accustomed to new technologies and is to a large extent based on physically proximate interactions, like in Nigeria, external impacts and anonymous relationships may be considered to be more frightening and disturbing. In the industrialised North, where the history of technological development is more influential and many myths have already been ironed out, similar reactions to the external and anonymous technology-mediated rumours would have been more unlikely.

Article IV continues with the same theme, although in the context of the Internet. Through theoretical analysis and examples, it shows that it is the lack of boundaries and ordering that make recognition on the Internet a complicated

task. By extensively analysing the characteristics of the Internet, the article shows that people wander within and between online social spaces, guided mostly by their interests and information acquired from the offline reality. The Internet as a networked and very flexible structure does not offer many such boundaries that in the offline reality are used in the ordering of the social space. Language boundaries and certain technological skill requirements make an exception in this case. Geographical, cultural and political boundaries, in turn, are great examples of this.

The article paints a picture of the Internet as a mixture of people with different values and no clear borderlines separating them. Without a sufficient amount of cultural awareness as well as tolerance, differing values and interests may cause tensions between various groups of people who would belong to different social spaces if they could be easily bounded. Article IV takes the Prophet Mohammed cartoon as an example of this as it highlights that the same phenomenon may be experienced among two assemblages of people in very different ways.

Another example can be found from the level of nation states. Societies like China and North-Korea try vigorously to keep up boundaries between the spaces of socialism and the market economy. By maintaining a clear boundary between the two also on the Internet, the countries can control the social order of their societies as a whole. They try to obstruct the invasion of the "realm of the far" into the "realm of the near" (Bauman 1997; Morley 2001, 428). Due to the low boundaries of information exchange on the web, the citizens of these countries may, however, end up sharing a social space with others, whose identities, interests and values differ significantly from theirs. The networking over national boundaries can then be experienced as very novel, liberating, or strange and unsafe.

Unexpected experiences relate particularly to spontaneous networking on the Internet. In the web environment, people chat, trade goods, exchange opinions, blind date and do many other things with strangers as well. As these social tryouts are occasionally unsuccessful, social assembling on the Internet can also be experienced as a risky way of creating new social bonds. Moreover, there is also evidence that people sometimes experience social association through mobile phones as an uncanny practice. The portability of the telephone has brought along the need to inquire the definite location of the recipient, and make known the personality of the caller if the recipient cannot be expected to have known him at first turn (e.g. Lauriel 2001, 500-501; Arminen & Leinonen 2006, 353). Therefore, it is justified to argue that mobile communication also causes unexpected experiences at the level of social assembling.

This study has mostly addressed negative experiences with relation to the computer-mediated social space. However, computer-mediated communication also has an array of constructive impacts on the formation of social space. Rich Ling has skilfully studied these issues by utilising the classical sociological theorists like Durkheim and Goffman. Ling (2008, 157) argues that mobile communication "extends the ritual reach of society beyond co-presence". He

shows that the mobile phone provides a medium to strengthen pre-existing bonds between family members and friends in particular. For him, mobile communication manifests a kind of counter effect to the eroding of a community, an issue highlighted most visibly by Robert Putnam (2000) in the United States.

There are also other scholars who have underlined the contribution of mobile communication to the social cohesion and togetherness. Weilenmann and Larsson (2001), for example, have shown how young people gather together to share the contents of their mobiles. In Finland, Kasesniemi (2003, 191) has noticed that the degree of collectivity ranges from very public to strictly personal in young people's text messaging. She voices that the storing and sharing of messages is especially a part of young girl's "best friend" culture. Similar to the mobile phone, the Internet holds plenty of cohesive capacity that is mostly experienced as positive. This study, through Article IV, mainly tackles socio-cultural problems related to the blurring of boundaries of social space, but it has to be considered that the Internet is also the enabler of tightened social relationships. On the Internet people may intensify their relationships with family members and distant friends. New social contacts can be much more spontaneous on the Internet than in mobile communication as it includes various mediums for networking. This means that the lowered boundaries of social space are not experienced as risky when the pre-existing social relationships are concerned. Compared to mobile communication, the probability of ending up in a conflictual relationship is considerably higher on Internet-based social spaces as social relationships there are more often new and unestablished.

In terms of sociological theory, transformations in the experiential space can be understood through the unestablished normative structure of the ICT-created social spaces. It was already Durkheim's (1984) who argued in his classic study that the social order of modern societies is based on shared social norms. In the ICT-mediated networked social spaces, norms are not categorically shared, especially if the space is filled by people with no common history or background. In this kind of case, the normative structure of social space is a composite of the norms of its members with different interests and values. The absence of shared norms is likely to contribute to the experiences of uncertainty, unpredictability and even fear, as described in Articles III and IV.

Furthermore, the normative expectations may not be the same within and outside the ICT-created social space. This may cause annoyance among those who remain outside the social space. The disruptive public use of the mobile phone is a great example of this. This matches together with Ling's (2004, 125) observation that the mobile phone "clashes with many social situations, particularly those governed by a heightened sense of normative expectations". Although the mobile phone use may be experienced pleasant within the space, it may violate the higher normative expectations of those who are outside the space, although in its immediate proximity. It is also interesting to notice that social spaces created by the mobile phone and the Internet are different kinds of

formations in this respect. Compared to mobile-created social spaces, which are often based on pre-established social relationships, Internet-based social spaces are typically more open formations with less normative expectations. People enter and exit the Internet-based social spaces in a quite uncontrolled manner, which adds to the difficulties in establishing shared norms for the members of space.

## 7.5 Summary of findings

Based on the enclosed articles and a review of literature, this study has suggested a shift in the focus regarding the purpose and boundaries of social space. It was initially Simmel (1997, 141-146) who presented that the social space consists of boundaries and its social purpose, which both have a cohesive effect to people. This study has argued that the purpose of social space in the ICT-mediated interaction gains, relatively speaking, more importance as the boundaries of social space. This is because the physical and other fixed boundaries can be overcome in computer-mediated social assembling opposed to physically proximate social interactions.

The study also illustrates that transformations in the shape of social space begin from the material level of space. As an answer to the main research question, the study proves that the boundaries of the ICT-mediated social spaces are ethereal formations. Compared to social spaces built up in the immediacy of others and in the instance presence of geographical and cultural boundaries, computer-mediated social spaces are based on a significantly smaller number of fixities that could provide stability and predictability for the establishment of space. Computer-mediated social assembling, in other words, is also an expression of what Beck (1992) explains as being reflexive or second modern. In the computer-mediated second modern, social associations take place more and more often over the national borders. In the second modernity, societies are also more cosmopolitan in terms of their social activity. Like Urry, Beck (2000) considers that in the age of new technologies the social sphere of life is detached from the material preconditions of the nation state.

In the absence of strong boundaries, social space has to be based on a strong purpose of association in order to reach a sufficient level of permanency. For example, a well-established shared code of communication adds a great deal of stability to the ICT-mediated social assemblages. Without any strong unifying purpose of joining together, social space easily manifests itself as an *ethereal* configuration which continuously changes its shape and composition. The bi-directional and constant flux of people does not provide continuity and permanence for the ICT-mediated social space.

Furthermore, the study showed that these transformations in the material level engender changes in the experiential level. By using the findings of the articles, it was demonstrated that the ethereal boundaries of social spaces

transmit foreign and distant impacts to the everyday life of the ICT users. In this way, ICTs have the capacity to alter the locally arranged social space by subjugating them for external impacts. The study also argued that external impacts are at times experienced as uncanny and frightening in the locally arranged social spaces. Jane Vincent (2006, 41-42) has also revealed this as she argued that the mobile phones mean much to people, both emotionally and experientially. The emotional attachment to the mobile phone results from the way how people invest their own personality and social relations in the mobile phone.

These findings about the experiential aspect of social space are also related to the characteristics of second modernity. In Beck's (1992) argumentation, post-industrial societies are replete with both natural and man-made risks. New technologies are used to minimise and circumvent many of them, but the same technologies are also experienced as unpredictable. As new technologies are based to a great extent on expert knowledge, ordinary people's possibilities to evaluate risks related to them are often insufficient. Therefore, their impacts on social life in general and the patterns of social association in particular, may be experienced as unwanted and alarming too.

Lastly, the study also contributed to the theory of social space. It was shown that the material basis of social space has changed with the rise of networked information societies. Then it was presented how a range of conceptualisations has been made up and employed in recent literature in order to describe the altering foundations of social space and its increasing technology-mediatedness. In this study, the concept of transformative technology was applied to depict how the ICTs have modified the experiential aspect of social association, besides the material and the conceptual. Moreover, the study contributed to theories on the human-technology relationship. It was made clear that - besides the material intertwining of the ICTs and the human body and new conceptual practices highlighting the human aspect of technology - the everyday life and social association are also experienced differently through new ICTs. The study showed that human experiences are generated in technosocial situations (Ito & Okabe 2005), where the ICTs transmit new, foreign and distant elements into social spaces that were formerly considered as locally arranged configurations. This furthers the intensification of the human-technology relationship where human experiences are progressively more and more technology-mediated.

## 8 CONCLUSIONS

This study was initiated with an idea of an *apparatgeist* (Katz & Aakhus 2002a, 303-305). It is a theoretically-informed concept trying to take possession of the capacity of new ICTs to transform a variety of social institutions. The transformative capacity of the ICTs was then studied in relation to the concept of social space. It was shown in what Nunes (2001; 2006) and Wise (1997) have earlier proposed, that Levebre's (1991) threefold distinction of social space can be successfully applied to understand the ICT-related transformations in the configuration of social space. The study pointed out that the transformative power of new ICTs has given a reason to redefine the sociological understanding on social space. In today's technology-mediated everyday life, social space is not only formed in the immediate co-presence of others and bounded with material confines. In addition, social assembling takes place in the ICT-mediated and created online spaces which are demarcated through progressively more ethereal boundaries.

The study also bore out that an *apparatgeist*, understood as a transformative capacity of ICTs, is reflected in two recent shifts in sociological thinking. First, the study supported an idea of the increased mobility of social assembling practices. In the spirit of the new mobility paradigm (Sheller & Urry 2006a), the study produced evidence that social space should be understood as a mobile formation of assembling people. With the help of mobile phones, and also the mobile internet solutions, people may congregate while being on the move: social space may thus be created regardless of people's increasingly nomadic lifestyles and certain feelings of togetherness can be reached without the physical proximity of others. Second, the study supported an alleged spatial shift in sociological thinking. With increased technological and corporeal mobility, social assembling is being disengaged from the place. In CMC, social assembling is broken out of an array of localities and fixities. Like Castells (2000a, 407-459) formulates in relation to the concept space of flows, social assembling becomes concentrated in a space of communicative and imaginative practices created through new ICTs.

Regarding methodology, it became evident that a lively picture of spatial changes can be created by combining quantitative and qualitative methods. Article II with a quantitative approach was able to reveal the complex dynamics of mobile phone use. It showed how various factors, both personal and contextual, predict spatial differences in the use of mobile phones. In addition, Articles I, III and IV made it clear that to further understand the experiential and conceptual aspects of social space, qualitative approaches are required too. In this way, it was proved that the different aspects of the same phenomenon shall be studied with the best possible methods.

But then, the study also showed the demanding side of the triangulation method. During the study it was noticed that the use of many data sets requires special attention to be paid to the selection and coverage of data sets. When combining the results, it may turn out that some aspects of the research object are only partially covered. Second, it clearly came out that the use of multiple data sets and methods cannot produce a watertight description of the phenomenon. The triangulation is rather apt to produce many parallel pictures of the research subject, which more or less overlap with each other. This study produced three pictures of ICT-related transformations in the formation of social space, namely material, conceptual, and experiential. Yet, the study was not able to expose all nuances and details essential to social space. For instance, the voice of the ICT users was not included in the study due to the absence of interview data. By means of interview data it would have been possible to clarify and specify transformations at the lived level of social space.

This research work implies that the *apparatchik* also manifests itself through numerous unexpected and unpleasant consequences of transformative technologies. The study showed us that many disorderly and overwhelming novelties are introduced in social spaces when ICTs erode their fixed and naturally given boundaries. This observation underlines the need for critical ICT studies which take into account the undesired impacts of transformative technologies too. It may be asked whether there is a social demand for regulating unwanted modifications in the formation of social space, and if there is, how this could be done?

Mobile communication and Internet-based social association practices diverge from each other in this respect. Compared to Internet-based practices, the formation of social space is much more stable in mobile communication as it typically takes place among friends and acquaintances (cf. Pertierra 2006, 11; Ellwood-Clayton 2003, 231-232). Mobile phone numbers are typically rather personal, and they are not shared as irresponsibly as contact details on the Internet. In the context of the Internet, social spaces are typically open and dynamic formations. People may perform more anonymously there as well as enter and leave space rather randomly, which makes its composition sometimes unpredictable. The anonymity makes also possible that fraud, prejudicial and unwanted usages may develop there more secretly.

Yet, there is reason to believe that similar problems of instability and impulsiveness are penetrating into mobile communications. One example of

this is mobile encounter networks, which are created without external network infrastructure. Mobile encounter networks are built up when mobile handsets equipped with Bluetooth, Wi-Fi or similar technology are close to each other and start to exchange information. It is possible that some mobile phone users' end up sharing this kind of networked social space unintentionally and unobserved. This is because these networked spaces may be used not only to communicate, share files and chat, but also to steal personal information and monitor the use of other mobile devices (Beale 2005; Korhonen 2008). The mobile encounter network is an example of the ephemeral form of networked social space.

There are many other examples of the ephemeral ICT-mediated social spaces and attempts to regulate their unsolicited effects. Some of the most extreme attempts are connected to political and ideological arguments. It is widely known that countries, such as China and North Korea, have tried to limit access to certain foreign Internet sites which appeal to their political incorrectness. For citizens, this has meant restricted possibilities of creating and attending social spaces on the Internet. In Cuba, on the other hand, the mobile phones were banned from ordinary people until April 2008. In the background of the ban, there was an intention to restrict private ownership, but also to foster anti-capitalist and anti-western ideology. Once the ban was lifted, people's possibilities to extend their social sphere of action to also cover their overseas relatives were multiplied.

The low and ephemeral borders of the Internet have not only caused concerns in the socialist South, but also in the capitalist North. Along with the lowered threshold for social participation, the spectrum of people's intentions in the networks seems to diversify. Montgomery (2007), for instance, has presented how industry-based control of new media contents and easy-access technologies has made younger people the target of human predators in the United States. In addition to normal commercial interests, the networked social space of the Internet involves actors with unscrupulous economic and sexual interests. Similar worries have been presented regarding mobile communications too. The mobile phones have become more personalised and networked appliances with the enriched digital contents and improved data transmission properties. This means that the mobile phones offer more possibilities to create all kinds of social spaces. Along with the increased individuality, manufacturers' and service providers' possibilities to monitor the content of mobile communication and its legality decreases (Taipale 2008, 27-28).

The apparatgeist is often characterised by the idea of equal opportunities, despite of the many concerns related to the free and uncontrolled networking in online spaces. In political discourse, new ICTs are often considered as a new type of citizenship right, without paying heed to the responsibilities following from it. An information society for all policies have been promoted, for instance, by the European Union through its eEurope 2005 initiative and in the documents of the World Summit on the Information Society 2005. It is not



unusual to emphasize the enabling capacities of new ICTs at the expense of the social risks either. The rise of new ICTs is often associated with the culture that is rooted in the values of free information, decentralized coordination, collaborative activities and peer recognition (e.g. Himanen 2001), without paying much attention to the related risk of the uninhibited online behaviour.

This is to say, that it would be essential to find out ways to alleviate social concerns related to reckless social association through ICTs, without violating the ethos of freedom that is characteristic of networked information societies. From the perspective of social space studies, this means more in-depth analysis of the normative structure of the ICT-created social spaces. Timo Kopomaa (2007, 57) has proposed that the concept of speed limiter could be applied to study ways of controlling the accelerating rhythm of life in the information age. He argues that speed limiters are kinds of road humps of the information highway, either normative practice, technological solution, or chosen lifestyles that reflect withdrawal from perpetual contact and availability. In the same way, the normative ways of partitioning ICT-based social spaces should be carefully studied. By partitioning, it is referred here to the setting up of "screens" between the desired and undesired social spaces with the purpose to block out disruptive foreign influences and frightening new social relationships.

It is suggested here that if the receding of the boundaries of social space is experienced as being harmful, they can be reinforced through technological standards and normative practices. First, there are numerous technological solutions to confine the sphere of social assembling in ICT-mediated environments. For example, firewalls can be set to block out web intruders, content filters may be used to prohibit accessing inappropriate websites, mobile phone numbers may be kept unlisted, incoming calls can be blocked and unwanted wireless connections may be prevented by turning off Bluetooth and Wi-Fi receivers when not used. In addition, there is an array of social norms, such as mobile and the Internet etiquettes that could be fostered deliberately. The unforced reinforcement of social norms, initiated by users themselves, shall be seen as one way of partitioning the ICT-mediated social spaces.

It is true that the personality of ICT appliances - the fact that they are to a lesser extent shared with others - hinder the establishment of social norms in technology-mediated communication. As the use of mobile phones and the Internet typically takes place in privacy, technology-mediated social interaction is not subjected to the cohesive power of social norms that normally takes place in the physical immediacy of others. For this reason, it is crucial to strengthen the general awareness of these social norms and technological solutions, as well as study them more systematically in future.

This study applied Simmel's theories to study the changing forms of social association in the information age. For Simmel (1964, 409), the deepest problem of modern life is related to the ability to preserve personality and autonomy in the face of overwhelming social forces, of foreign culture, and of the technique of life. He further argued (1964, 414) that people's incapability to react to new phenomena stems from these overwhelming impulses that cause a blasé

attitude. Along with this study, it came out that the similar social problems characterise social association in the technology-mediated world. New ICTs open up lots of new social connections, transmit foreign impulses and provide us with various new techniques for social assembling. In front of this, people seem to become blasé about the qualities of social relationships, which are later experienced in various ways. The piquancy of the entire apparatus may thus lie in people's experiences, such as the togetherness and insecurity they face with the use of technology for social association (cf. Katz & Aakhus 2002a, 309).

## YHTEENVETO (FINNISH SUMMARY)

Tämän tutkimuksen tavoitteena on ollut selvittää kuinka uudet informaatio- ja kommunikaatioteknologiat vaikuttavat sosiaalisen tilan rakenteeseen. Tutkimuksessa tarkastelu rajataan matkapuhelin- ja internetteknologioihin. Tutkimus koostuu johdannosta ja neljästä erillisestä artikkelista. Johdantoartikkelissa esitellään tutkimuksen teoreettiset ja metodologiset lähtökohdat, sekä koko väitöskirjatutkimuksen tulokset ja loppupäätelmät. Liitteenä olevat artikkelit esittelevät empiirisiä, käsitteellisiä ja teoreettisia pohdintoja sosiaalisissa tilasuhteissa tapahtuneista muutoksista.

Tutkimuksen taustalla on havainto siitä, että uudet informaatio- ja kommunikaatioteknologiat ovat monipuolistaneet sosiaalisen vuorovaikutuksen muotoja ja mahdollistaneet yhteenkuuluvuuden tunteen kokemisen ilman fyysistä läsnäoloa. Lisäksi uusien teknologioiden liikuteltavuus on irrottanut nämä toiminnot paikan kahleista. Teknologioiden henkilökohtaisuus on puolestaan mahdollistanut laitteiden yksilöllisen, yhteisistä aika- ja paikkanoormeista poikkeavan käytön.

Yhteiskuntatieteen näkökulmasta matkapuhelinten ja internetin nopea yleistyminen on tarkoittanut sitä, että sosiaalisen tilan käsite on arvioitava uudelleen. Tässä tutkimuksessa lähtökohdaksi on otettu Georg Simmelin klassinen tutkielma, jossa sosiaalinen tila jaetaan kahteen osatekijään; rajoihin (boundaries) ja tarkoitukseen (purpose). Tutkimuksen johtajatuksena on, että sosiaalisen tilan ja yhteenkokoontumisen tarkoitus (purpose) korostuu teknologiavälitteisessä vuorovaikutuksessa, koska uudet teknologiat madaltavat sosiaalisen tilan rajoja. Teknologiavälitteisessä maailmassa sosiaalisia tiloja voidaan muodostaa yhteisen intressin perusteella ja ilman monia fyysisiä rajoitteita. Toisin kuin kasvokkaisessa kanssakäymisessä, ihmisten maantieteellinen sijainti tai ympäristölliset esteet eivät aseta ylitsepääsemättömiä esteitä sosiaalisen tilan muodostamiselle ja yhteisyyden kokemiselle.

Informaatioteknologioiden aikakaudella Simmelin käsiteanalyysi vaatii täydennystä. Mobiliteettien kasvu ja teknologioiden personoitavuus ovat tehneet sosiaalisista tiloista entistä joustavampia ja verkostomaisempia. Sosiologiassa keskustelussa näitä muutoksia on havainnollistettu mm. globalisaatio- ja verkostoteorioiden avulla. Lisäksi on paikannettu kaksi paradigman muutosta; käännekohtaa, jotka auttavat ymmärtämään sosiaalisen tilan rakenteessa tapahtuneita muutoksia. Mobiliteettitutkijoiden mukaan globalisoituneiden tietoyhteiskuntien tutkimusta tulisi suunnata staattisista ilmiöistä niihin, jotka tuovat esiin lisääntyneen liikkuvuuden eri muodot. Spatiaalista "käännöstä" alleviivaavat tutkijat puolestaan katsovat, että mobiliteettien kasvu kannustaa tutkiamaan paikkojen (places, locations) sijaan sosiaalisia tiloja (spaces), jotka muodostuvat globaalien verkostojen vuorovaikutussuhteissa. Tässä tutkimuksessa on päädytty käyttämään verkostoituneen sosiaalisen tilan (networked social space) käsitettä. Käsite kuvaa muutosta pysyvästä ja rajatusta kohti muuttuvaa ja verkostomaista sosiaalisen tilan rakennetta.

Sosiaalisen tilan muutosten systemaattiseksi selvittämiseksi tutkimuksessa käytetään Henri Lefebvren (1974/1991) kolmiosaista tilakäsitettä. Siinä sosiaalisen tilan tarkastelu jaetaan materiaaliseen, käsitteelliseen ja koettuun tilaan. Ajatuksena on, että sosiaalisen tilan materiaalisissa ehdoissa tapahtuneet muutokset heijastuvat paitsi käsitteellisellä tasolla myös uusina kokemuksina eletyssä elämässä. Tutkimuksessa kysytäänkin aluksi, kuinka materiaalisella tasolla tapahtuneet muutokset, uudet artefaktit ja teknologiavälitteisen viestinnän immateriaalisuus, vaikuttavat sosiaalisen tilan rakenteeseen. Tämän jälkeen tutkimuksessa kysytään miten tavat käsitteellistää ja kuvata sosiaalista tilaa ovat muuttuneet. Lopuksi tutkimuksessa eritellään sitä, kuinka muutokset sosiaalisessa tilassa koetaan jokapäiväisessä elämässä.

Tutkimusmenetelmänä tässä työssä on käytetty aineisto- ja menetelmätriangulaatiota (multiple triangulation). Trianguloinnin sopivuutta tutkimukseen voidaan perustella sekä teorialähtöisesti että artikkeliväitöskirjan luonteella. Sosiaalisen tilan kolmen eri ulottuvuuden tarkastelu vaatii eri menetelmiä ja aineistoja. Materiaalisia muutoksia voidaan tarkastella jossain määrin määrällisin menetelmin, mutta käsitteellisten muutosten tutkimiseen tarvitaan kvalitatiivista aineistoa ja aikaisempaa kirjallisuutta. Kokemuksellisen ulottuvuuden tutkimisessa voidaan puolestaan käyttää tapausesimerkkejä, kuvailevaa aineistoa ja sisällönanalyysia. Artikkeliväitöskirja, jossa artikkelit perustuvat eri aineistoihin, luo puolestaan luontevan pohjan aineistojen ja menetelmien yhdistämiselle. Tutkimuksessa korostetaan triangulaation täydentävää luonnetta (complementary triangulation), jossa eri menetelmillä ja aineistoilla tuotetaan rinnakkaisia kuvia tutkittavasta ilmiöstä. Menetelmällä ei siis tässä tutkimuksessa viitata ristiinvalidointiin (cross-validation).

Tutkimus paljasti useita muutoksia sosiaalisen tilan materiaalisissa ehdoissa. Uusien teknologioiden myötä sosiaalisen tilan immateriaalisuus on lisääntynyt. Sosiaaliset tilat syntyvät teknologiavälitteisten neuvottelujen tuloksena, ja niiden rakenne on joustava. Tietokonevälitteisyyden myötä sosiaalisista tiloista on tullut mobiileja. Vaikka uudet teknologiat ja niiden käyttäjät kiinnittyvät edelleen moniin paikkoihin ja pysyviin rakenteisiin (valtioihin, paikkakuntiin, infrastruktuuriin jne.), on käyttäjien muodostamat sosiaaliset tilat jatkuvassa liikkeessä. Tilan jakavat toimijat voivat vaihtua nopeasti, tila voidaan täyttää mistä päin maailmaa tahansa ja mihin aikaan tahansa. Lisäksi uudet teknologiat muokkaavat saman tilan jakavien toimijoiden välisiä sosiaalisia etäisyyksiä. Uusien teknologioiden varaan rakennetuissa sosiaalisissa tiloissa voi fyysisesti lähellä olevista henkilöistä tulla etäisiä ja vieraita, kun taas maantieteellisesti etäiset toimijat voivat lähentyä toisiaan ja kokea yhteenkuuluvuutta.

Materiaaliset muutokset heijastuvat myös käsitteellisellä tasolla. Tässä tutkimuksessa nostetaan esiin useita käsitteitä (apparateist, perpetual contact, connected presence jne.), joilla tutkijat ovat ottaneet haltuunsa sosiaalisissa tilasuhteissa tapahtuneita muutoksia. Työssä esitetään, että uudet teknologiat ovat konkretisoineet sitä osaa yhdessä olemisen kokemisesta, joka Simmelin mukaan rakentuu muistelun ja mielikuvituksen varaan. Matkapuhelimen ja

internetin avulla mieli- ja muistikuvien varaan rakentuvat sosiaaliset tilat ovat konkretisoituneet. Kaukaiset ystävät, sukulaiset ja kollegat ovat nyt tavoitettavissa, ja näitä sosiaalisia siteitä voidaan konkretisoida ja vahvistaa reaaliaikaisen kuvan, äänen ja tekstin voimalla. Tutkimuksessa esitetään, että matkapuhelimella ja internetillä on merkittävä rooli siinä, että sosiaaliset tilat ovat muuttuneet joustavammiksi, avoimemmiksi ja verkottuneimmiksi.

Muutokset sosiaalisen tilan materiaalisissa ehdoissa heijastuvat myös arjen kokemuksellisella tasolla. Tutkimus osoittaa, että teknologioiden madaltamassa sosiaalisten tilojen raja-aitoja, on mahdollista, että saman tilan jakaa entistä kirjavampi joukko teknologian käyttäjiä. Durkheimin klassisen teorian mukaan tilassa järjestys perustuu jaetulle sosiaalisille normeille. Globaaleiden tietoverkkojen varaan rakentuneissa tiloissa ihmisten taustat ovat kuitenkin kirjavat, ja tiloista voi puuttua yhteinen, vakiintunut käyttäytymisnormisto. Tutkimuksen mukaan tämä on omiaan lisäämään epävarmuuden ja ennustamattomuuden kokemista, etenkin internetin varaan rakennetuissa sosiaalisissa tiloissa. Matkapuhelinviestinnässä toimijoiden välisestä suhteet ovat internetiä useammin vakiintuneita ja perustuvat yhteisille normeille.

Lopuksi tutkimus nostaa esille sosiaalisten tilojen raja-aitojen madaltumiseen liittyvät haasteet. Yleisesti uudet teknologiat nähdään suurena mahdollisuutena, eikä mahdollisiin sosiaalisiin ongelmiin kiinnitetä riittävästi huomiota. Tietokonevälitteisessä viestinnässä samaan tilaan saattaa kuitenkin kokoontua joukko toimijoita, joiden intressit ja kulttuurinen tausta vaihtelevat laajasti. Tämä puolestaan saattaa johtaa eriasteisiin kulttuurisiin konflikteihin. Tietoverkkojen sosiaalisilla areenoilla tapahtuva henkilötietojen kalastelu, erilainen hyväksikäyttö, kiusaaminen ja ahdistelu näyttävät myös liittyvän sosiaalisen kanssakäymisen raja-aitojen madaltumiseen. Lisäksi erilaisten kohtaamisverkkojen syntyminen on tuomassa internetistä tutut sosiaaliset ongelmat matkapuhelimiin. Tutkimus esittää, että kyseisten sosiaalisten ongelmien ratkaisemiseksi tulisi kiinnittää huomiota erilaisten tilallisten säätelymekanismien tutkimiseen. Jo nyt internet- ja matkapuhelinteknologiat tarjoavat teknisiä ratkaisuja toivottujen ja ei-toivottujen sosiaalisten tilojen erotteluun (filtrit, palomuurit, soitonestot jne.). Lisäksi tutkimus esittää, että teknologiakäyttämistä säätelevien normien tutkimiseen tulisi panostaa.

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