Ståle Angen Rye

Conditions of Connectivity

The Internet and the time-space of distance education in Indonesia

Thesis for the degree of Philosophiae Doctor

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Norwegian University of Science and Technology
Faculty of Social Sciences and Technology Management
Department of Geography

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Norwegian University of
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Ståle Angen Rye
Yogyakarta, April 2008

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Summary

This thesis is about how the use of the Internet in distance education has both intended and unintended consequences for people and places in a developing country. The main perspective is the relation between students, educators and the Internet, and how these relations are embedded in the material and social features of the place where the technology is used. Empirically, the research builds on a qualitative case study of distance education in Indonesia and focuses on Universitas Terbuka, one of the world's largest educational institutions, and students participating in three different Internet-supported distance master's programmes offered by this university.

Together with an introduction (Part 1), the thesis consists of four papers (Part 2). The first paper discusses the importance of the symbolic and political powers of new technology when distance education is developed and spread. The main conclusion is that the symbolic dimension is important in order to realise such projects in the first place, and that concrete results are expected to become more evident in the long run. The second paper discusses how the Internet influences the flexibility of students living in remote areas. It is concluded that the Internet may reduce rather than enhance students' flexibility in technologically less-advanced places. The third paper reveals how students in a mega-city opt for Internet-supported distance education due to shortcomings in conventional transportation systems, and how such education influences the social segregation of the city. The fourth and last paper compares the situation for urban students with those living in more remote areas from the perspective of the digital divide. The conclusion is reached that the Internet may be useful for remote areas despite the fact that positive results for students are limited.

A main contribution of this thesis' research on the Internet and distance education is that it demonstrates how access and the use of Internet for communication are deeply rooted in local practices. It is evident from this thesis that Internet communication in distance education is not merely something happening online between teachers and students, but is inherently related to social, political and material surroundings. What can be learned is that the Internet may help to overcome friction created by space. Nevertheless, people using the technology are always located in some place, and this place matters for the results from Internet-supported distance education. This thesis therefore suggests that development of Internet-supported distance education should show great awareness of local conditions at the places were such programmes are located.

Part 1

Chapter 1
Introduction

At least two major trends in contemporary societies are covered by this thesis. Firstly, the thesis is about the growing importance of formal higher education and how such education is considered a major force in every society's development. Secondly, the thesis is about the new digital technology and how it enables people to communicate and transfer information without being present in the same place at the same time. In this work, I explore how these two trends are merging by the way of Internet-supported higher education offered at a distance, and how this is materialised in a developing country. The attention is directed towards distance students in Indonesia, some of them living in Bangka Belitung, a relatively remote area of Sumatra, while others live in Jakarta, the political and economic centre of the country. From this point, I explore how a university uses the Internet to reach its goals and how students respond to the university's efforts. From this, insight is gained into the processes forming distance education and the daily life of the students. Moreover, I focus on how the use of the Internet in distance education has intended and unintended consequences for people and places. In this chapter I will give an introduction to this theme and how it has been researched in this PhD project. The following two chapters will examine the theoretical and methodological issues in more depth.

Distance education and a society in change

For most of their history, universities have been the privilege of a small elite, comprising mainly young men. In recent decades higher education has, however, been transformed from an elitist system to education for the masses (Albach, 1999; Tiffin & Rajasingham, 2003). This expansion of the university as an institution has gone in several directions and new groups have been included into the university system throughout its history. For example, women from higher social classes were allowed to access European universities in the late 19th century (Rudy, 1984). In the 1970s universities opened up to wider range of social classes. Recently, higher education has become a lifelong project and not only regarded as preparation prior to the start of a working career (Daniel, 1996). All of these changes may be seen as responses to a changing society where the need for skilled labour is constantly shifting and financial sources accessible for the educational sector are increasing. Peters (1983), for example, considers the massification of higher education as a response to the process of industrialisation, and describes the mass delivery of education as a parallel process to mass production of other commodities. The expansion of higher education may also be considered as an active force in shaping societies. Wittrock (1996), for example, discusses how, since 1960, higher education has been used to stimulate economic growth and development within the OECD (Organisation for Economic Co-operation and Development).

The expansion of higher education started in the Western world, which is also where the origins of modernisation and industrialisation are found. Today, however, the massification of education is also in full force in most developing countries (UNESCO, 2000, 2001a). In Indonesia, for example, in 1980 only about five hundred thousand of its population had completed higher education, whereas by 2000 the number was more than five million (see Table 1) The expansion of the education system in Indonesia has followed as a result of rapid industrialisation, but also the economic growth has enabled such a development (Zuhairi, Wahyono, & Suratinah, 2006). Similar trends can be identified elsewhere worldwide (UNESCO, 2001b).

In order to meet the challenge of massification of higher education it is not only the doors of existing conventional universities that have been opened. As the traditional universities have not been able to accommodate new large groups of students, governments around the world have to a large extent supported the use and development of alternative forms of education (Perraton, 2000a). One alternative to traditional universities has been to create new institutions, such as regional colleges, which are able to attract new groups of students (Støkken, 1998). In this thesis, however, my main concern is with more flexible forms of education where most of the study activities are located outside a campus site.

Table 1: Population holding a university degree in Indonesia 1980–2000[1] *(source: BPS, 1981, 1991, 2001)*

Year	*1980*	*1990*	*2000*
University degrees	*227,932*	*986,699*	*2,901,157*
Shorter higher education programmes	*280,241*	*736,001*	*2,380,718*
Total	*508,173*	*1,722,700*	*5,280,875*

The history of alternative education offered outside university campuses dates back at least to the last half of the 19th century, and Holmberg (1986) traced this development to the first correspondence educational institutions that were set up in England and the USA towards the end of the 19th century, including The University Correspondence College in London (1887) and the Correspondence University in New York (1883). Until the 1970s, however, distance education was regarded as a fringe activity, which government and academic authorities were, at best, somewhat lukewarm towards (Sùilleabhàin, 2004). The situation started to change in the 1970s when governments around the world began to support distance education and institutions offering such education (Daniel, 1996).

[1] 'University degrees' contains students who have completed S1 (four-year undergraduate degree programme) S2 (two-year graduate degree programme), and S3 (three-year doctoral degree programme). 'Shorter higher education programmes' include students who have completed Diploma I, II and II and Academy (up to three years).

This was the beginning of the open university movement (Sùilleabhàin, 2004). As the term indicates, the intention behind this movement was to make higher education open to groups of students that had not been able to enrol at traditional universities. The aim was to remove any barriers to access resulting from financial, geographical, social, and cultural constraints and thereby ensure the openness of the university. A major solution to reducing the power of these barriers was to move the place of study out from the established university campuses and closer to the daily world of the students. By doing this, education became cheaper, as new infrastructure, such as buildings, was no longer necessary and large numbers of students could be affiliated (Rumble, 2001). Moreover, the students did not even have to move close to a campus and could maintain the basic features of their life. Finally, by moving away from the campus the symbolic manifestation of an elitist culture was reduced. As a result, a large number of state-funded distance education organisations were founded in the 1980s, some of them with more than 200,000 students. Such universities have been established worldwide and some of the largest are to be found in China, Germany, India, Indonesia, Korea, South Africa, and Turkey, all more or less inspired by The Open University in Great Britain (Daniel, 1996; UNESCO, 2001b, 2002).

In recent years, open and distance education has been a growing activity, where new actors outside state open university systems have made significant contributions to the growth in the education sector. Firstly, new commercial actors have been important. They range from large new universities, such as University of Phoenix Online, to in-house training within co-operations, and to small and less well recognised course providers. Secondly, most conventional universities, including the world's most recognised universities, have now implemented some kind of distance education in their normal activities. Hence, distance education should perhaps no longer be labelled as an alternative form of education, but rather a part of the established education system.

The diversification and institutionalisation of 'alternative' forms of higher education may further explain why new labels have become popular, such as 'e-learning' and 'online education'. As new actors are entering this sector there may be a need to recognise a distinction between these and the earlier forms of

correspondence courses which had a somewhat questionable reputation. In addition, the new labelling often also indicates a shift, whereby new technology, particularly the Internet, has become significant for the growth and development of 'alternative' forms of education (Sùilleabhàin, 2004; UNESCO, 2002).

In the literature the new ways of offering higher education off campus are described using various prefixes, such as online-, e-, open-, distance-, distributed-, flexible-, and lifelong-. Moreover, the term 'education' may also be used interchangeably with the term 'learning'. The various labelling can be confusing, as the same concept sometimes covers different phenomena, while at other times the same phenomenon is covered by different concepts (Grepperud, 2005). Nonetheless, the term used typically refers to what is described or it indicates the direction of analytical focus. The use of 'e', for example, directs the attention towards technology, 'distance' to the separation in space, 'flexible' to students' freedom to organise their study, and 'lifelong' to the life cycle of the students.

In this thesis I will most often use the term *Internet-supported distance education.* The term 'distance education' is used as this research concerns education where most of the students' study activities take place when the students and their educational institution are spatially distinct. However, as the use of new technology makes this form of education similar to what often is described as e-learning (Sùilleabhàin, 2004), I have added the term 'internet-supported' to indicate my focus on the technology in use. Hence, in this thesis Internet-supported distance education refers to higher education where the Internet is used to organise and support a spatial separation both among the students and between the students and the educational institution. In the next section I will further explore the position of technology in distance education.

Technology and distance students' daily life

From the outset of open university systems it has been important to use new communication technology to connect students with their respective educational

institution, and sometimes also with other students. This started with conventional mail systems and subsequently the technology was supplemented or replaced by new tools, such as the telephone, TV, and satellite communication, and more recently by the Internet (Armstrong, 2002; Kirkwood, 2003; Perraton, 2000a). Mason (2001), for example, describes the history of The Open University in Great Britain as one where the university has been transformed gradually from being a print-based distance teaching institution to becoming an electronic online university. Regarding technological development within distance education, most of the new innovations typically have been introduced first in developed countries, although today much of the developing world is rapidly following suit (Ramanujan, 2002; van Dijk, 2005).

This thesis explores this development through highlighting the position of the Internet in education, particularly how it enables students to participate in higher education and, in turn, how this participation is woven into students' daily life. Hence, in this research I connect distance education to general development processes in a society where new technology is claimed to be increasingly important for people and places (Castells, 1996, 1997; Harvey, 1989, 1996; Lash & Urry, 1994). Regarding the technology, I am concerned primarily with the Internet and how it functions when students in a developing country are supposed to integrate it into their study programmes. My main focus, therefore, is on the students' workstations and how these are connected to the Internet and thereby to the university and fellow students. I do not much explore explicitly the software in use or the content accessible by the students. However, even though not covered in this thesis, these components are an essential part of connecting students and educational institutions despite a separation in space.

Regarding spatial separation, technology exists in various forms (as already mentioned) as a basic characteristic of distance education and an open university system. Rather than by face-to-face contact, students connect to the educational institution through the use of communication technology (Tiffin & Rajasingham, 2003). Nonetheless, it should be noted that this does not imply that distance students' connection to their educational institution is necessarily infrequent, vague and impersonal; rather, it means that such connections are qualitatively different. Although students study from home, their day may be strictly

organised by the educational institution by the way of instructions given in predefined study guides or by continuous communication through various technologies. Conversely, students may also be left to their own devices and study activities may be carried out on an individual basis and as an independent project. In addition, even though most of the learning process is supposed to take place at distance, most study programmes require some kind of physical meeting between the students and the educational institution. Thus, in reality, most distance education programmes have a blended approach to learning, even though the technology renders a separation in space possible and the students mostly spend their time off campus.

As the learning process in distance education, with the aid of communication technology, is mostly situated outside the university campus, another distinctive feature of this kind of education is a strong integration of study activities into pre-existing activities and obligations related to family, work and leisure (Støkken, 1996, 1998). Students taking part in such education typically maintain the basic features of their daily life, and how students handle their study situation very much depends on how they manage to integrate their study activities with other obligations. Thus, to be a distance student is largely about negotiating significant relations, and finding ways of organising study activities and making them fit in with other activities and obligations (Kember, 1999). Accordingly, it is not only students who are affected by the extension of Internet-supported distance modes of education but also their families, work and friends. It has been claimed that also the latter should constitute a part of our understanding about distance students' study situation (Folkman, 2002; Kember, 1999; Taplin & Jegede, 2001).

From the above argument it follows that when students, by means of the Internet, are able to maintain basic features of daily life and continue living at the same place, this probably affects the place where they are studying (Evans, 1989, 1995a, 1995b). Through distance education and distance students, places will be connected to networks of information flow and knowledge acquisition, and accordingly these places will change in some way.

Nonetheless, it should be noted that the extent to which different locations are affected varies, as connections to networks of information and knowledge are

not equally open for all. The conditions of the connection depend much on where people are living, and the geography of the Internet follows other spatial variations (Castells, 2001). Accordingly, students' ability to participate in distance higher education to a large extent is a result of the features of the places where they live, and it is well documented that the uneven distribution of new technology correlates with access possibilities to higher education (van Dijk, 2005). However, also features of the technology in use will affect the accessibility. It may, for example, be easier for a student to access a web page than to participate in teleconferencing.

In this thesis, the above-mentioned processes of change are studied from the point of the situation in a developing country, and the empirical case is the development of Internet-supported distance education by an open university in Indonesia. In the next section I will give a brief introduction to the historical context and background to why students in Indonesia are offered higher education at distance, aided by the Internet.

Distance students in Indonesia and the activities of Universitas Terbuka

In Indonesia distance education has its roots in the 1950s, when correspondence teacher training was established in Java by the national government. At that time Indonesia was a newly decolonised nation with a fast growing population (Zuhairi, 2001; Zuhairi et al., 2006). There was a lack of qualified teachers and the aim of the correspondence project was to produce qualified teachers for the increasing number of children who needed primary education. Put another way, Indonesia needed its children to be educated. Later on, in the 1970s and 1980s, the use of distance education was intensified as Indonesia grew financially stronger and was able to support further expansion in the education sector. In 1984 this development culminated with the foundation of Universitas Terbuka (UT) as an open state university (Dunbar, 1991; Ely 1989). Through UT, the Indonesian Government aimed to establish an open university that could accommodate the rapid increase in the number of high school graduates who, for

various reasons, were unable to access conventional state universities. Another aim was to provide in-service training to improve the educational qualifications of a vast number of primary school teachers who lived and worked throughout Indonesia. It would have been impossible to train these teachers on campus, as this would have left a great number of primary students without teachers, albeit temporarily (Zuhairi, 2001; Zuhairi et al., 2006). UT thus gave the teachers access to an upgrading programme while they continued living at the same place and maintaining their work affiliation.

From its very beginning, UT has aimed to be open for all those who are unable to enrol at conventional universities, not only school teachers. The name of the university literally means 'open university', and UT was part of the aforementioned open university movement. The openness of UT occurs in several ways. Firstly, this university has few requirements about when and where students can study. This facilitates the possibility of gaining a degree while maintaining a work position and/or family obligations. This, in turn, has also opened the university to students who do not live close to a university campus. Secondly, the entrance fees are minimal compared to most other universities. This opens up opportunities for students from the lower social classes and means that students are less dependent upon scholarships. Thirdly, in contrast to most other universities in Indonesia, UT does not have an entrance test. A graduation paper from high school is the only formal requirement. Hence, although even this university is not open for everyone, the access is certainly more open than is the case for most universities in Indonesia (Suparman, Zuhairi, & Zubaidah, 2004).

Despite UT having more than 300,000 students enrolled, and having been a dominate force regarding the development of distance education in Indonesia, several other actors have made their contribution to this development from the outset (Kuntoro & Al-Hawamdeh, 2003). Prior to 2001, however, only UT fulfilled the requirements necessary to offer distance education that were set by the Directorate General Higher Education (DGHE). Nevertheless, several non-formal and basic education projects were launched in the 1990s, such as SMP-Terbuka (Open Junior High School) (UNESCO, 2001b). This project aimed to attract high school students who had dropped out of conventional schooling. The openness was related to its non-fee policy and lack of school uniform, and it was

open in the evening, which meant that students could attend even if they were working during the daytime.

After the distance education sector was deregulated in 2001 several new actors entered this sector in Indonesian higher education. Especially, private universities have been visible in their efforts to capture new students through a more flexible mode of study. Some international actors have been active too, but these have been few and their range of action has been limited due to financial and language barriers (Kuntoro & Al-Hawamdeh, 2003).

While the new actors mainly have aimed to reach the growing middle classes in central areas of Indonesia, the argument in favour of distance education has often been related to the countries' geographical conditions. Indonesia is a vast archipelago consisting of five main islands and thousands of smaller ones, with a total population of just over 200 million people dispersed throughout the country, although concentrated on the island of Java (BPS, 2007) (Figure 1).

Figure 1: Map of Indonesia.

The aim behind introducing distance education has been to provide higher education to students nationwide (Kuntoro & Al-Hawamdeh, 2003; UNESCO, 2001b). However, although the arguments have often been related to geographical issues, from the outset at UT a large and significant number of students have come from urban lower-income groups (Suparman et al., 2004).

To meet the social and geographical challenges of reaching out to new groups of students, the use of media and technology has been of great importance since distance education started in Indonesia with the Java project in the 1950s. At the beginning, print-based correspondence material was used. Subsequently, radio and TV have been used intensively and UT, for example, has had close cooperation with national broadcasting institutions. More recently, use of the Internet has also been widely applied (Belawati, Hardhono, & Anggoro, 2004). Likewise, the new private actors in the field have also embraced the new media, though not with the aim of reaching out to marginalised groups. Rather, they have attempted to attract students who are able to pay for formal education but who do not have the possibility to travel to a campus regularly. However, as will be discussed later, UT to some extent seems to be moving in the direction of targeting students who are better off financially than other students.

Today, UT provides online tutorials and web supplements as additional services in more than 200 courses, and several administrative procedures are available via new communication technology, such as online registration and sending exam results. For UT's undergraduate students, however, the use of ICT is offered as a non-compulsory supplementary service. The intention of keeping the use of new technology optional is to avoid excluding students who have limited access to the Internet SMS (Belawati et al., 2004; Suparman et al., 2004). In contrast, all newly established graduate programmes have incorporated the use of ICT as a compulsory part of their course. The empirical sources used in this thesis originate from UT's efforts towards introducing new technology for its students and the underlying theme of the four papers constituting this thesis is related to the position of new communication technology in such programmes.

The first master's programme to use new technology comprehensively was a Master of Public Administration programme offered to students in the province of Bangka Belitung. The actual background for establishing this programme was the era of political reform introduced in Indonesia in 2000, whereby the governmental system shifted from centralisation to decentralisation, promoting greater provincial autonomy. This change has required educational services to further support local development by qualifying employees to develop and run the decentralised administration.

In 2000, when UT launched its plans for a Master of Public Administration distance study programme, the local government of Bangka Belitung province was quick to respond. The province, formerly a part of South Sumatra Province, was officially established in 2000. Bangka Belitung, consisting of two larger islands and 189 smaller ones, is inhabited by just over one million people, of which 137,582 live in Pangkalpinang, the provincial capital (BPS, 2005). Unlike most of the other provinces in Indonesia, Bangka Belitung does not have a state university. There are some private universities located in the province, but the quality of the programmes offered is somewhat questionable, as most of them are not legally authorised by the national educational authority (personal communication, Dean of FISIP-UT). Thus, UT was much needed, as students did not have access to other recognised state universities in the place where they lived.

Later, UT started offering programmes similar to the one in Bangka Belitung, at several places elsewhere in Indonesia. Two of these programmes have been located in Jakarta: a Master of Public Administration and Master of Management, both of which are covered in this research. As will be shown later in this thesis, the master's programmes offered by UT have similarities to most open and distance education programmes. However, it should be noted that to some extent they also differ from what I have described already as the main concept of an open university. Firstly, to enrol on this programme the students had to take an entrance test, which only a few were able to pass. Secondly, the cost of these programmes was about the same as most state universities' master's programmes and most of the students needed some kind of financial support. Thirdly, the students' access to this programme can be said to have been limited by the requirement regarding use of the Internet. It is the latter point that is my main concern in this thesis.

Research on technology in open and distance education

Researchers have been focusing on distance and open education for a long time. However, a closer look at the academic literature on this topic reveals that many of studies are empirically orientated and rather a-theoretical (Garrison, 2000; Perraton, 2000b; Saba, 2000; Støkken, 2002; Watkins & Schlosser, 2003). On the one hand, there are empirical descriptions aiming to identify the 'best practice' and/or the appropriate technology. On the other hand, there are more futuristic writings which focus on the endless possibilities of ICT, often with poor empirical evidence and limited theoretical framework (for example, Taylor, 2003). Obviously, reviews of practical experiences and visions are important in the process of establishing better practices. At the same time, better theoretical understanding of the underlying processes that create the outcome of this kind of education is also required (Støkken, 2002). Such understanding might provide a deeper insight into both single cases and distance education in general, and it makes it easier to transfer knowledge about 'best practice' from one context to another and from one study programme to another. Thus, theory can be an important tool in improving practices. The four papers in this thesis aim to further develop the theoretical fundament for research as well as for the practical development of open and distance education by focusing on students' daily life and the use of technology (see Chapter 2).

Although the theoretically informed research in the field is limited, this thesis certainly does not start without some form of foundation. In recent years there has been an emergence of more theory-based works related to distance education (Garrison, 2000; Perraton, 2000b; Saba, 2000; Watkins & Schlosser, 2003). These works can be divided schematically into three categories. First, there is research working from an institutional approach concerning structural conditions on a mezzo- or a macro level, where research topics may include cost-efficiency, implementation, and socio-economic constraints (e.g. Monge-Najera, Antonio Rossi, & Rivas Mendez-Estrada, 2001; Rumble, 2001; Shin, 2002). The structures studied are typically found within the education system or/and in the society surrounding the education. Monge-Najera et al. (2001), for example,

explores how distance educational institutions in Latin America are increasingly exposed to internal and external competition. Rumble (2001), on the other hand, discusses the relation between cost and quality in distance education. His conclusion is that distance education can be a high quality alternative, but the cost would also be close to that of other forms of high quality higher education. Thus, he argues, distance education is not an easy solution to the global need for higher education. Most of the research from developing countries seems to fall within the institutional approach.

Second, there is research focusing on teaching and learning. This category covers research topics such as dialogues in computer-mediated communication (CMC), community building with ICT, and learning possibilities in virtual environments (e.g. Chang, 2004; Orellana, 2006; Ouzts, 2006; Sorensen & Baylen, 2004). In this approach, a common theme is interaction among students and between students and teachers on a micro level. Chang (2004), for example, analyses the use of mentors in online courses. He concludes that they can increase students' motivation and course completion, and thus compensate for psychological disconnection and technical problems that often occur in online courses. Similarly, Ouzts (2006) argues that the use of various forms of computer technology in combination with a student-centred pedagogical approach can allay some of the concerns about the quality of online courses. Research from developing countries within this perspective is seemingly rare.

Third, research may focus on individuals' social life outside the core learning or teaching processes. In this perspective, a micro-level approach is often combined with a mezzo- and macro perspective, but one whereby the mezzo- and macro levels are studied exclusively as contextual phenomena (e.g. Folkman, 2002; Grepperud, Rønning, & Støkken, 2004; Home, 1998; Kember, 1999; Saw et al., 1999; Støkken, 1996, 1998; Taplin & Jegede, 2001). There seems to be fewer publications adopting this approach, and knowledge about distance students and the way they organise their daily life is limited. The studies that exist, however, typically conclude that especially family relations, and also other relations such as the workplace and friends, are significant for distance students' results. Kember (1999), for example, describes the integration of study into daily life activities as a negotiation process shaping the students' study

situation. Others, such as Taplin and Jegede (2001) highlight the gender aspect in such negotiations. The existing studies within this perspective tend to be based on empirical research within developed countries, but there are exceptions. Bhalalusesa (2001), for example, explains how female distance students in Tanzania face constraints related to gender when they attempt to integrate studies into their daily life. Saw et al. (1999), on the other hand, have explored how the daily life of distance students in Malaysia is changing in response to a new economic context.

An interesting feature within this literature on students' daily life is that technologies as a force in shaping students' relations and environment are rarely considered. As a context, technology is often absent or has a weak position when the social aspects of open and distance education are studied. If technology is considered, the focus tends to be on the learning situation itself or economic aspects (e.g. Monge-Najera et al., 2001; Ng, 2000). Still, there are some exceptions where technology is considered to be an active force in shaping students' daily life. Folkman (2002), for example, shows how the technology in use is of importance for how part-time study is integrated into the workplace, whereas Kazmer (2000) is concerned about how the use of technology is negotiated to fit in with other activities at home.

The vague position of technology when students' daily life is researched is interesting, as technology has always been a basic feature of distance education (as already discussed). Moreover, in recent years, with the introduction of the Internet, technology has gained an even stronger position in this form of education. Hence, there is a need for a further extension of our knowledge about how students' daily life matters in distance education, and especially knowledge about the role of technology. This thesis aims to address this need by focusing on students' social life outside the learning and teaching process, and thus it falls within the third perspective described. However, I also explore the use of technology beyond students as individuals, in order to highlight some of the processes which are significant for students' participation in higher education. For example, I will explore educational institutions' rationale for offering Internet-supported distance education in certain places.

Thus, the intention behind this research is to explore further the approaches to distance students' daily life as presented by Grepeprud, Rønning and Støkken (Grepperud et al. 2004, 2005, 2006) and Støkken (1993; 1996; 1998; 2002). Their focus has been on adult flexible students and how they perform their roles within the context of daily life. A main perspective is how such students negotiate their position as a student within other daily activities, such as those relating to their family, work and leisure. Theoretically, Grepeprud, Rønning and Støkken approach the issue of flexible students by exploring sociological perspectives on the interrelations between individual and context as described by social theorists such as Beck (1992) and Giddens (1991). They discuss how new trends in society are considered as a new frame for the performance of individuals, whereby individual reflexivity is becoming more central. These changes are supposed to influence how distance students constitute their role as students and how institutions surroundings these students develop. Empirically, Grepeprud, Rønning and Støkken's studies are conducted within a European context (Norway and Scotland). Recently, for example, they conducted a qualitative study of flexible distance students in Norway, where they explored how students relied upon continual negotiations, and support from close family members and employers was significant in order for the students to succeed (Grepperud et al., 2004). This study was later followed up by a large-scale survey among Norwegian flexible students (Grepperud et al., 2006). One of the conclusions from this survey was that the characteristics of such students vary greatly and that policy makers and educators have to be aware of the need for variation in how students conduct their studies.

The aim of this thesis is to develop the aforementioned perspectives by emphasising the role of technology in students' daily life and focusing on students in a developing country. This perspective will, however, be complemented by empirical research from an institutional perspective as well as from a teaching and learning perspective. The intention is to highlight significant aspects of students' daily contexts that are essential if we want to understand how technology influences students' daily life and the places where they live. However, as will be discussed in the next chapter, concepts and theoretical approaches used for studying the students' use of the Internet are developed

based on traditions developed outside the field of distance education. The main attention will be given to geographical approaches to space and place as well as human–material relations. Hence, my contribution regarding the aforementioned research carried out by Grepperud, Rønning and Støkken relates to the emphasis on new technology, development and geographical perspectives, and not least a combination of these.

Research questions

Following the above discussion, the main interest in researching the use of the Internet in distance education is not the quality of the education as such. Rather, the interest has grown from the fact that such education is a rapidly growing sector that is influencing people and places worldwide, especially in developing countries. Hence, regardless of whether Internet-supported distance education is considered a qualitatively good response to the challenges of massification of higher education or not, researchers should pay attention to how such a phenomenon interacts with society, places, and people. So saying, and as mentioned in the beginning of this chapter, the overall research question addressed in this thesis is: *How does the use of the Internet in distance education have intended and unintended consequences for people and places in a developing country?* This question is explored by researching relations between students, educators and the Internet, and how these relations are embedded in material and social features of the place where the use of the technology is located. The main focus is on the variations in situations within a developing country and the major perspective is elaboration of how the use of the Internet and access to this technology influences students' daily life practices. To explore my research question I have investigated intentions, actions, and reflections on actions, regarding how students as well as educational institutions have used the Internet to organise their activities and daily practices.

During the course of the study the overall research question was broken down and explored in terms of four questions, which respectively provided the basis for the four papers constituting this thesis. The four research questions took

form when theoretical concepts such as flexibility, diffusion, translation, and digital divide were applied to empirical sources, and are as follows:

Research question 1:
How does use of the Internet contributes to the spread of distance education to remote areas, and how does distance education affect the use of the Internet in such places? (Paper 1)

Research question 2:
How do new communication technologies influence the flexibility of distance students living in a given developing country outside the digital mainstream? (Paper 2)

Research question 3:
Why do students from the middle classes in a mega-city in a developing country turn to Internet-supported distance education, despite a wide range of conventional forms of education being accessible, and how does such participation impact on the social segregation of the city in question? (Paper 3)

Research question 4:
What is the outcome of uneven distributions of new technology in developing countries, particularly of the Internet, and how does this influence participation in higher education? (Paper 4)

Four papers

All of the papers presented in Part 2 of this thesis have been written by me and have been either published in or submitted to research journals. They may be considered as separate works and read independently. Still, they originate from the same research project and are clearly interrelated as they all discuss more or less the same empirical case, although the theoretical approaches differ. The aim in Part 1 of this thesis is to present the common background to these papers

(Chapter 1), to discuss the papers with respect to theoretical perspectives and contributions (Chapter 2), and to outline the methodological fundament in more detail than is presented in each of the papers (Chapter 3). In Part 2, the original papers are presented in full length. In the following, however, I will provide a brief introduction to the four papers.

In Paper 1, titled *Negotiating the symbolic power of ICT*, I discuss the process of how Internet-supported distance education is spread to places such as Bangka Belitung. My main concern is the educators' rationale behind offering such education and the position of new technology when this happens. However, to understand the process of spread I also draw attention to the receivers, in this case the students. The main point I am making is the notion of technology as something that gains its power from how it is embedded in actors and social structures. The paper concludes by arguing that technology is important, not only because of what it can do but also because it symbolises progress and higher education at the forefront of this sector's development. Moreover, it is demonstrated how this symbolic power has been significant for enabling Internet-supported distance education to spread to places such as Bangka Belitung.

The next paper, Paper 2, is titled *Flexibility, technology, and the daily life practices of distance students living beyond the digital mainstream*. In this study the situation of the students in Bangka Belitung is explored in detail. A main concern is their use of new communication technology and how this use is woven into their daily activities. The paper shows how distance education has to be negotiated to fit with existing obligations and activities and how expectations regarding the use of new technology render this negotiation a challenge for distance students. A main conclusion is that new communication technology does not make it significantly easier for the students to organise the time-space of their daily life as it requires them to undertake parts of their study programme at places where the technology is located. Following from this, it is also claimed that new communication technology does not necessarily increase the flexibility in such students' daily life.

The daily life of urban distance students in Jakarta is explored in Paper 3, titled *The Internet, education and social segregation of the city*. These students

attended a distance education programme which was very similar to that offered to students in Bangka Belitung. Also, the educational institution's use of the Internet was basically the same. However, the urban students' intention with regard to participating in such education was different compared to that of students from Jakarta, as were the results. In Jakarta, distance education and the use of the Internet was related to the possibility of avoiding a chaotic infrastructure that basically was materialised in the form of traffic jams. By using the Internet for study purposes the students could opt to not use the roads and cars in their efforts to stay in contact with their educational institution and other students. The paper also reveals how such use of Internet may also have the potential to contribute to the social and spatial segregation of the city as the technology makes physical separation between people easier.

In Paper 4, titled *Exploring the gap of the digital divide*, I compare the situation of the students in Bangka Belitung with the situation of those living in Jakarta. The main focus is on conditions of access to the Internet and how these influence the students' possibility to participate in distance education. The paper is informed theoretically by the concept of digital divide. However, rather than focus on the distinction between those who have and those who do not have access to technology, the paper discusses those who fall between these two extremes. Namely, these are students with access to the Internet, but under varying and sometimes poor conditions. By exploring this continuum, I highlight processes influencing students' ability to participate in higher education in two different places, and I discuses why such possibilities differ spatially.

Chapter 2

Theoretical perspectives

In this chapter I will introduce the main theoretical perspectives used and developed in this thesis. These perspectives are identified and represented through theoretical concepts, which have formed the theoretical tools for analysing my empirical data. On the other hand, the content of the concepts has been developed during the research process in the intersection between empirical sources and theory. By discussing these concepts, the aim is to highlight some basic theoretical implications across the papers, some of which are more visible in certain papers than in others. The first two sets of concepts, 'actor, structures and context' and 'structural network', place this thesis among some of the ongoing discussions in social theory, while the next three perspectives presented are more closely related to the substantial matters. It should also be noted that even though all of these perspectives are focused on one or more of the papers, they are also to some extent further developed in this chapter. Thus, in the following, theoretical approaches are partly considered in a different way from that in the four papers. First, however, I will discuss the theoretical framing of distance education.

Theoretical framing of research relating to distance education

Perraton (2000b) argues that the theoretical fundament of open and distance learning should not necessarily come from the field's own practice, but rather

from social theory in general. Thus, she claims that the empirical and a-theoretical tradition in the field ought to be extended by new knowledge from outside. Furthermore, as Watkins & Schlosser (2003) claim, by various means research in the field should search for some kind of generalised knowledge going beyond the particular case investigated. In the empirical literature, cases are typically described, evaluated or explained by the cases themselves, and theoretical knowledge is absent or only framing what is investigated. However, by asking for theoretically informed knowledge that can be generalised, what is requested is a higher level of abstraction of the field's research. This probably will provide new knowledge, but by abstracting the field's research substantial matters may disappear in sophisticated theories and concepts. Hence, there is a risk that the value and interest for those engaged in the field's practices may be lost. From this point of view, it can be claimed that a more theoretical orientation of research on distance education should not be considered as an alternative to empirical and deceptive research but rather as an equally valued supplement. This thesis may thus be considered as such a supplement, which differs from much of the fields' best-practice research as the scope is not only to obtain knowledge about some selected distance education programmes but also the society surrounding such education and social processes in general.

As I attempt to place this thesis in a tradition of work grounded in theory, the theoretical framework based on the four papers will be outlined further in this section. In doing so, and as suggested by Perraton (2000b), I will not start from the point of research within distance education, but rather place this volume in the social science research landscape where geographical contributions are given special attention. Here, the geographical thought is interesting for how it highlights the time-space of social actors as well as the relation between the material and social world. From this point of view, this thesis has a twofold scope. Firstly, it aims to contribute to the practice of distance education by exploring this field by the way of geographical thought and that of other social sciences. Simultaneously, this thesis attempts to extend the field of geographical research by exploring practices related to the use of the Internet in distance education.

Actors, structures and context: critical realism

The fundamental theoretical approach used in this thesis can be placed within a trend in social science that has developed in the last few decades and in which the positivist paradigm has been challenged from a structural perspective. The structural approach, however, has been advocated at the same time as actors and their interpretations and constructions have been given a more central position in the social ontology. Some central contributors within this tradition having relevance for this desecration are Bhaskar (1978; 1984; 1989), Giddens (1979; 1984), and Lash and Urry (1994). Within the field of geography, this tradition has gained considerable support through dominant scholars such as D. Gregory, Doreen Massey, and Nigel Thrift. In this thesis, however, this track is mainly followed by using critical realism, and a main source of inspiration has been Sayer (1992; 2000).

In the works of Sayer special attention is paid to the epistemology of the relation between action and structures, wherein he claims that in the search for an understanding and explanation of social phenomena we have to go behind the act as it is observed, and rather uncover processes that are creating the act. Hence, he also challenges the positivist-inspired tradition by denying causality as empirically identified and uncovered by quantitative variable research. Sayer rather claims, in line with Bhaskar (1978; 1984; 1989), that causality is found in social structures enabling the act and can only be identified theoretically. Hence, a basic thesis of critical realism is the distinction between the real and actual.

According to Sayer (1992; 2000), the realm of the *real* is found in objects as structures and inherent powers having the capacity to behave in particular ways. Thus, the real is about the potential rather than the empirical, and it is in the potential that the causal is found. Sayer (1992) describes this as basically common for both the social and the natural world, but still there are some main differences as well. Causal relations between social objects will always depend on actors' conceptualisations and interpretations of their own structural relation. Thus, as demonstrated in Paper 1, the symbolic construction of technology can give the Internet a structural force enabling action. Thus, critical realism shares

the same basic understanding of the relation between structures and action as structuration theory. Still, as will be discussed later, structuration theory tends to emphasise the action, while critical realism emphasises structures (Giddens, 1979, 1984; Sayer, 1992, 2000).

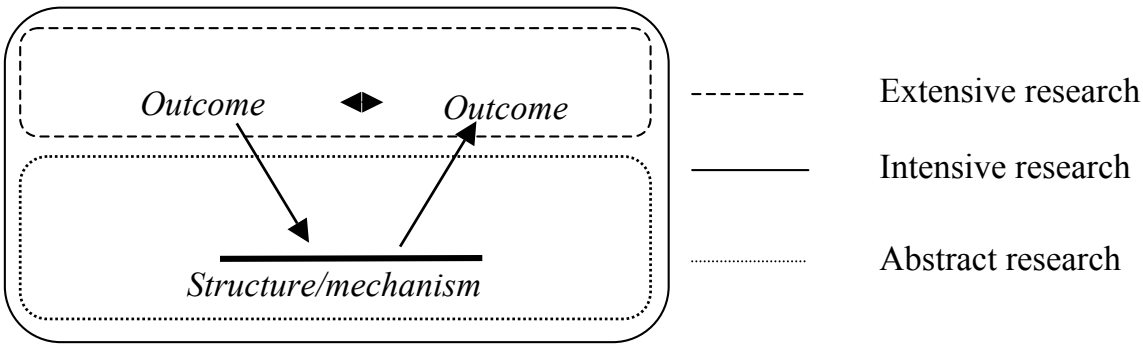
The *actual*, on the other hand, represents the empirical, which is what we can observe directly. Sayer describes this as *events*, or *outcomes* from structures. This is where social scientists most often identify causality (Becker, 1992). However, according to critical realism, although events often exist together in sequences and formations that seem to depend on each other, they are not causally related. From this it follows that the same kinds of events, or patterns of events, may have different causes. In contrast, different kinds of events may have the same cause. This implies that no necessary relation between events and structure, as this relation is contingent (Bhaskar, 1989; Sayer, 1992). For example, when a certain use of educational technology is observed together with students studying at home, the cause is not the use in itself, even though there is regularity in appearance between the use of technology and where students study. Rather, the cause behind students studying at home is to be found in structural relations between the student and educators as well as in structural relations between students and other phenomena, such as family and work. Then, the technology will be a part of the structural relations. Likewise, if technology is supposed to have structural power, this implies that the relation between students and educators could be considered as a structural relation with inherent potential for action. Whether the potential of a certain technology will end in action thus depends on the context.

In the basic analytical distinction between structures' potential and empirical events, a technologically deterministic view is rejected by a realist approach to technology. Furthermore, as no necessary relation between structure and empirical outcome, the outcome, according to critical realism, has to be understood in relation to phenomena's contexts. The *context* is contingent upon structures and can be described as the conditions under which certain outcomes are realised (Sayer, 1992). Such conditions might be distance and time between home and the location of study, the physical conditions in students' daily environment, or other people surrounding the students when they are at home.

Here, it should also be mentioned that, according to Sayer (1992), an outcome of a structural relation could end up as context and then release other outcomes later on. Object contingent relations can thus be considered as both result of the objects' structure and as contexts for the object. This is demonstrated in Paper 4, where it is argued that the result of applying technology depends on the place where it is used. At the same time, the place itself may change in response to the use or, as I have described in Paper 4, an increase of geographical capital.

To study the relation between events and structures and how context matters for the realisation of a certain potential, Sayer (1992) advocates what he calls an *intensive research design* (Figure 2). Typically, a small number of cases are studied in detail by qualitative methods in order to relate causality to what is observed. *Abstract research*, Sayer says, should always be a part of intensive research as this is where the causality, as such, is identified. This identification is carried out by clarifying concepts and by the theoretical discovery of internal relations between objects. The last approach is *extensive research*, which is based on empirical observations and is similar to most quantitative and variable oriented approaches. According to Sayer (1992), such research can only uncover regularities, distribution and range of events; it reveals nothing about causality. The basic methodological approach in this thesis is close to an intensive research design, in which practical implications will be discussed in detail in the next chapter.

Figure 2: Research designs within a critical realism approach (Sayer 1992).



Although Sayer (1992) accepts that extensive approaches should have a place in social science research, he claims that the importance of extensive research is often overestimated while intensive research is underestimated. At the same time, however, it is well known that statistics are demanded among those working within a practical field, also within distance education. These contrasting views may originate from different views on the purpose of science. Sayer might be right when he claims that extensive research cannot identify casual relations. Nonetheless, for people working with development projects and evaluations, it might be sufficient to know the probability of the outcomes occurring together or what the distribution of events is. It is not always necessary to know the cause, as it is understood in critical realism. Thus, as also discussed in the previous section, it can be claimed that extensive and empirical research are overestimated in social science research, but not necessarily in practical development projects. So, once again, theoretical oriented research should be seen as a supplement rather than an alternative to empirical approaches.

Structural networks: a theoretical foundation

While Sayer (2000) confesses to critical realism, I have not strictly followed any single theoretical or methodological approach in this thesis. Nevertheless, critical realism, as outlined above, has been an important source of inspiration regarding my basic theoretical considerations. For example, all of the papers presented in this volume are concerned with how action is embedded in social structures. Moreover, the research design, as will be further discussed in the next chapter, is similar to what Sayer labels intensive research.

Nonetheless, this research also benefits from contributions more explicitly emphasising how human action creates and maintains social structures. One such contribution is the structuration theory outlined by Giddens (1979; 1984). In his ontological approach, Giddens does not only show how action is embedded in structures, but also how human action maintains and creates structures by way of routinised practices. Thus, social structures, which Giddens understand as rules

and resources, are not considered as a given precondition for action, but rather as something changeable coming out of human practice, yet nonetheless still real in its existence. In Paper 2, this is apparent when the students' daily life practices are considered as constituting a structuration of their everyday environment, which also produces the outcome of how the technology is applied.

In this thesis the actor perspective has also been inspired by actor-network theory (ANT) (Collon, 1987; Latour, 1987; Law & Bijker, 1992). This perspective has recently gained considerable support in different fields of social science, including geography (Bingham & Thrift, 2000). In this approach the world is considered as a network of actors, or 'actants', which is the term Latour (1987) prefers to use. Such actants can be social or material and are empowered by operating through networks which appear when actors have programmes to realise and when affiliation with other actants is necessary in order to achieve goals. This approach is particularly evident in Paper 1, where I look upon the spread of Internet-supported distance education as a result of how several actors with different interests in such education link themselves together in order to archive their own goals.

The ANT approach is, however, also interesting for the way in which it considers material objects as equally important to social objects when social phenomena are explained. By taking this stand, ANT challenges a long tradition of giving social actors and structures a relatively exclusive right as the cause explaining social change. Thus, ANT follows some other positions emphasising technology as a major force in changing society, as for example applied by Marxist-inspired theory (Sennett, 1998; Østerberg, 1998) and in early writings about the new information society emerging from the industrial area (McLuhan, 1962, 1964; McLuhan & Powers, 1989; Postman, 1992, 1994; Talpscott, 1998). However, ANT does not follow the technological deterministic approach characterising these perspectives. Rather, both technology and social determinism are challenged by ANT. This may explain why the ANT movement in recent years has been a main force in advocating greater awareness in social science regarding the material world, including technology, and can be linked to what, in the next section, I will call the 'material turn'. Nonetheless, although this thesis can be categorised alongside other works emphasising the material,

including technology, it differs significantly from the ANT approach. While in ANT technology is given the position of actor, in this thesis I emphasise technology 'only' as a structural force enabling and constraining human action. The act is thus restricted to covering what persons and institutions do in order to achieve their goals. Hence, technology is considered as an integral part of social structures. Accordingly, this research should not be considered as an example of ANT research in the sense that the approach is identified by Latour (2005).

To summarise, the basic theoretical foundation for this thesis can be characterised by the concept of *structural networks.* Integral in this concept is a notion of acting as resulting from how actors are connected to other actors. In the four papers forming Part 2 of this thesis, the main actors are students and educators, but also others have been analysed, such as the students' families and colleagues (Papers 2 and 3) and political institutions (Papers 1 and 4).

The connections between these actors should, as indicated by the use of the term 'structural network', be considered as *structural*. The structural dimension of the network, following Giddens (1984), may be identified further by way of *rules* and *resources*, which empower and constrain actors' acts, and keeps such networks of actors together. Within structuration theory, however, rules and resources are seen as a product of human action and interpretation and exist only as memory traces reproduced through action. Thus, structures are something in the human mind itself and do not exist independently of actors as constraints for action (Giddens, 1984). A problem with this approach to structures is that technology, as such, is not problematised. Structuration theory could thus benefit from also considering structures as material 'roles' appearing as inscriptions of social behaviour into material objects, or as 'scripts', which is the concept used by Akrich (1992). It follows that material objects, including technology, may have their own power to cause action through their physical features. Through being attached to actors' projects, these features may also create human action.

The above argument can be exemplified by the analyses presented in Paper 2, where it is demonstrated how the students in Bangka Belitung encountered serious constraints and restrictions when carrying out their studies, as they were expected to use the Internet. This restriction clearly was a result of the requirements set by the educational institution, but it also was a result of the

material features of the technology, as such. On the one hand, certain technologies, such as the Internet, can create connections between actors by facilitating communication. On the other hand, the technology may, as demonstrated above, also restrict such connections between actors. Accordingly, roles and resources are features enabling and disabling action and thus indicate some interdependency between actors.

The connections between actors within the structural network, however, should be considered also as *rational*, by the way actors consider other actors and the available resources. Actors are associated with each other by the way of considering others' potential contribution to their own projects. For example, as discussed in Paper 1, students may attach themselves to an educational institution because they value the institution's right to issue master's degrees. However, if students are not satisfied with the way the institution is managing this right they may end the connection by abandoning their studies.

To summarise, structural networks of actors are created and dissolved depending on actor's goals, interpretations, available resources, and existing rules for behaviour.

Connectivity: material preconditions for human action

Common themes for all of the papers presented in this thesis are how people's lives and places are influenced by the new technology through being connected to the Internet. In Paper 1, the focus is on how connection to the Internet matters not only through its material features but also by how it is constituted as a symbolic power. This is followed up in Paper 2, where I investigate how conditions of connectivity influence students' flexibility in daily life. In Paper 3, I explore how connection to the Internet influences urban students' movements in time and space within a city. Finally, in Paper 4 the focus is on how connection to technology contributes to differences in people's living conditions by influencing their participation in higher education. Thus, connectivity is regarded as being about what characterises the ways in which people access the

Internet and what the results are. As such, connectivity is not about relations between people, but rather between people and technology as materiality. Nonetheless, as discussed in the previous section, the human–technology relation may enable (or disable) conations between people.

What all four papers share in common with much recent writing within social sciences is the notion of new technology as being significant both in terms of influencing people's lives and the development of societies. Several writers have explored this issue, of which Castells' (1996; 1997; 1998) famous trilogy is probably the most ambitious and the most cited attempt to understand the relation between new technology and social change. An interesting aspect of his work is, however, that he does not establish any necessary connection between technological development and change in the organisation of society. Thereby, he follows several other writers in claiming that it is difficult, or even maybe impossible, to predict the outcome of certain uses of technology (DeSanctis & Poole, 1994; Walsham, 2002; Zubhoff, 1985). Following this, several writers warn against technology determinism when the social effects of new digital technology are approached (van Dijk, 2005; van Dijk & Hacker, 2003; Warschauer, 2003a, 2003b).

As discussed in the previous section, this thesis also supports the above argument, claiming that the relation between technology and social change is not a necessary relation, but rather a contingent one. In Paper 4, I explicitly advocate this position, and the same perspective is also evident in the other three papers. From this point of view, a main argument in this thesis is that the result of being connected to Internet does not necessarily follow from the presence of technology, but rather from how such connections are a part of a wider social system.

Following the above discussion, the next question may concern how it is possible to produce knowledge about the way new communication technology influences students' daily life and the social organisation of society. One way of highlighting this question may be by searching the information system (IS) literature, a field where such a relation is at the core of attention. In recent years there have been several interesting contributions within this field regarding how to handle the relation between technology and social action theoretically. One

such contribution is the work of DeSanctis & Poole (1994). On the fundament of Giddens' (1979; 1984) structuration theory, they have developed what they call 'adaptive structuration theory'. The basic element of this approach is that both the structure of the technology *and* the emergent structure of social action have to be studied in order to understand the relation between technology and the social world. By so doing, this perspective extends conventional structuration theory by involving technological structures in the theoretical model for understanding social action.

Another attempt to develop structuration theory, also from the IS tradition, is presented in Orlikowski's (1992) structural model. She understands technology as embedded in social structures. Moreover, in line with Giddens (1984), structures and actions are seen as constituting each other, whereby technology is considered as embedded in action and hence also in social change. What both of the aforementioned approaches have in common is their rejection of the positivist tradition where technology is reduced and abstracted into an empirical variable with causal effect. Thereby, in many ways, both the adaptive structuration theory and the structural model have obvious similarities to the realist approach.

In his main work, *Method in Social Science*, Sayer (1992) does not explicitly discuss new technology. However, later he asks for a better awareness of the materiality within geography (Sayer, 1993), but he never really explores this issue in detail. Nonetheless, by relying on Sayer's understanding of contingence, combined with a consideration of technology as a structural force connecting human actors, a useful approach to connectivity and the human technology relation may be found. This follows the above discussion of the concept of structural networks, in which the causality of technology is regarded as a potential rather than a necessary outcome. Thus, when technology causes change in society the change is not a necessity but rather it is a result of a contingent relation to the technology. For example, as demonstrated in Paper 2, the Internet has the potential to reduce students' flexibility, but the outcome may also be the opposite, increased flexibility. The real outcome depends (as demonstrated) on the students' daily life context, and the conditions of connectivity have to be considered as contextual. This is similar to what Sayer (1992) uses as an example: a bomb's potential to explode is independent of whether it will explode

or not. The explosion depends on whether or not there is something that ignites it.

The aforementioned approach to the relation between technology and society can theoretically explain the findings in Paper 4. In this paper it is argued that the same technology does not contribute much to the students in Bangka Belitung, but it contributes much more to the students in Jakarta. Paper 4 clearly demonstrates how, in terms of what was offered by UT, the same technology has had different effects in different contexts. This also supports Grepperud, Rønning, and Støkken (2005: 16) when they ask for '*less standardisation, more contextualisation*' as a conclusion to their survey of flexible students in Norway. A more detailed discussion of why the findings on the use of technology were different in Jakarta compared to Bangka Belitung will be presented in the next section.

Despite obvious strengths, a critical side of both the adaptive structuration model and the structural model is, as argued by Walsham (2002), the poor conceptualisation of the relation between technology and actor's reflexive practices. This is also, as discussed so far this thesis, a weak side of critical realism. Hence, more actor-oriented approaches to the relation between society and technology are applied in the understanding of the human–technology relation. For example, as mentioned, it has been useful to build upon Latour's (1987) actor-network theory and similar 'network approaches' within historical sociology (see e.g. Bijker, Hughes, & Pinch, 1989; Bijker & Law, 1992). Such perspectives on the relation between technology and society, as already discussed, do not only emphasise the actor but also the technology. By adopting a combination of semiology and ethnography, Latour conceptualises this relation by treating technology as actants, and thereby he claims that material objects also have the potential to act and create their surroundings by being involved in networks (Lægran, 2004). In Paper 1, Latour's thoughts are followed by using the concept of translation in exploring the spread of Internet-supported distance education. In this way, I attempt to avoid the traditional variable oriented approach to the spread of technology, as outlined by Rogers (2003), for example. However, in contrast to Latour (1987), I explain spread as a result of how

technology is becoming a structural force connecting people, not how the technology acts alongside other actors.

Within the field of social and cultural geography there have also been several attempts to reintroduce the material through exploring the role of new technology, as discussed in Paper 3, without the pitfall of the deterministic and positivist inspired variable approaches. This is what has been labelled as the 'material turn' within geography (for an overview discussion see Jackson, 2000; Lees, 2002; Philo, 2000). However, it is difficult to identify a separate school or tradition within the field, and geographers trying to reinforce the material have largely attached their thoughts and empirical research to a variety of established traditions. Lægran (2004), for example, builds her study of the Internet café as technosocial space upon the tradition of social construction of technology (SCOT) and actor-network theory (ANT). In this way, she explores how technology, by the way of its users, produces space and places such as the Internet café. Others, such as Gren (2001), also rely on the ANT tradition, but Gren's main aim is to further develop time-geography from how it was developed originally by Hägerstrand (1967; 1970; 1982). Thus, Gren repudiates much of the critique relating to time-geography, claiming it fails to integrate both human action and structures (see for example, Buttimer, 1976; Giddens, 1984; Gregory, 1985; Harvey, 1989). Gren rather suggests that time-geography has lost much of its power as the importance of the material has been reduced. On the other hand, others, such as Graham (1998; 2005) and Amin and Thrift (2002), aim to explore the materiality of the social world (including new technology) by building on the geographical tradition whereby they 'borrow' inspiration from several other fields of social sciences.

The main contribution of this thesis regarding the status of connectivity as a material precondition of human action is the demonstration of how conditions of connectivity are significant for the ways in which people and institutions act in order to achieve their goal. For example, as mentioned, in Paper 2 it is evident that students' possibility to freely organise their daily life was reduced by the requirements of using the Internet combined with features of how the Internet connections were organised in Bangka Belitung. Hence, rather than being free to study wherever they wanted, students had to study at places where the

technology was located. In Paper 1, I do not consider the technology so much in terms of its technical features but rather how it has been constructed as a symbolic force. In this way, the Internet became a precondition for the master's programme in public administration being established in Bangka Belitung. Thus, this thesis is mainly builds on well established geographical theories rather than new approaches to how technology shapes society.

Finally, it should also be noted that this thesis is not so much concerned about how technology has its own power to change societies, without it being considered a part of social structures. For example, contrary to what is suggested in adaptive structuration theory, I have not analysed in depth the potential of inherent power within technology structures. Further, I have not followed the ANT approach by considering the technology as an actor. Although such perspectives possibly could have added knowledge to how conditions of connectivity are influencing changes in society by way of Internet-supported education, this should form the subject of another project and is not covered by the research presented here.

Diffusion, translation and digital divide: the geography of difference

In Papers 1 and 4, a central approach is what may be called the geography of difference. In both papers the focus is on places, regions, and institutions rather than on individuals' daily practices and their close relations. In these two papers I explore why places differ and why people have different living conditions. Moreover, I discuss how different places contribute differently to a phenomenon such as Internet-supported distance education. In Paper 1, the geography of difference is approached by applying the concepts of *diffusion* and *translation*. Paper 4 explores the concept of *digital divide*. Through these concepts, places and space have been emphasised as essential in order to understand the results of using a given form of communication technology, namely the Internet. Using these concepts I gained insight into why the outcome resulting from the implementation of the Internet in distance education differs spatially. In addition,

spatial separation and differences within cities are discussed in Paper 3, where it is explored how Internet-supported distance education can contribute to social and economic separation within a city.

For writers emphasising economic structures in explaining social change, such as Harvey (1989), space and places are typically considered as a background and a frame for social processes. Alternatively, material structures may be regarded as a result of social structures and thereby constitute space and place. Hence, space and places are not looked upon as having causal power; rather it is believed they are a result of social structures. In other words, social processes create space and place, not the other way around. Harvey (1989), for example, explains the spatially uneven distribution of wealth by the capitalist production structure. An interesting point in Harvey's approach is that it implies that social phenomena, including open and distance education, can be abstracted from their contexts, and thereby also from space. A similar approach to space and diversity is also applied within the 'cultural turn', where space is considered as constructed, and thereby created, by human actors (Simonsen, 1995).

In a more recent work, however, Harvey (1996) has developed his position by strengthening the importance of place when exploring the geography of difference and the process of social change. His re-evaluation of the relation between social structures and place is a result of the need for a better understanding of why local differences occur, despite being influenced by the same economic structures, namely global capitalism. Sayer (2000) provides further insight into this by claiming that space only exists through objects and some objects can only exist through space. Thus, space can be a necessary part of a phenomenon and then create outcome through causality. However, as discussed in the previous section, in critical realism space may also influence society by being contingent upon social structures. Hence, place, understood as context, may be of great importance for how phenomena differ spatially, even if there is no necessary relation between context and the phenomenon which is spreading.

This understanding is in accordance with Kirkwood (2001), who uses similar arguments when he claims that distance education should be understood through local conditions in order to succeed. A similar approach is also applied when Grepperud et al. (2005), as already mentioned, requests more contextualisation

and less standardisation when flexible education is developed. Their reasoning is that a standardised programme will give different results within diverse daily contexts. To give students similar opportunities to participate in distance education thus requires various possibilities for integrating the study into their daily environment. This will include also the possibilities to choose what kind of communication technology should be used. Two other contributions emphasising the power of context have been made by Dunbar (1991) and Ely (1989), who have analysed why Universitas Terbuka (UT) failed during its first years. According to Dunbar and Ely, too little attention was paid to local conditions in Indonesia and how these conditions responded to a global phenomenon such as distance education. The aforementioned approach is, however, in contrast to that of Downes (2001), who argues for a global use of learning objects where spatial differences do not seem to have the power to influence the use of such objects.

In this thesis, space is basically considered as being a contingent relation to the education system and its use of technology. This perspective has been further developed by empirically investigating how the results from the use of new technology depend on the students' daily context and thereby on different locations. In Paper 1, it is argued that even though the same kind of educational technology is applied, the results vary depending on how it is accepted and used by the students. Hence, the users are as much creators as passive adaptors. Hence, too, in line with Latour (1987), the spatial distribution of technology is regarded as being as much about translations as it is about diffusion. The spread of Internet-supported distance education should then be understood and explained by how it is received and changed by students at different places. This will also contribute to a better understanding of why places develop differently. Moreover, as demonstrated in Paper 2, the degree of flexibility is not only determined by an educational institution and its relation to its students. In addition, the students' daily environment and the place, including its people and material objects, are equally important for students' flexibility. From this point of view, I also argue that the results of the use of Internet, by way of distance education, cannot be abstracted from either space or its users when the spread is explored. Rather, we have to look at the translation process, and how the

technology is attached to actors' programmes and the features of the place where the technology is used.

In contrast, Paper 4, emphasises how the use of Internet-supported distance education contributes to spatial variation in living conditions by exploring how the presence of technology impacts on students' ability to participate in higher education. Theoretically, this paper is informed by the concept of digital divide and it empirically explores the results of the uneven distribution of access to the Internet and how it affects participation in higher education. In this paper, (following the discussions in the previous section) I emphasise the condition of connectivity as a material precondition for how wealth is spatially distributed. Accordingly, when discussing the concept of digital divide I reject critiques against the concept claiming that emphasising material conditions makes the concept unsuitable for analysing social and spatial differences. Rather, as suggested in the previous sections, I argue that the material dimension of the concept is interesting and a useful tool for understanding spatial variation in possibilities to participate in higher education.

On the other hand, I accept critiques claiming that the bipolar conceptualisation of differences, between the 'haves' and 'haves not', restricts the analytical power of the concept. If the digital divide is regarded as spatial, such bipolar distinction would imply sharp physical boarders dividing between the 'haves' and 'haves not'. However, this is not likely to happen in the real world. My approach therefore is to investigate what is between the two bipolar groups of 'have' and 'have not'. This has, for example, led me to suggest that the growing urban middle classes may be of interest when searching for a way to bridge the digital divide. This argument is also implicitly supported in Paper 1, where I argue that developing Internet-supported distance education for the urban middle classes may be a step in the right direction to offering poor and geographically marginalised people and places access to higher education.

Thus, at least two approaches to the geography of difference and the study of why a phenomenon differs spatially are applied in this thesis. On the one hand, when Internet-supported distance education has been studied previously, a main focus has been how it has been received and translated by students living at the place where the phenomenon is spreading. Here, the analyses are focused on how

technology is included in actors' programmes and thereby is moving around in the networks that are spatially distributed. The basic reasoning behind this perspective is that people will always differ from one place to another. Accordingly, they will also change similar phenomena into different outcomes. People themselves create a world of spatial diversity. This approach may be labelled an actor oriented approach to the geography of differences.

On the other hand, the geography of difference may be explained by a variation in contexts which is materialised by a variety of local structures. These structures may be material, such as the distribution of infrastructure for connecting to the Internet or they may be social, such as experiences with digital information handling. In this perspective, it is the context which influences the release of potential outcomes from social structures. Using the example of a capitalistic production system, this system will produce different results depending on how it is influenced by local structures (Borgersen & Rye, 2004). The same will be the case with Internet-supported distance education, where the results are not given but dependent upon the context in which it is applied. This perspective may be labelled a contextual approach to the geography of differences.

In this thesis I have aimed to combine both of the aforementioned approaches to the geography of differences by using critical realism as a theoretical frame and a main guidance in my methodological approach. Thus, my intention has been to create knowledge about how differences are created and how to understand them theoretically.

Flexibility: the time-space of distance students' daily life

In Paper 2, a central approach is the exploration of people's everyday life within a time-space dimension, wherein a central theoretical tool is the concept of flexibility. Paper 3 also focuses on the time-space of distance students' daily life, but the flexibility is not discussed explicitly even though the concept has relevance for the discussion.

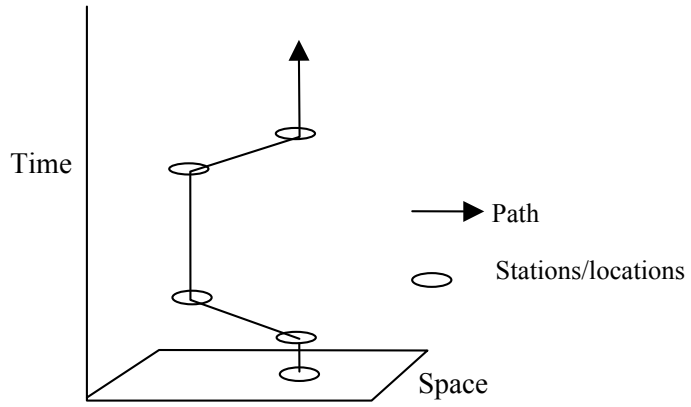
In the literature the concept of flexibility is typically related to the ability to operate in various settings. These settings may be identified by time, space, materiality, and social activities, and they indicate a relation between a phenomenon and its context (Sayer, 2000). Here, the contextual element is the concrete situation surrounding a phenomenon, without this being decisive for either the phenomenon's essence or expression. Similarly, Nylehn (1997) says that flexibility is the ability to vary, both by functioning in different ways in given situations and in being able to tackle different situations in different ways. Hence, flexibility is about change and maintenance (Rye, 2008). When related to space, this implies that flexibility is sometimes about doing the same thing at different places, while at other times it is about doing different things at the same place. However, as will be discussed, it is not always obvious what is going to be changed and what is going to be maintained.

In Papers 2 and 3 a main theoretical frame for exploring students' flexibility and the time space of their daily life is time-geography, as originally outlined by Hägerstrand (1970; 1982) and later developed by, among others, Carlstein (1982), Gren (2001), and Pred (1985). In time-geography, people are considered as purposeful agents moving between 'stations' in order to fulfil their 'projects'. Distance students' daily paths may represent activities such as domestic obligations and work. During the course of each day and week students move through time and space in order to be able to fulfil the tasks related to their studies (Figure 3). They might have to attend face-to-face tutorials at one place, access the Internet somewhere else, and read text books in a third location. On the other hand, time-geography also identifies a life path, which is similar to the daily path but on a larger scale. A person may move for some years to a neighbouring city in order to study. Later, he or she might settle down in some other place. In between, holidays may be spent in their home town, with their parents.

Although time-geography has gained considerable support within the field of geography it has also been widely criticised. For example, it has been claimed that the model does not work well in attempts to explain and understand the movements of individuals. This criticism is basically related to the vague position of both human action and abstract structures (Buttimer, 1976; Giddens,

1984; Gregory, 1985; Harvey, 1989). As a response to these criticisms, I have attempted to develop this frame further in this thesis. This is done by paying more attention to the relation between abstract structures and human action, and, following Gren (2001), by exploring the role of physical objects when actors' time-space paths are explored. In this way, I have continued an approach outlined by Hägerstrand, but one which he did not fully complete, though he himself called for further exploration of the role of human action in regional science (Hägerstrand, 1970). Moreover, he suggested that in the future new communication technology would be of great importance for peoples' daily movements in time and space (Hägerstrand, 1982).

Figure 3: Time-geography (based on Hägerstrand, 1970, 1982).



Recently, there have been several attempts at revitalising Hägerstrand's time-geography approach (Fløysand, 2002; Gren, 2001; Timmermans, Arentze, & Joh, 2002), of which I find Gren's (2001) contribution to be of special interest for this thesis. Drawing inspiration from ANT theory, Gren develops the material aspects of Hägerstrand's thoughts. Thereby, he opposes several critics (i.e. Giddens, 1984; Gregory, 1985) who argue that time-geography does not have the power to explain social action, due to its material orientation. Gren (2001) rather takes the opposite stand and claims that the material orientation is the real strength of time-geography.

If distance education is defined by the concept of flexibility, as for example Grepperud (2005) does when he prefers to label such education 'flexible education', it may indicate that students in some ways are free to study wherever

and whenever they want. In the terminology of time-geography, they are free to create their own day and life path. Hence, students are also independent of space and, to some extent, of time. However, it is argued in Papers 2 and 3 that, to a large extent, this is a misconception. Even though students do not have to go to a campus every day, this does not necessarily imply that they are free to study wherever and whenever they want. In Paper 2, I have rather argued for understanding flexibility in distance education as indicating that study activities can move from one location (campus) to another location (daily life environment). Thus, study activities in distance education depend more on other activities, materialities, and relations within other spatial locations than those found in conventional on-campus education. Further, as suggested in Paper 2, by studying in their daily life environment, students typically will be more dependent on relations with family, work and close relatives (Grepperud et al., 2005; Kember, 1999; Støkken, 1996, 1998).

Regarding the time-space of distance students, new technology is often supposed to release students from such matters and, implicitly, is associated often with flexibility. However, following Graham (1998; 2005), I argue that communication technology will always have its location in a time-space dimension and is not in itself an indication of flexibility. Based on this statement, in Paper 2 I argue that technology has features that may connect students to places rather than making them independent of space. This argument is based on the fact that to use the technology students have to be in touch with it. For the students in Bangka Belitung, this meant having to physically move themselves to the place where the technology was located. Thus, they were not free to study wherever they wanted but rather they had to study at the place where the technology was located, in this case the Internet. Whether they were able to access such places was a mater of negotiating social relations in daily life, whereby control over locations where technology was located was a central aspect.

Hence, technology may facilitate students in studying in contexts other than at campus or close to it. In this respect, such students are flexible regarding their life path as they do not have to spend years of their life in another city in order to gain a higher degree. Rather, they can add an activity into their daily life path at

the place where they live and work. However, whether this works well is not only a matter of constraints regarding their relation to the educational institution, it is also as much about how the social practices in their daily life are organised. In both Papers 2 and 3 it is suggested that gender is of importance for how students are able organise their daily life and thereby also the ability to connect to the Internet. As women seem to have more obligations in their daily life it may be more complicated to find place for an additional activity, such as studying. Moreover, Papers 2 and 3 also demonstrate how students' relation to their work place was significant for how they were connected to the Internet and thereby also for how they could participate in educational activities. As a consequence, the students were highly dependent on the time-space organisation of their daily life context.

The latter issue is also taken up in Paper 3, where I show how the virtual activity is local in its act as well as in the results. My starting point is that Internet-supported education should, following Castells (1996), be considered as 'real virtuality'. Castells uses the latter concept to suggest that the Internet will always have its physical representations, in contrast to 'virtual reality', whereby action is disconnected from spatial dimensions. The students in Jakarta were, as shown in Paper 3, very much dependent on the spatial organisation of the city (as well as close relations), even though they were studying via the Internet. In addition, the result may be spatial; as such education seems to have the potential to contribute to the maintenance of a city's social and spatial organisation. This argument follows Graham (1998), who claims that new information and communication technology reshape our relations to place and space, yet they do not release us from them. Spatial dimensions of daily life will thus be of importance both for understanding how students organise their daily life and the role of technology.

Chapter 3

Methodology and research design

Following the discussion in the previous chapter, I have in this thesis used a qualitatively oriented methodological approach to explore the position of the Internet in distance education in Indonesia, similar to what Sayer (1992) names *intensive research design.* A main methodological feature of this approach is that a particular case, or a small number of cases, is explored to uncover what produces a certain change or action. A quantitative survey method could have been chosen, but following Sayer, this would have uncovered only empirical patterns and distributions in what I have been studying. However, such an approach certainly could have been interesting as I would have been able to reveal how the use of the Internet in distance education is distributed both socially and spatially. In addition, this could have provided information about the conditions under which the Internet typically contributes by adding value to students' study situation. For example, it could have highlighted what the use of the Internet most typically increases or reduces in terms of student flexibility, and under what conditions one or the other is most likely to occur. However, as my main intention was to uncover the underlying processes creating the outcome of the use of Internet in distance education in a developing country, and as resources were limited, this thesis is only informed by a qualitative study. Thus, empirically, this study contains four interconnected sets of qualitative data which are used to analyse my research questions. One set is related to the staff at Universitas Terbuka (UT), a second to students in a Master of Public Administration (MPA) programme in Bangka Belitung, and a third and fourth set related to students respectively in a Master of Management (MM) programme

and a Master of Public Administration (MPA) programme, both in Jakarta. In this chapter, I will describe and discuss the process of collecting and analysing this data.

Entering the field

Conducting research is much about manoeuvring into unknown landscapes, and the unknown is usually a theoretical field whereby the empirical representation is to be found in the researcher's more or less immediate surroundings. In this thesis, however, it is not only theory that is explored but also a totally new physical landscape had to be entered during the research process. Prior to starting, I had some knowledge of Indonesian society, culture and language from earlier research on tourism and entrepreneurship (Borgersen & Rye, 2003, 2004). In addition, I had some experience of research and development related to the use of new technology in the Norwegian school system, where a main focus was the use of portable computers and the Internet inside the classroom (Rye & Simonsen, 2004). At the same time, I discovered the works of Støkken and her fellow researchers and the aspects of distance students' daily life which they had been studying. As a consequence, I became inspired to develop their perspective by using what I already knew about technology and education and also applying a more geographical-oriented approach. Regarding distance education and the use of the Internet in Indonesia, my experience and knowledge had been acquired only from articles and books on the topic.

When Indonesia was chosen as a location for studying Internet-supported distance education the reason was my interest in combining my previous research experiences from both Norway and Indonesia. In addition, I would also be able to use the existing academic connections that I had in Indonesia. Thus, the location was an obvious starting point for approaching my research topic. Hence, the choice of Indonesia was partly pragmatic, but it still fulfilled basic strategic requirements. When it came to choosing empirical cases within Indonesia, the considerations were more explicitly what Patton (2002) describes as strategic.

My first direct encounter with my empirical sources began when I received a positive response to an enquiry directed to Universitas Terbuka. Based on contact with Reidar Roll, Director of the International Council of Distance Education (ICDE), I had previously sent a request regarding the possibility of using their institution as an empirical case for exploring the use of new technology in distance education in Indonesia. As the most significant actor in distance education in Indonesia, UT was an obvious place to start searching for an empirical case, and what I needed was access to study programmes where new technology was applied. In addition, I was looking for variations that could highlight differences within a developing country and allow comparisons to be made.

A meeting was held in January 2004 at the university's campus in Jakarta between me, the head of the research department, and some of the academic staff involved in UT's implementation of new technology in the institution's activities. We agreed that the focus should be on a newly launched programme where new digital technology was supposed to be used comprehensively in a two-year master's programme offered to students in the province of Bangka Belitung. I chose this programme because at that time UT was directing its experiences from earlier attempts at implementing new technology in its activities towards this new programme, and also UT was eager to have outsiders looking into their innovations. In addition, there were already plans to extend the programme to other sites, which meant that I could obtain data from various locations in Indonesia. Thus, I recognised the possibility for directing my initial research question towards relevant empirical sources.

In the course of my research my relations with the educational institution were negotiated during the months following the initial meeting. On the one hand, in the negotiations I was worried about having too close a connection with the institution as this could have reduced the credibility of the data by affecting my views on their practices as well as my relationships with the informants (Patton, 2002). On the other hand, I was very much dependent on working closely with the institution in order to be able to collect the necessary data. For example, UT held essential information regarding how the study programme was constructed and organised. It also had information necessary for selecting

potential students to interview, and for contacting them. In addition, I realised that, to a large extent, I would have to depend on the staff at UT in order to validate the interpretation of the data. Eventually, we agreed on carrying out a kind of joint venture, from which both parties could expect to benefit. This resulted, for example, in me collecting data jointly with one of the academic members of UT's staff, as well as producing a joint publication (Rye & Zubaidah, 2004). To summarise, on my part, the aim of the collaboration with UT was to find a skilled companion that could guide me into an unknown landscape in order to uncover what my research question was addressing. For UT, this was an opportunity to expose their activities to 'fresh eyes' from the outside.

A multi-site case study

Empirically, this project was organised around UT's aforementioned efforts to apply new technology in its new master's programmes, and a main source was the students participating in these programmes. I followed the development and implementation process simultaneously as I explored how the programmes were woven into the students' daily life environment. The object of this research has thus not been a place or a physical location, but rather a phenomenon with different locations, actors, and manifestations. This is similar to what Marcus (1995) calls 'multi-site ethnography', an approach that allows us to explore how phenomena that may be global in nature can be articulated in certain contexts. This approach should be of special interest for the study of distance education, a phenomenon with a fluid character, where students are found in widespread locations. With reference to Yin (1993; 1994), this study also follows the basic characteristic of a case study research design as the Internet-supported distance education has been explored within its real context. The research design used in this thesis could thus be labelled a 'multi-site case study'.

By applying the aforementioned approach, my research has covered different locations in Indonesia, one of which is UT's campus, located in the southern suburb of the capital city of Jakarta. The campus is the coordinating unit and

houses the central administration, faculties with academic staff, a computer and media centre for producing learning resources and running digital infrastructure, a logistics centre for packing and distributing learning resources, a students' service centre, and facilities for graduation ceremonies. My main interest was in the academic activities and administrative personnel working with the implementation of ICT in their activities. At this location, I held interviews and formal conversations with a dean, a vice dean, four members of the research and development department, the head of the computer department, and nine academic staff at UT, including online tutors. In addition, I had several informative conversations with a several other members of staff during the course of my research for this project.

Another location was UT's regional office in the province of Bangka Belitung, which I visited together with a colleague working at UT's main campus. This was located in the provincial capital, Pangkalpinang, and was administrated by the head of the office, who had an academic background. This office was the main link between UT and the 19 students enrolled on the course with regard to practical issues. However, the head of the office also occasionally assisted the students regarding subject matters. The regional office had limited space and was just large enough for two offices and a small reception area for the students. Examinations were held at a local high school, while face-to-face tutorials were held in a nearby hotel. At this site we had formal conversations with the head of the regional office as well as conversations with two external tutors.

From the regional centre we followed UT's activities by visiting and interviewing seven students in their daily setting. All of them were living on the island of Bangka, which was where all of the students in the MPA programme lived and worked. Bangka is the biggest island of the two main islands of Bangka Belitung. Bangka is also where Pangkalpinang is located, a modern city of medium size compared to other cities in Indonesia. Nonetheless, the contrasts became apparent when we went to visit the students living in the countryside and peripheral areas of the island. Life in these areas was very different to that in Pangkalpinang, and the traditional face of Indonesia was reflected in both physical appearances and daily life activities. Despite this, the countryside of

Bangka has been highly influenced by the outside world for a long time, for example by the presence of international businesses such as palm oil plantations and mining. Travelling around the island was rather difficult as the roads were often in poor condition and had suffered frequent damage due to heavy rainfall. It took us about three hours to reach the students living in the most remote areas.

The remainder of the interviewed students all lived in Jakarta, which I also visited with the same person who had accompanied me in Bangka. We first held interviews with 7 of the 12 students participating in the MM programme, and then with 6 of the 17 students in the MPA programme. The infrastructure was definitely much better developed in Jakarta than in Bangka Belitung, although this does not mean that transportation is necessarily easier in Jakarta. Almost constant traffic jams make travelling by car difficult and the public transportation system is not well developed. In Jakarta, we also went out to the locations where students conducted their studies, namely their homes or workplaces. We witnessed great diversity in this city: we visited luxury skyscrapers in the central business district, shabby back streets in the city centre, and peaceful middle-class neighbourhoods in the suburbs.

During the course of the research project, 2004–2007, I spent several months of each year in Indonesia. Between the field visits, I stayed in Yogyakarta, a city located on the island of Java, about one hour away by plane from Jakarta. There, I spent time learning the language (Bahasa Indonesia) as well as working on translations and interpretations, together with my research assistants who were native Indonesians. By staying longer in Indonesia, I was also able to acquire first-hand information and experiences about Indonesian culture and society, which were of great importance for both data collection and interpretation. Yogyakarta was chosen for this means as the University of Agder, where am affiliated, was established there already with a research centre run in collaboration with Gadja Mada University. During my stay in Yogyakarta, I visited the UT campus in Jakarta several times to gather data and hold discussions with members of staff.

Collecting empirical sources

The main method for collecting data was semi-structured interviews, held with informants one at a time. This is similar to what Patton (2002) labels the 'interview guide approach' to data collection. The interviews were organised according to an interview guide, but the guide was not strictly followed and we allowed conversations to develop around some central themes and questions indicated in the guide. Each interview typically took one to two hours, but sometimes we spent several hours with an informant, including being given a guided tour of their neighbourhood and workplace, and being introduced to colleagues and family members.

Most often, only the colleague from UT and I were present during the interviews. However, from time to time, when we held the interviews in Bangka, other persons attended the interview for a while, such as family members, neighbours or colleagues. This may have affected some of the students' statements, as they might not have felt free to speak out. However, following consultation with the colleague from Indonesia as well as the research assistants, these situations are not considered to have been problematic. Rather, it seems that the informants would have considered it inappropriate to close the interview sessions to outsiders, and hence closed sessions could have meant that access to informants could have been reduced. In Jakarta it was only me, my colleague from UT, and the informant that was present during interviewers.

Another possible source of error could have been the fact that one of the interviewers was affiliated to UT. The possible influence of this was checked through informal conversations between me and some of the students, after they had been interviewed. However, I did not find the students to be any more willing to express opinions during these conversations. Rather, it seems that by having someone with me during the interviews who had close connections with those responsible for the programme the students became more engaged.

A more serious problem was my own presence during the interviews and my cultural interpretation of what we had heard and seen. By coming from outside it may be possible to see something insiders cannot see. Nonetheless, much information may be lost in the translation process, both in the literal and the

cultural translation. This problem cannot be removed when conducting fieldwork in a different culture, but researchers can be aware of this potential source of influence on data and inform the reader accordingly.

Besides semi-structured interviews, various methods for communicating between the researcher and the informants were used, including semi-structured group interviews, group discussions, and formal conversations. Beyond the initially planned semi-structured individual interviews, the various kinds of communication with informants were partly pragmatic. The process of data collection was difficult to predict and possibilities for gaining valuable information sometimes appeared unexpectedly. For example, the group discussion with faculty members was arranged without my prior request. Nonetheless, this conversation gave me valuable information about the study programme in Bangka Belitung and how UT considered it. Moreover, when two students were mistakenly allowed time off work at the same time in order to be interviewed, we did not ask one of them to return to work. The challenge in such situations is to take advantage of what happens by accident. In the aforementioned cases we used the situation to observe how arguments were developed regarding the use of the Internet in distance education.

Moreover, the selection of multiple sources was a strategic choice motivated by the strength of methodological triangulation. The aim was to use multiple perceptions to clarify meaning and identify different ways of seeing the object of study (Flick, 1998), or what Patton (2002) has described as triangulation of sources. For example, I checked the students' reported use of the Internet against the internal evaluation report and the tutors' experiences. Further, the structure of the programme described in the information material conflicted with the activities as informed by the students. When any divergence in sources was detected, this gave the opportunity to find out what was actually going on. Also, in the search for why there were divergences in sources, interesting perspectives on why the divergences came about were uncovered.

It was not decided in advance how many informants would be needed. Rather, the selection of data was a result of continues evaluation of what data were necessary to answer the research questions. In this respect, strategic variation may be a key term. For example, we continued to interview students in

each programme until the information we gained no longer contributed much the research question addressed. To make sure we had covered the essential parts of UT's activities as well as the necessary insight into students' study situations we used what Patton (2002) labels the *maximum variation approach* to the selection of empirical sources.

All formal and informal conversations were summarised and the semi-structured interviews were taped and transcribed. In cases where the interviews were conducted in Bahasa Indonesia, the transcriptions were translated into English. During the interviews and conversations, the informants could choose which language they preferred to use, and sometimes this turned out to be a mixture of English and Bahasa Indonesia. All of the semi-structured interviews were carried out by both me and a colleague from UT, who spoke Bahasa Indonesia fluently. Regarding the use of language and translation, it should be noted that the structure of English is quite different from Bahasa Indonesia. Due to this problem, the translation often took the form of interpretation rather than a direct translation. Accordingly, the translation had to be done in close collaboration between me and the research assistant who was the translator. Moreover, discussions with the UT colleague proved useful both when the interviews were translated and also later when they were analysed.

The purpose of interviewing varied from aiming to uncover actual action, intentions, characteristics of relations between actors, and constructions of other actors. It should also be noted that different informants contributed with information of different status. While the staff at UT contributed to the whole picture basically by representing the institution where they were employed, the students, to a larger extent, represented themselves and their own life. The UT interviews correspond to what Löfgren (1996) has called 'key informant interviews' and the latter ones 'respondent interviews'.

In addition to interviews and conversations, the research has also relied on written sources produced by UT. These comprise two internal evaluation reports (Universitas Terbuka, 2004a, 2005), UT's strategy plan (Universitas Terbuka, 2004b), information folders distributed to the students, and UT's website (Universitas Terbuka, 2006). Theses sources were also part of the aforementioned methodological triangulation, and gave important additional

information relating to UT's consideration of its own activities as well as about the structure and organisation these activities. Some of these sources have been entirely translated into English, while others have been only partly translated.

Finally, my own presence at the places where the students conducted their study proved to be of great importance when carrying out the analyses, as well as a source of empirical knowledge. The interviews were always held at the place where the students lived or worked, which typically were also the places where the students conducted their studies. However, sometimes we had to choose a nearby site for practical reasons. For example, as a foreigner, it was impossible to enter the workplace of those working in the army.

One advantage of meeting the students at their place of study was that it involved making the same journey as students had to when they wanted to visit UT at its headquarters in Jakarta or at its regional office in Pangkalpinang, or in order to visit fellow students. Thereby, I gained first-hand information regarding the landscape and cityscape where the students lived. By visiting the students in their home and at their workplace I was also able to gain some insight into how their study activities were organised and what the material conditions in their study environment were like. This experience was also an important source of reference later when I had conversations with UT's staff. My observations in the field were registered as field notes.

Analysing data

The purpose of analysis is to produce findings, whereas the challenge is to make sense of massive amount of data, reduce the volume, and construct a framework for communicating the essence of what the data reveal (Patton, 2002). However, within qualitative research there are few strict guidelines and rules for how to do this, and much depends on which methodological approach is chosen (Patton, 2002; Ryen, 2002). This thesis is founded on a basic assumption about action as embedded in structures enabling and constraining certain acts as well as the presumption that actors can create structures and networks by acting together (see Chapter 2). These assumptions, together with choosing an intensive research

design, give a clear direction regarding what should be the status of empirical sources and thereby also for how they should be analysed.

Firstly, following Sayer (1992), what was registered during data collection has been considered as the results of actions and considerations of both the informants' and others' actions. What created the actions and how different actions were connected were not directly observed, and according to Sayer (1992), Bhaskar (1989), and Giddens (1984), it is not possible to observe these. Still, I consider the actors to be rational agents, but, following how I understand structural networks (see Chapter 2), the rationale is a result of how the actors are connected to other actors. Thus, in this project it has been necessary to rely on theoretical considerations and interpretation in order to understand *why* action occurred.

Hence, when analysing data, on the one hand I have searched for patterns of action and the characteristics of the actors, and on the other hand my interest has been in what is behind what was observed. Accordingly, I had to search for the actors' considerations of events and other actors, as well as for how actors were connected to each other structurally.

In practice, the first step in analysing the data was a categorisation of empirical sources in the search for empirical patterns of *where*, *how*, and with *whom* the action occurred. This search was organised in terms of different themes, such as places where the Internet was used, the close relations involved in the students' study activities, different actors interested in the programmes developed by UT, and different actors' control of resources. When basic patterns were established, the next aim was to explore *why* patterns of actions occurred by establishing logical relations between different patterns. For example, why did the students in Bangka Belitung continue their studies without using the Internet much? The way of going out from the case has been to relate the analysed data to established concepts that have been clarified and adjusted both regarding their purpose and as a result of the empirical analysis. Such concepts include *connectivity*, *flexibility*, *digital divide*, *diffusion*, and *translation* (see Chapter 2).

The theme of the four papers in this thesis resulted from how I searched for theoretical tool with which to understand some dominant empirical patterns and whereby the above-mentioned concepts become central. For example, in my

fieldwork in Bangka Belitung I was able to observe that the use of the Internet in some ways created problems for students, yet still they did not reject the programme. This triggered my academic curiosity and by exploring the theoretical dimension of flexibility in combination with a time-geographical approach I uncovered the relation between distance students' daily life practices, technology and flexibility, which became the theme of Paper 2. Thus, the respective themes of the papers resulted from how the overall research question was confronted with empirical observations and theoretical tools. In the next section I will elaborate further on the status of the data by discussing possibilities of generalisation.

Considerations regarding generalisation

How I approached my cases analytically may further be described with reference to Stake's (2003) classification of distinct interest in a particular case, whereby each kind of interest should be considered as a successive step towards new theoretical knowledge. He describes the first kind of interest as *intrinsic*. In this respect, it is the case as such that matters, not abstractions and how the case fits into a wider pattern of other cases. In this part of my exploration, I was concerned with the story of those involved in the development and implementation of the master's programmes, namely the staff at UT as well as the students participating in the programmes. My main concern regarding UT's staff was with what they had done in their efforts to establish a master's programme, how they organised it, and what they had to do in order to ensure that it would continue. Regarding the students, I focused on their experiences of being part of an Internet-supported distance education programme, what they did as students, and how they viewed their own experiences regarding the use of new technology in the course of their daily life. Moreover, as mentioned, written documents and field trips were also used to complete the picture.

Stake (2003) calls the second kind of interest in the case *instrumental*. Here, the main question is how the empirical case represents the theoretical sphere that is reached. In the case of the research for the present study, this has been about

the use of technology in distance education and how it appears in a developing country. The intention behind such an interest is, according to Stake, to acquire knowledge that goes beyond the selected case and which prepares the ground for some sort of generalisation. This interest is what most writers have described as the final goal of case study research (e.g. Glaser & Strauss, 1967; Ragin, 1987, 1992, 2000; Yin, 1993, 1994). However, while generalisation is often associated with statistical methods, most research using case studies has to rely on other ways of acquiring knowledge beyond the empirical units of investigation. The most common form is to infer analytically from the investigated case to a theoretical universe by way of conceptual clarifications (Glaser & Strauss, 1967; Yin, 1993, 1994). Another possibility is to transfer knowledge gained from one case to another (Stake, 1995, 2003). The question is then about what can be learned from a single case.

In this thesis, both approaches to generalisation are applied. By investigating the selected cases I have developed central concepts such as 'flexibility' 'diffusion and translation', 'digital divide', and 'urban space', in order to explore the relation between the use of new technology and distance students in developing countries. These concepts have prepared the ground for tracing underlying processes of importance for how distance students conduct their daily life and how places are shaped (see Chapter 2).

The third and final way of approaching a particular case is described by Stake (2003) as though *collective* interest, and this is an extension of instrumental interest. Here, the number of cases is extended in order to gain a better understanding of the theoretical universe explored. Contrasting, confirming, and extending the initial case can motivate such extension.

My extension of the number of cases from the one from Bangka Belitung to also cover two master's programmes offered to students in Jakarta, as well as UT's organisation at the main campus, should be seen in this light. In this way, it was possible to follow the processes of the education programme implemented, and thereby prevented the risk of hasty conclusions regarding the role of the Internet in extending access to higher education. If what had happened in Bangka Belitung alone had been considered, then the conclusion might have been that the Internet tends to reduce access to education when it used in a developing context.

Rather, by studying several cases, I have concluded that the Internet may be useful for marginal areas, despite the history of limited positive results for students in certain cases.

Chapter 4

Key findings and conclusions

In this chapter I will present some main conclusions resulting from applying the aforementioned theoretical perspectives (Chapter 2) to my empirical sources (Chapter 3). The conclusions are mainly drawn from the four papers, but then reconsidered, as it has been possible to make a retrospective review of all the papers in relation to each other. To some extent, the following conclusions therefore may differ compared to those reached in the single papers presented in Part 2.

Firstly, in the thesis it is argued that communication technology is significant for students in a developing country, not only for what it actually does for their study situation, but also by way of the expectation constituting the symbolic power of such education. While other researchers are critical when the main position of the new communication technology becomes symbolical, I argue that the symbolical power of ICT is just like any other resources, as it about enabling and constraining action. In this thesis, for example, I have demonstrated how the symbolic power of ICT made possible the spread of distance education to a remote area. By attaching the Internet to their project, Universitas Terbuka was able obtain the necessary support from political authorities, as the study programme appeared to be of high quality and at the forefront of educational development. Thereby, the Internet was supportive for the students, even if it did not contribute much to improving their study situation directly (research question 1).

Secondly, new communication technology is often associated with flexibility in time and space, and this may be the case in many study programmes. This research, however, shows how the Internet does not necessarily contribute to

flexibility for students living in remote areas. Rather, to some extent, the flexibility may be reduced. In this thesis it is argued that the result, increased flexibility or otherwise, is not only a matter of the features of the technology but is also as much about the place where the technology is used. In Paper 2 this is approached by exploring how access to the Internet results from the social and spatial organisation of students' daily environment. Thus, the Internet may free students from being forced to move close to a campus. At the same time, however, the technology may force them to make certain patterns of movement in their daily life in order to maintain their position as students. Rather than being at a campus the students had to be in places where the technology was located. At the same time, they had to organise their daily life obligations closely (research question 2).

Thirdly, much of the discourse about distance education stresses the importance of using new technology so that marginalised groups can be reached and offered higher education. This study, however, shows that Internet-supported education can be very suitable for students from the urban middle classes. For such students, it is not the physical distance to a campus that seems to be the main reason for attending distance education. It is rather the features of the urban landscape and the social organisation of the city that obstructs such students from attending conventional university courses. Tight working schedules and dysfunctional transportation systems make movements in the city a serious constraint regarding attending higher education courses. Hence, the use of the Internet may appear to be a practical alternative to being caught up in traffic jams when attempting to communicate with an educational institution and fellow students. In this respect, my study also demonstrates how the use of the Internet in higher education has the potential to produce and reproduce social segregation in the city. Rather than using conventional transportation technology for meeting face-to-face, access to the Internet enables people to remain in their original location and thereby avoid direct interaction with other social groups (research question 3).

Fourthly, it is commonly accepted that the uneven distribution of access to higher education contributes to an uneven distribution of wealth, and the Internet is widely used to reduce this inequality. In this regard, a main conclusion in this

thesis is that students living in remote areas do not benefit much directly from the use of new technology regarding access to education. Those living in central areas are more able to utilise the available technology. Nevertheless, even though students living in remote areas are not much able to benefit directly from the use of new technology it is argued that it still may be worth using it. Students living in such places probably have the greatest need for the technology, and by making an effort to enable such students to study online such places may develop a capacity for utilising the use of new technology (research question 4).

Finally, this chapter started by raising the question of how the Internet contributes to changes for people and places, and during the course of the research it became evident that new technology, in the form of the Internet and how it is applied in distance education, has the potential to contribute to a changing society in multiple ways. The Internet can both support and constrain students in their study activities. It can increase and decrease flexibility in distance education. Through use of the Internet, social inequality can be reduced by enabling access to higher education, but this may also contribute to the reproduction of social segregation. Hence, the outcome of the use of the Internet in distance education is not known, but rather depends how it is received, used, interpreted, and linked to people's projects. Similarly, the outcome of the use of the Internet will also vary from place to place and from student to student. Thus, Internet-supported distance education may be an effective tool if the aim is to create equality in access to education and material wealth. However, as is clearly evident in this thesis, there is no 'one size fits all' when it comes to distance education and the use of the Internet. The results of apparently similar programmes may vary across time and space. Efficient use of this technology in distance education thus has to take into consideration the variety of places and different ways of living daily life, and accordingly the use of the Internet has to be adjusted to changing aims and targets. Distance education is a widespread and global phenomenon, but the solutions should be local (all research questions).

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Part 2

Paper 1

Negotiating the symbolic power of ICT:

The spread of Internet-supported distance education

Is not included due to copyright

Paper 2

Flexibility, technology, and the daily life practices of distance students living beyond the digital mainstream[3]

Abstract

In this paper it is argued that even though communication technologies release distance students considerably from their dependency on a campus, students are still very much connected to places in their daily lives. These connections are constituted through the "placing" of technology, the students' relations to people in their daily lives and the students' relations to the education institution. Communication technology not only releases students from the spatial dimensions; it also attaches them to specific places. It is argued that the use of technology in distance education can reduce the students' flexibility even if they do not have to attend campus regularly. The empirical analysis presented in this paper is based on a case study of a Master's degree programme in Public Management offered by Open University Indonesia (Universitas Terbuka).

Keywords: flexibility, space, place, distance education, technology, students, Indonesia

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Introduction

In recent years distance education[4] programmes have been developed on a large scale and today constitute a considerable part of the world's tertiary education programmes. This is a process going on all around the world, but developing countries are where this process is most noticeable (Albach. 1999; Perraton. 2000; UNESCO. 2001). Lately new communication technology, such as the internet, has been widely applied in distance education programmes in order to reach those who are unable to enrol at conventional universities. By way of such technology, students are supposed to be able to study wherever and whenever they want, and thereby gain the flexibility necessary for conducting their studies. Although flexibility has become a norm within distance education (Edwards, et al. 2002), it is remarkable how little attention has been given to critical approaches to the norm of flexibility and the position of technology within the academic literature about distance education. In this study I will critically examine what, and how, the use of communication technology contributes to distance students' flexibility. My focus is on students living in remote areas in developing countries. The question asked is: *How do the new communication technologies influence the flexibility of distance students living in a developing country outside the digital mainstream?* The aim is to investigate how new communication technology influences such students' daily life practices and their movement in space, between places, in order to fulfil their study-related tasks. A main concern is how the students' connections with the education institution and other significant social relations in the students' daily life influence each other. I will approach these questions by means of empirical data collected through a study of students participating in a distance education programme in Bangka Belitung, a relatively remote area in Indonesia. In the next three sections, I will present some theoretical concepts about the relation between students' daily lives, technology, space and flexibility.

[4] In this paper I use "distance education" as an overall term for the kind of education described in this paper. However, there is an ongoing discussion regarding the labelling of such education. For further discussion see Allen and Seaman (2006)

The "placing" of distance education and the use of new technology

It has been widely argued that the development of new communication technologies reduces the frictions of space and enables people and institutions to operate more independently of specific locations (see Castells. 1996; Graham. 1998; Graham and Marwin. 1996; Harvey. 1989; 1996). This feature of the new technology is of special interest for distance education, which by its nature seeks to release the students from a dependency on a specific place, such as a campus (Evans. 1989). By using such communication technologies as letters, telephone, fax, teleconferencing and the internet, the necessity of a physical presence on campus is reduced. This is a process that has been going on for a long time, but new communication technology, such as the internet, has in many ways accelerated this process (Armstrong. 2002; Rumble. 2001). It is now possible for a student to attend an MBA programme offered by a North American university even if she is a UNCEF worker living in a tent in Somalia or a casino operator in Poland (DeSanctis and Sheppard. 1999). However, it is a common misconception that by releasing students from the necessity of regularly attending a campus, they become free to study wherever they want. Yet, even before the "digital revolution", Hägerstrand (1982) asked for further investigation of how new information technology influences a person's spatial movement. Gren (2001) later called for further elaboration of the importance of the material dimension of Hägerstrand's thinking. Others, such as Hinchliffe (1996), have emphasised the importance of space when it comes to the geography of technology. Others arguing in this vein include Green et al. (2005) who stress the importance of space in their analysis of European public sector attempts to create an image of itself as operating in virtual networks. In sum, it may be claimed that there is no necessary connection between being free from campus and being independent from space and place in general. In this paper I aim to pursue Hägerstrand's ideas of how new technology influences a person's connections to different locations.

The conception of distance students as virtual objects existing more or less independently of space probably originates from a simplified understanding of what it means to be a distance student and how students depend on technology.

First of all, the relation between students and education institutions is only one of many significant relations that characterise distance students' study situation. Several studies have shown how the daily life environment of family, workplace, friends etc. plays an important role in how distance students perform (Bhalalusesa. 2001; Folkman. 2002; Grepperud, et al. 2005; Kazmer. 2000; Kember. 1999; Murphy and Yum. 1998; Saw, et al. 1999; Taplin and Jegede. 2001). This suggests that even though students are released from their need to physically attend a campus, they might have other significant social relations at specific locations that attach them to specific places. So when students are claimed to be free to study wherever they want, it quite often means that it does not matter to the education institution where they study, as long as they can complete the tasks they are given as students. From the students' point of view the question of where to study might be quite different. They will normally have their own significant connections to places and people in their daily lives, independently of their relations to the education institution which may determine where they have to study.

Secondly, new communication technologies can obviously reduce the friction of distance between students and the education institution (see: Henning. 2001; Kirkwood. 2001; Rennie. 2003; Swartz and Biggs. 1999). However, this does not imply that students who use technology exist in a virtual space independently of any physical location (Kitchin. 1998). A computer and its user will always have a location; even though technical solutions can be more or less mobile and flexible.

The above discussion underscores the fact, as put forth by several social theorists, that all social and physical objects, as well as human actions, will always be situated in time and space (Bhaskar. 1989; Giddens. 1984; Harvey. 1989; Lash and Urry. 1994; Sayer. 1992). And, it is argued, new information and communication technologies have not changed this basic tenet (Cosgrove. 1996; 1995; Kitchin. 1998; Robins. 1995). Distance education thus always "takes place" somewhere (Evans. 1989; 1995). How this "placing" appears will also influence how the students' study situation is constituted, and through that the students' daily lives. In this paper I will approach this placing through the concept of flexibility.

What does it mean for students to have flexibility?

In the academic literature flexibility is often referred to as a feature of an actor or a system in which movements in time and space are made possible (See: Castells. 1996; Harvey. 1989; Lash and Urry. 1994). Such features might include the ability to change, but typically then in order to maintain some basic characteristics of the actor or the system. In other words, flexibility has to do with the ability to operate in different environments and still sustain basic features. Distance students' flexibility may be characterized by the extent to which they are able to be students in different places (Edwards, et al. 2002; Støkken. 1996). In this respect it is often the students' relation to the education institution and the campus that is emphasized, as flexibility is typically seen as not being "forced" to go regularly to a campus. However, following Grepperud et al. (2005), this also shows us how students are connected to places and people in their daily lives. Freedom not to go to campus might be the same as freedom to sustain basic features of their daily lives.

Nevertheless, even though the students, by having flexibility, can maintain basic features of their daily lives, this does not mean that their lives do not change as they become distance students. For many students life changes rather dramatically as they have to integrate study activities with other daily tasks and obligations. Whether they are able to do so depends on their ability to rearrange their daily lives so as to encompass all these tasks and obligations (Kember. 1999; Støkken. 1996). However, as Sayer maintains (2000:115): "*social processes do not occur tabula rasa but always 'take place in' within an inherited space constituted by different processes and objects, each of which have their own spatial extension, physical exclusivity and configuration"*. Therefore, to be a distance student is a time-space matter, irrespective of the students' "freedom" to study wherever they want, and research on flexibility should focus on analyzing and identifying particular kinds of objects, relations and processes constituting concrete spatial conjunctures (Sayer. 2000:112). The purpose of this paper is to carry out such an empirical analysis of how technology matters for students' use of space and how technology affects their flexibility.

Time-space of distance students

To identify the concrete spatial conjunctures in students' daily life and thereby their flexibility, *time geography*, as originally outlined by Hägerstrand (1970) and later developed among others by Carlsten (1982) and Gren (2001), may be a useful frame. In time geography, the individual's biography is charted as a path through time-space and locations. People are seen as purposeful agents moving between "stations" in order to fulfil their "projects". Following Hägerstrand, Pred (1985) suggests that the choreography of existence can be understood as an interrelation between daily path and life path. Distance students' daily paths may represent activities such as domestic obligations and work, and the life path can be represented by students' decision to study at distance (Evans. 1989). During each day and week students move through time and space in order to be able to fulfil the tasks related to their studies. They might have to attend face-to-face tutorials at one place, access the internet somewhere else and read text books in a third location. These activities need to be coordinated with other tasks in their daily lives, such as domestic obligations and work, which have their own spatial properties. It can be claimed that the distance students' daily life practices is about movement between places where resources for studying, including technology, are located.

Time geography may be a useful frame for the empirical identification of students' movement in time-space. However, critics claim that the model is unable to explain and understand the movements and the effects they have on individuals, and that it lacks the ability to integrate human action with interpretations and abstract structures (Buttimer. 1976; Giddens. 1984; Gregory. 1985; Harvey. 1989). To counter such criticism, it is important to regard space as a result of our understandings and interpretations of spatial formations, which necessarily include objects constituting the space (Sayer. 2000). This might include interpretations of social objects, such as a colleague, a physical object such as a computer or the understanding of the spatial dimensions between such objects. For example, a computer with an internet connection located in a public sphere of the workplace may not appear to be a learning tool. This might be in contrast to a computer located in a more private place. In this way, the meaning

of space does not only constitute the computer, but also its relation to its users, and then the users themselves.

In this paper I will approach the students' daily lives by investigating how their praxis is structured in time and space and by exploring how technology transgresses and constrains limitations in the time-space structuration. As suggested in the previous section, I will emphasize underlying structures of importance for how the students construct and act in their daily practices, through a discussion of the students' connection to the education institution and to significant relations in their daily lives, such as the workplace and family.

Distance education in peripheral locations in Indonesia

In most developing countries the education sector is growing fast and the demand for higher education is increasing, which is also the case for Indonesia (Kuntoro and Al-Hawamdeh 2003). However, this situation is not a new one. Already in the 1980s, the Indonesian government established Universitas Terbuka (UT) as an open state university. This was a response to a rapid increase in the number of high school graduates who were unable to access regular state universities. Another aim was to provide further training to improve the educational qualifications of a vast number of primary school teachers throughout Indonesia. It would have been impossible to train these teachers on campus, as this would leave a great number of primary school pupils without teachers (Zuhairi et al., 2006). Eventually, new groups of students have been admitted to a wide variety of programs offered by UT. From the very beginning the aim has been to reach out to those who have not been able attend conventional universities for various reasons, such as geographical and social marginalisation and a dependence on keeping their jobs.

Before 2001 UT was the only university in Indonesia which was allowed to offer distance education. However, in 2001 the distance education sector was partially deregulated and other institutions were allowed to enter the market as long as they could fulfil a set of requirements laid down by the Ministry of

Education. One reason why the government decided to apply this deregulation was to support institutions to expand their activity by the way of e-learning and reach out to isolated places in Indonesia. At the same time, by setting the requirements they attempted to ensure the quality of new programmes. One such requirement was that the education institution should be able to operate an online learning supporting system (Kuntoro and Al-Hawamdeh 2003). It may be claimed that in the Indonesian context new technology is considered a panacea to solve the problems of development, which Mercer (2005) claims often has been the case in large parts of Africa. This may be supported by the fact that several actors, such as the United Nations Development Programme (UNDP), the World Bank Institute and several private businesses, now promote e-learning a as an important tool for the expansion of higher education. However, the Indonesian government's belief in communication technology is not blind, as it also requires universities to establish a decentralised system of regional centres before distance education programmes may be set up (Kuntoro and Al-Hawamdeh 2003).

A case study of a Master's degree programme in Public Administration

The empirical data for this paper have been collected through a case study of a distance education master's degree programme in public administration[5] (MPA) offered by Universitas Terbuka (UT) in the province of Bangka Belitung, Indonesia. The province consists of two major islands, Bangka and Belitung, and 189 smaller islands with a total population of about 1,000,000 people (BPS. 2005). The capital city, Pangkalpinang, is situated on Bangka.

The infrastructure of the province is generally poor both in terms of conventional infrastructure such as roads, electricity and telephone lines as well

[5] When the empirical data was being collected, the study programme was named ACP (Advanced Course Programme). This term was used by UT while pending a formal acceptance from the Directorate General Pendidikan Tinggi (GDPT) for designating the degree obtained from the programme a Master's degree. The formal acceptance from GDPT was obtained in September, 2005. The Indonesian name of the degree is now "Magister Administrasi Publik".

as new infrastructure such as internet connections. Private internet connections are rare and there are few public access points. Some computers can be found in various offices, but these are usually shared by a number of people, and there are few internet access points. In Indonesia internet cafés are the main venues for connecting to the internet (Kristiansen, et al. 2003; Wahid, et al. 2004), but in Bangka Belitung there are only a few of them. During my field work, I could identify only three, which were all located in Pangkalpinang. As for higher education, there are several private institutions located in Pangkalpinang. However, the province does not have a state university or a well recognized private university. The nearest state university is found in Palembang, about seven hours away by land, or in Jakarta, which can be reached in about one hour by plane.

As a result of the new era of political reform in Indonesia, after the year 2000 the governmental system has changed from centralization towards decentralization. As part of this process, several new provinces were established. One of them is Bangka Belitung, which was formerly a part of South Sumatra Province. Over the last few years a new provincial administration has been set up, and as the level of education is generally low, there is an urgent need to develop human resources for the administration of the province. For students who wish to upgrade their skills through higher education, the local universities have been considered too expensive and of poor academic quality. An alternative has been to obtain the necessary skills by leaving the province. Another option has been to enrol at UT, but until recently UT has only offered undergraduate programmes. However, in 2003 UT launched a new graduate programme in public administration, the MPA. After a selection process, 28 students were admitted to enrol in the master's programme. Candidates were selected in a two-step process. First there was an academic test of basic knowledge in public administration and English. English language proficiency was required as some of the course materials were in English, and the students were supposed to use internet resources in English in their studies. The second part was an administrative selection process where students were asked to provide official endorsement from their superiors, as well as documentation of computer literacy and internet access. Of the 28 candidates who passed the selection process, only

19 decided to enrol in the master's programme. The students were located around the island of Bangka, up to three hours by car from Pangkalpinang, Most of them worked at different levels of public administration, but others, e.g. a journalist, also attended the programme. The students were between 27 and 56 years old. Only two of them were women.

The mode of study in the MPA was based on compulsory face-to-face and online tutorials. The face-to-face tutorials were held three times each semester and comprised a mix of lectures and discussions. Online tutorials were scheduled to take place eight times each semester and were linked to compulsory assignments. In addition, students could access web-based discussion groups related to the study programme and they were encouraged to stay in contact with UT over the internet. The web-based communication tools were organised in a learning management system (LMS). UT also developed a multi-media CD covering some basic topics related to the study programme. The web technology was mostly developed by UT's main office in Jakarta. The students themselves were expected to gain access to computers and an internet connection. In the end, however, even though communication technology was supposed to play major role in the study programme, the basic instructional material was printed books.

The master's degree programme was strictly scheduled and organised into modules comprising assignments and tutorials. Even though the students were supposed to follow a fixed schedule, they were free to find their own way through the programme as long as they completed the compulsory parts. As a result, by March 2003 12 of the students were, for various reasons, listed as passive students by the regional office, as they did not take part in organised activities related to the programme. When UT use the term "passive", not "drop-out", this is partly a symbolic characterisation intended to convey to the student that once you have been enrolled at UT, you will always be welcomed back. In this case UT expected most of the students to complete the programme at a later stage.

Conducting the study

The empirical data used in the study were collected through a case study of the MPA study programme during its second semester and compiled from several different sources. The main source was interviews and conversations with students who took part in the programme. Seven students were interviewed in depth and informal conversations were held with the twelve other students. The seven in-depth interviewees were specifically selected in order to achieve variation in age, residence and occupation from the 19 students who participated in the programme. The informal conversations were used to find out if there were other "stories" that ought to be covered by in-depth interviews. The only known missing source of presumable interest was an interview appointment with two female students which was cancelled, for reasons still unknown to the author. It proved impossible to make a new appointment later.

The second source of data includes interviews and conversations with several key persons in the development and implementation of the MPA. These informants were the dean, the vice dean, the head of the computer department, members of the research and development department, members of the multimedia department, the head of the regional office, academic staff at UT and external tutors/lecturers. The third source of data was official documents published by UT. All the data were collected between February 2004 and March 2005.

The formal interviews were jointly conducted in Indonesian by a native Indonesian who has been a co-author on a paper related to the same case (Rye and Zubaidah. 2004), and the author, who speaks some Indonesian. All the interviews were recorded. After transcription the interviews were translated into English. More informal dialogues were held by the author in a mix of English and Indonesian and were not recorded or transcribed. Regarding translation it should be noted that as the structures of Indonesian and English differ to a great extent, the translations had to take form of interpretations rather than direct translations, and where necessary spoken English has been rendered as standard written English. This was done in close cooperation between the author and the research assistant who carried out the translation.

In analysing the empirical data, the focus has been on relating the students' actions to their daily study activities, with special attention given to the use of technology. Being unable to follow the students in their daily lives, I have been required to rely on the students' own activity reports. For several obvious reasons such reports might be incorrect. However, when the students used communication technology they were usually communicating with tutors and other students and parts of this activity would also be recorded, such as the students' use of discussion forums. Thus to some extent I have been able to validate the students' narratives through interviews and dialogues with other students, tutors and administrative staff.

Finally, Bangka Belitung is quite far away both physically and culturally from the daily surroundings of the author, who lives in Norway, and cultural barriers have sometimes been difficult to overcome in the interpretation process. Hence I have needed much external assistance, both from the colleague conducting the interviews and my research assistant when the interviews were analysed. It was, for example, not always obvious to the author what the informants referred to when describing their family relations. Additional help was needed to fully comprehend the prevalent hierarchical social organisation at the work place, which would frustrate the efforts of some subordinate staff members, and render it possible for others to use office computers for study purposes.

The maintenance of the students' daily life practices

To be a student depends on a formalised relation to an education institution and maintenance of this relation normally presupposes certain conditions to be met. The education institution has to deliver some kind of sources for learning with guidance, and the students have to carry out certain tasks to prove that they are complying with the demands of the education institution. In conventional higher education normally the campus is the place where most of these requirements are fulfilled. This is where lectures are given, students have their exams and so on.

The campus is both a practical and a symbolic place constituting education through face-to-face meetings between students and representatives of the education institution. This entails students to attend regularly the campus, and this effectively also requires that the students live not too far away from the campus. This feature of higher education was to some extent changed in the MPA. One of the students, Sapto[6], expressed it this way:

> *"In general, it is quite like studying in another university, and I am glad I was accepted as a student at UT. The important thing for me is that I do not have to go that far away from home to join the lectures and so on; I can still continue to live here." (Sapto, student)*

In the first sentence Sapto emphasises the similarities between the MPA and conventional universities. He considers himself a student in a *university*. The same basic requirements for the relation between students and educational institution were there. He had attended lectures and tutorials and read his books. In the last sentence the differences come out, UT appears as a university even though the master's degree programme was given at distance. He did not have to travel to a campus to fulfil the requirements of being a student. Consequently, he could continue to live in the same place while he was following a master's programme.

The connection to the education institution was supposed to be maintained by means of communication technologies such as mail and the internet. Three times each semester Sapto would attend face-to-face tutorials, and sometimes he went to the regional office to make practical arrangements related to his studies. Whenever there were face-to-face meetings, the understanding of campus was changed, as these were not held at a university site, but rather at a convenient location somewhere else where academic staff and students could meet. For Sapto and his fellow students the face-to-face meetings were held in a conference room in a hotel in Pangkalpinang. By such arrangements the educational institution did not need to force the students to live near a university campus, nor did the students have to show up there regularly. Altogether, for Sapto this brought about a situation where he did not have to change his place of residence

[6] The names of the informants are pseudonyms.

in order to carry out his obligations towards the educational institution. The "life path" of Sapto took a specific direction, as education was accessible close to where he lived.

The next question might be why Sapto and other students would choose a life path where they could continue essential parts of their life? Why did they want to receive their education in Bangka Belitung? In exploring this we can start with an excerpt from an interview with Dwi, one of the students living in Pangkalpinang, who gave the following statement when he was asked if he rather preferred conventional education:

> *I would rather prefer UT because I can study wherever and whenever I want. I don't think I have enough time for conventional classes and also I would have been worried about the financial situation. By studying at UT I can keep my job. (Dwi, student)*

In the first sentence, where he states that he can study "*wherever and whenever"* Dwi, like Sapto, stresses the advantages of not being forced to move to another place in order to take higher education. The important point here is the absence of any constraints by the education institution on where to study. However, the last sentence in his answer indicates that he was not really free to study wherever he wanted; on the contrary, Dwi was dependent on studying in a place and time which made it possible for him to keep his job in Pangkalpinang. This indicates a major constraint on his daily life regarding his ability to study. The necessity of having a job kept Dwi attached to the place where he lived. This student was thus not able to dramatically change his life in order to obtain further education by moving to a place where he could be closer to a campus. One of the local private universities could have been an option, but Dwi did not consider this as an option as he found the quality too low, and the price too high. It was of great importance for Dwi, as it was for Sapto, that UT is a recognised state university.

For Sapto and Dwi the face-to-face tutorials were not considered a problem. They did not interrupt too much in their daily lives as they were held not far from their workplace and the place where they lived. For students living further away from Pangkalpinang, the situation was different, which was the case for Faisal:

> *"I am not really able to attend the face-to-face tutorials all the time because of my job or other obligations. I have a house and a family to be taken care of." (Faisal, student)*

As Faisal lived in a remote area about two hours from Pangkalpinang all kinds of conventional higher education would be out of reach if he were to maintain the basic features of his daily life. For him even the few face-to-face tutorials were seen as constraints. Not only would he have to spend time in Pangkalpinang, but time would also be lost in transportation to the tutorials. Even though the face-to-face tutorials were supposedly compulsory, UT accepted that the students missed a few of them. Still, by dropping out of the face-to-face tutorials Faisal felt he lost access to an important learning arena.

For all three students, obligations at home forced them to study at distance. Considerations about in which city to study were not relevant. They had their established lives and places to live, and the question was how to find education that could fit into their lives at that specific place. For the two students living in Pangkalpinang UT was seen as a good option, while for Faisal UT was the only option. It could be argued that they could just have taken a leave from their jobs and attended a conventional master's programme in another city. But financially this would have been difficult, and in Indonesia employees will rarely obtain a leave of absence from their jobs.

Hence, it can be argued that these students did not made an active choice to maintain basic features of their daily lives, such as keeping their jobs and remain living in the same place. Their choices were limited to what was possible to integrate into their daily life. When the students wanted, or following the above line of reasoning, were forced, to study at distance it might not be because of the didactic approaches taken within the distance learning programme, but rather because the programme structure enabled them to continue their daily lives. Nevertheless, it was not an easy task for any of the students to integrate their studies into their daily lives. Students with no experience of distance learning were actually quite surprised about these difficulties. Said Dwi:

> *"I thought that UT would be simpler than other universities. I thought that we would just get the modules, study independently and then have an examination. In fact UT is much more complicated." (Dwi, student)*

When Dwi preferred to study at UT it was, just as for the other students, because it enabled him to maintain his daily life at the same time as he was a student. However, as seen above, this was not an easy task; it was rather *"more complicated"*. To be able to complete his master's, Dwi and the other students, had to arrange their daily lives completely. In the next section I will examine further what made this complicated.

How technology connects students to places

Even though several of the interviewed students said they were free to study wherever they wanted, the interviews point out four arenas or places of particular importance for their study activities. These were home, workplace, internet cafés and the place where the face-to-face tutorials were held. In addition, some other places were mentioned such as the premises of a private business company. From UT's side, students were not required to do their study at any of these places except the place for face-to-face tutorials, as these were compulsory. However, the students were required to use the internet as part of their communication with UT. Below, I will further investigate how this requirement influenced the students' use of space in their daily lives by looking at the workplace, the internet café and home as locations for studying. The starting point is an interview with Wawan, a young journalist living in Pangkalpinang. After he had claimed that the internet was an important tool for his studies we asked him about his access options:

Interviewer:	*Do you have internet access at home?*
Wawan:	*No I don't. I access the internet in an internet café.*
Interviewer:	*How about at your workplace, is it equipped with internet?*
Wawan:	*Yes it is. I usually access the internet there at midnight, after I have finished my work. If I am not so tired, sometimes I then do the on-line tutorial from my office, but in the afternoon I do it from an internet café.*
Interviewer:	*Do you go to the internet café often?*

Wawan: *Yes I do. I prefer to access the internet at the internet café because the line is more stable and faster.*

To be able to use the internet as a resource for his studies, Wawan had to be in a place where he could access the net. In the interview he pointed out two such places, the office and an internet café. Wawan did not consider using the internet connection at his office for study purposes during business hours. Later in the interview he claimed both he and the office were too busy, and he did not feel comfortable studying there during what were considered regular work hours, even if his superior did allow him to do so. If he were to use his workplace for studying, he would rather stay behind after finishing work, late in the evening. Then the office would be quiet and he would feel free to study. However, this option was not used frequently. Wawan said he was often quite tired when he finished his work at midnight and the internet connection at his work place was not of good quality.

Consequently, Wawan preferred to use the other option, the internet café, which was located just ten minutes away from his home. Usually he would go there around noon or in the afternoon, depending on his work schedule and family obligations. About three times a week he would go there, spending up to three hours online each time. He would then both study and use the internet for private purposes. At home he also had a laptop, but an internet connection through a private dial-up line was about three times more expensive than using an internet café and a connection at home was not considered an option.

A similar story was told by Dwi, but he found another way to organise his study activities:

Interviewer: *Do you have a computer at home?*
Dwi: *No I don't. I have only access to one computer; that one is in my office.*
Interviewer: *Do you sometimes study at the office in the evening and how often?*
Dwi: *Yes sometimes I do, maybe about three times a week, usually after work. I go home for a few minutes and then back to the office to study.*
Interviewer: *Is the office far from your house?*
Dwi: *It is about four kms, around ten minutes by motorbike.*

As we see from the interviews, Dwi, like Wawan, did not feel comfortable using his workplace computer for studying while his colleagues were there. However, Dwi considered his office the best place to go to when he wanted to get in touch with UT over the internet, but it had to be done in the evening when the others had left the office. He would first go home to have dinner and socialise with his family, and then go back the four kilometres to the office to use the internet when there was nobody there. He created a time-space path through his daily life where it was possible to combine studies, work and family. Nevertheless, as mentioned above, Dwi considered this quite *"complicated"*. Even though this basic path was quite simple and the situation was manageable it was, as he said, always *"interrupted"*. Sometimes he felt he had to spend more time with his family; he was too tired to go back to the workplace for studying; or he had to attend a wedding, funeral or meeting in his neighbourhood. He constantly felt short of time to go to his workplace to go online.

Booth Dwi and Wawan saw the necessity of staying in contact with UT through the use of the internet, but the lack of internet infrastructure and difficult conditions at the workplace made this difficult. Nevertheless, they both managed to create a time-space pattern of their daily movement through time-space that allowed them to fulfil the requirements of being a student. But this depended on their ability to be at certain places, at certain times, when studying would not conflict too sharply with other obligations. In fact, their possibilities for using the internet for study purposes were severely restricted. So it can be argued that even though UT did not require the students to be at specific places (except for the face-to-face tutorials), the requirements of having to use technology forced them to go to certain places, the office or a nearby internet café, several times a week. The localisation of recourses for communicating with UT created the spatial pattern of their daily life practices. As we saw in the last section, the students were free to study where they wanted in terms of not being forced to go to a campus, but in their daily lives their freedom to study wherever they wanted was restricted by limited internet access.

At the same time, it seems appropriate to question the actual importance of this restriction on the students' ability to follow the programme. First, even though the MPA was an internet supported distance learning programme, this did not mean that all their studies required use of the internet. In fact, most of the study activities involved reading and writing assignments, in addition to the face-to-face tutorials. Using the internet was only required for a small part of the study activities and this can not be claimed to be a crucial part of their daily life structure. Nonetheless, from the interviews we get the impression that to the students the use of the internet was a core activity in their studies. If they could not stay in touch with UT, it was difficult to continue to be a student. And the structure of the study gave the internet a key position in this.

Secondly, even though formally all the students were supposed to use the internet regularly, most of them did not. The main reason was a lack of digital knowledge and distance to an internet access point. So it can be argued that the limitations in internet access were not very important, as it was in fact an option for the students rather than a formal requirement, and the students could continue their studies without using the internet. To explore this, we can consider the interview with Faisal, who lived quite a distance from Pangkalpinang and did not use the internet regularly:

Interviewer:	*What do you think about using technology such as computers, internet, and CDs when you study?*
Faisal:	*It is difficult, as there is no connection to the internet in this area. We even do not have any phone lines here. We have to go far away to access the internet. It's a problem as I don't have enough time to do so because of my job.*
Interviewer:	*Approximately how far is the internet cafe from your house?*
Faisal:	*About two hours from here.*
Interviewer:	*If you hadn't had any problems with internet access, what system would you prefer?*
Faisal:	*I would rather study through the internet than by face-to-face tutorials. Then I would not have to go to Pangkalpinang to access the internet.*

The distance from the student's home to the nearest internet access point prevented him from using it regularly for his studies. Theoretically he was

required to use it, as the online tutorial amounted to ten per cent of the final mark, but he still did not use it. Officially, UT could have failed him. However, as UT needed students to fulfil the programme they were flexible on this point and let him pass, even though he did not participate in the online part of the programme, and gave him a lower final mark instead. In this way he was "punished" twice for not being able to use internet. Directly by receiving a lower mark and indirectly by not being able to take advantages of the new communication technologies that were meant to provide the most important link between the students and UT in the learning process. Faisal ended up in a situation where he felt isolated and sometimes found it difficult to fulfil his obligations as a student. In this way, the location of the technology greatly affected the student's relation to the education institution, even though he did not use it much. As this shows, the matter of place was not only a question of where the students had to go, but also of where they could not go. Faisal had to travel to certain locations to access the necessary internet resources, but these places were out of reach due to their location and the resources available to the student, including time.

This shows how the internet connects people to places in their daily life practices through its role as the most important resource for communication with the education institution. Moreover, we have seen how the lack of connection to places where a resource like internet access was located, influenced the students' relation to the education institution. In this way, the location of an object like the internet connection constitutes the place and thereby the students' relation to the place. In the next section I will go a step further by investigating how other people of significance in the students' daily life practices influenced the students' efforts to employ technology to fulfil their obligations as students.

How technology connects students to other people

Benefiting from new technology requires not only access to places where these resources are available but also the ability to use the technology. In this respect,

most of the students in Bangka Belitung claimed they had little experience with using new technology and for some of the students' enrolment at UT was their first ever meeting with the internet. The students were expected to contribute to online discussion groups, and assignments had to be handed in as email attachments or uploaded to UT's web page. Some learning resources were only accessible through the use of new technology, such as instructional material on CD-ROMs. Faced with unfamiliar technology one option was to refuse to use the new technology altogether, with the inevitable consequences discussed above. Another possibility was to attain the necessary skills for using the technology. Below I will look more closely into a third, and frequently used option, that of employing other people's skills and resources in the students' daily life practices. The starting point is the interview with Faisal. As we have already seen, for all practical purposes Faisal was unable to access the internet. To some extent he was nevertheless able to use computers for his studies:

Interviewer:	*You also got a CD from UT, can you use it?*
Faisal:	*Yes, it is helpful. There is a salwindo [palm oil production] company close by. I have asked their staff to open the CD and I have seen the contents of it. I've asked them for an internet line as well, but they said the lines are too busy.*
Interviewer:	*Do you understand how to use the CD?*
Faisal:	*Like I said, I got help from the salwindo staff.*

Faisal was not able to handle the new technology himself. Nevertheless, through his position as head of a district he had access to people with the necessary resources to help him. At the salwindo company he could ask for help, and the location of the company's office became a resource for his studies. It can thus be claimed that access to places is about power relations between students and significant people in their daily lives. However, the resources that Faisal could gain access to through his official position were limited. He did not have the power or necessary resources to obtain all he needed from the private salwindo company; internet access was exclusively reserved for the company's own use. Neither could he get a computer with internet access at his own office. In Faisal's district only the private businesses could connect to the internet, not the public

sector. So, even if to some extent he could gain access to the necessary resources through his relations with significant people, he would have to go to them, and they would decide how much access he would have. In consequence, the question of where and when to study was not entirely up to Faisal himself since he depended on other people.

Even though this student did not have the necessary power to obtain internet access at his office, he was able to control the office computers so they could become a resource in his study by way of managing his office staff:

Interviewer: *How do you do your homework?*
Faisal: *I type it on the computer.*
Interviewer: *Can you operate a computer?*
Faisal: *Not much. When I have homework, I just make the draft and then I ask my staff to type it.*

After his homework was typed, Faisal would make a print or save it on a floppy disk which he or a staff member would deliver to the UT's branch office in Pangkalpinang. He did not consider the mail service reliable. In this way he found his own way to handle the UT computer requirements.

Several other students holding leading positions also used their staff for typing. Access to technology was not only about access to places, as discussed above, but also about access to people. By way of controlling people some of the students could control the place and thereby also the technology located there. Through the right relations to the right people, access to both the technology and the necessary operating skills was available. A place, such as the salwindo company's office, was thus constituted through a combination of material conditions, such as access to hardware; social relations and their inherent structural conditions; and the actors' relationships to these material structures, in this case the technology. In any case, accessibility depended on what resources were available.

However, access to resources was not merely a question of positions and formal power. Some of the interviewed students accessed the necessary technology through other informal, but significant relations in their daily life. One student mentioned that his brother, who lived in the same house, helped him

type. Another student asked his children to do it. In both these cases the home was a place where students could obtain the necessary competence in handling the technology.

At the same time, it is worth noticing that the students' relations to the domestic sphere to some extent might exclude them from accessing technology. A female student made the following statement:

> *After finishing work I have to do my duties at home, such as taking care of the children and doing other kind of domestic work. And then I can concentrate on my study which is mostly done in the evening. (Yuni, student)*

This student did not have much time to find places to access the internet. At work she claimed to be too busy to use the computers that were available there, at home she did not have the technology and domestic obligations prevented her from using an internet café. She was connected to people in the home sphere, like her husband and children, in a way that constrained her ability to go to other places for accessing technology. This student was about to terminate her student status, at least partly, due to the difficulties she had in accessing the technology. Interestingly, among the male interviewees we could not find the same constraints related to their homes. For them, the home was more frequently a resource for the use of technology. We here may sense how the new technology is not neutral regarding gender issues. However, as pointed out in the literature, it is not obvious how the relation between gender and technology is constituted. New technology may both constrain and facilitate women's own projects (Boyer 2006).

From the above discussion it can be claimed that the requirement of having to use technology makes the students depend on other people or it assumes that they have the power to control other people. Hence it can be argued that the students' relation to the education institution was a result of their relations to people in their daily lives, and that the students' time-space movements were created out of the conjunction between their relation to the education institution and significant persons in their daily surroundings.

Concluding discussion: The influence of technology on students' flexibility

In this empirical study I have shown how students in Bangka Belitung had flexibility in terms of not being forced to move close to a campus site to obtain a recognised master's degree. This was made possible due to the absence of restrictions set by UT on where to study. Following Pred (1985), this enabled the students to choose a life path where they could avoid the conflict between being in a place where they could maintain their relations to work and family and being in a place where they could attend a conventional campus regularly. It is often argued that it is the new communication technologies that enable such students to study at distance, by making it easier for them to stay in contact with the education institution and other students without going to campus (DeSanctis and Sheppard. 1999). However, my empirical study indicates that this was not so much the case for the students in Bangka Belitung. Just from the fact that the students did not use it much, it can be claimed that communication technology was not very important. And indeed, as Kirkwood (2001) states, most distance education programmes do not use advanced technology. In other words, it was not the technology itself that gave the students the flexibility necessary for sustaining basic features of their life, but rather the limited nature of the restrictions set by the education institution, such as the absence of attendance requirements. So even though several writers claim that new technology can reduce friction of space (see Castells. 1996; Graham. 1998; Graham and Marwin. 1996; Harvey. 1989; 1996), my study shows that it is not necessarily the technology itself that is most important for erasing distance as an obstacle in technology supported distance education, but rather the overall instructional design of the study programme.

As regards the students' daily paths, technology seemed to play a more important role, but then in terms of reduced flexibility. By choosing a life path where they could continue to live in the same place as before, the students' daily practices were greatly affected. They had to reorganise the spatial pattern of their lives thoroughly so as to gain access to the necessary resources, such as computers and internet access, for maintaining their affiliation with the education

institution. Rather than regularly attending campus, they would have to go to internet cafés, their workplaces or private business offices. Even though the students were not directly required to attend specific locations, they were nevertheless indirectly forced to do so through the requirement that they use communication technologies. Hence the students organised their daily lives within an inherited space constituted by different objects, of which communication technology is one such object. Following Sayer (1992) it can then be claimed that such technology not only has the potential for reducing friction of space, but also the potential for creating the friction of space by constituting the spatial. From this point of view it can be argued that technology does not necessarily make this kind of education flexible as the location of the technology limits where to study. The students interviewed in the study were not free to study wherever they wanted within their daily life environments. Similar to conventional university students, the students in Bangka Belitung were restricted in their movement in their daily environment. The difference is that the UT students are supposed to choose more freely where to study as they are not forced to go regularly to campus. The students in our study did not enjoy this freedom because of the requirement of using the internet. It may be claimed that the campus location has merely been replaced with the internet connection point.

However, it might be appropriate to ask whether the loss of flexibility should be explained by the technology alone. It can be argued, on the basis of the above analyses, that the limiting features of the technology are the results of social conditions. In accordance with Hägerstrand (1970; 1982) it might be claimed that physical structures are of importance for the students' daily life paths, but at the same time, following Gren (2001), physical objects should also be seen as actors that are created in a network with other actors, such as significant persons in the students' daily lives. For example, whenever the students were able to use the workplace as a place where they could use technology for study purposes, this was a result of the students' official positions. Some students used these positions to control resources and use technology. Others, with less elevated positions, had to wait until their colleagues left before they could use computers and internet at work. As for the domestic sphere, we observed the same tendency there. For some of the students the home was a resource in their attempts to

handle the technology, for others it was a constraint. I have also shown how the students' location mattered for the outcomes of using new technology in distance education. In sum, the location of distance education is not only, as Evans (1989; 1995) emphasises, about how such education shapes the place, it is also about how the place shapes the education. For students living in peripheral areas the question of using technology was more of a problem than for those who lived in the central city. They were more dependent on the technology, but had greater difficulties in using it as the infrastructure was poor.

In a way it is obvious that those living in marginalised areas are those who most need technology, if the aim is to modernise and connect these societies to the world's information flow. In such places all kinds of infrastructure will probably be seen as a sign of progress. A conclusion, then, may be, as suggested for example by Mathur and Ambani (2005) and James (2003), that it is of great importance to bring technology to these places. On the other hand, it may also be claimed that such places are just partly able to benefit from the new technology, because of the constraints imposed by local social conditions. The outcome, then, may end up as social exclusion rather than inclusion, as suggested by Mercer (2005) and Warschauer (2003). From my empirical sources it is difficult to conclude with certainty about the relevance of implementing ICT in peripheral areas like Bangka Belitung. However, what is obvious is that the use of ICT is not a panacea for solving the problems of offering high quality education to students in peripheral areas in developing countries.

In sum, the above findings indicate that features of significant relations in the students' daily lives and features of the daily environment do strongly influence the students' flexibility. The results of using technology thus depend just as much on the users and their situations of use as on inherent qualities of the technology itself. The degree of flexibility obtained should be explained by how such technology and the requirements of its use are related to significant relations and obligations in the students' daily life practices as well as material structures framing this practice. Both underscore the necessity of paying attention to the context when issues regarding flexibility, technology and distance education are considered.

Finally, the empirical data on which the present study is based were collected in a relatively remote area outside the digital mainstream in a developing country. From my study it can be argued that new communication technology does not in itself increase the flexibility for students in such areas. However, there might be other good reasons for offering distance education to students in such areas by means of new communication technology. On a personal level, the graduate students might benefit greatly from their internet experience in their job performance. For the region as a whole, the spread of ICT-supported programmes might lead to an increased demand for infrastructure development, which may help slow down the negative trend wherein marginalised regions are getting increasingly more marginalised. This might be the case even if the students themselves fail to gain increased flexibility from the use of the internet.

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Paper 3

The Internet, education and social segregation of the city

Is not included due to copyright

Paper 4

Exploring the gap of the digital divide:

Conditions of connectivity and higher education participation[10]

Abstract

While much of the literature related to the digital divide focuses on either technology penetration in developed countries or the introduction of new technology to the poor and disadvantaged in the developing world, this paper pays attention to the middle-classes in a developing country which is connected to the Internet but under poor conditions. The digital divide is examined by investigating how the uneven distribution of Internet connection influences distance education students' participation in higher education. Empirically, the paper is informed by a qualitative study of distance education in Indonesia. The main conclusion is that while in more peripheral areas students may not gain much from the use of new technology, the use of this technology may be useful for the further development of such regions. In central areas the new technology seems to contribute to students' study situations more effectively and the daily environment empowers the students' study activities, rather than vice versa.

Keywords: access, digital divide, developing countries, distance education, ICT, Internet, Indonesia

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Introduction

The unequal possibility to access information and communication through digital networks is widely recognised as a challenge in terms of the global distribution of human well-being. This is rather unanimously accepted as a problematic issue as access to new technology to a large degree correlates with the distribution of central resources of human welfare, including education (Castells, 1996; Perrons, 2004; UNESCO, 2000, 2001). However, the nature of the relation between technology and other benefits is more disputed. Indjikian and Siegel (2005) claim, in their review article, that research shows that investment in ICT generally has a positive effect on economic development, but for developing countries this is a long-run effect. Noh and Yoo (2008) claim, based on panel data from 60 countries for the period of 1995–2002, that the positive effect of the spread of the Internet is reduced if it is accompanied by income inequality, which is likely to be the case for most developing countries. On the other hand, Ono and Zavodny (2007) argue that the variations in use of IT within and between countries simply reflects pre-existing social and economic inequalities. For example, Africa (the protest continent) is without doubt the continent that is least connected to the Internet (Fuchs & Horak, 2008; Ya'u, 2004). Further, the complex relation between higher education participation and access to the Internet is also widely discussed (Kirkwood, 2001; Perraton, 2000; Rumble, 2001a, 2001b). On the one hand, it may be claimed that education, and particularly higher education, contributes to higher rates of technology adoption (DiMaggio, Hargittai, & Neuman, 2001; Norris & Conceicão, 2004; Ono & Zavodny, 2007). On the other hand, it is argued that the Internet is significant in providing higher education for the world's population (Kirkwood, 2001), and that the Internet may increased the quality of the outcome from education (Tien & Fu, 2008).

While much of the research on the relation between new technology access and human wealth is based on statistical surveys and macro data, in this paper this issue is discussed on the basis of a qualitative case study of the use of the Internet in distance education in two places in Indonesia, one in Jakarta (the capital) and one in Bangka Belitung, a relative remote province. By selecting two

cases for in-depth study, the intention is to gain insight into processes creating the outcome from uneven distributions of new technology in developing countries, particularly the Internet, and how this influences participation in higher education. Analytically, the inequality in Internet access and participation in education is approached using the concept of the digital divide, which will be discussed in the next section. The aim behind using this concept is to explore how access to the Internet and the results of its use are embedded in the social conditions of the students' daily life and the place where the technology is located. Moreover, the aim is to explore how students and places are influenced in various ways by the new digital technology. The intention behind this paper is to explore the multidimensions of accessing the Internet.

Understanding the digital divide

The 'digital divide' is commonly related to differences in access to the new digital technology and in variations regarding access to information and knowledge shared in locally and globally distributed digital communication channels. Ultimately, such a divide is expected to create an uneven distribution of wealth, prosperity and well-being. The origin of the concept dates back to the 1990s and it gained publicity through a series of surveys conducted by the American National Telecommunication and Information Administration which were presented in the 'Falling through the Net' reports (NTIA, 1995, 1998, 1999, 2000). These reports show how differences in access to the new digital technology tends to favour male, educated, wealthy, white, young, urban dwellers. Parallel with and following these reports, several studies have provided further insight into the causes and consequences of this divide as well as how it has developing over time. Two main perspectives may be identified in the literature. One perspective is the socio-economic dimension concerning differences in gender, age, education and race. Tien and Fu (2008), for example, examine the digital divide by researching the main socio-economic factors affecting the utilisation of computers among undergraduate students in Taiwan. Other studies have taken a more specific perspective, such as Keil (2005), who

explores the divide in terms of a digital generation gap. The second perspective is related to spatial variations. Such research may focus on the rural–urban dimension. Warren (2007), for example, investigates how the Internet influences social marginalisation of disadvantaged groups in rural areas of the UK and reaches the conclusion that a new media structure can be followed by social exclusion. In another example, Raju (2004) demonstrates how large parts of the rural population of India are excluded from the country's rapid digital development. The divide can also be viewed spatially as global a phenomena, where the main approach is on the differences between developed and developing countries. The latter is the focus of research by Fuchs and Horak (2008) and Ya'u (2004), who analyse how restructuring the global and local economy towards liberalisation and deregulation of markets affects the digital divide. They express their concerns regarding the effects on the poorest. A last approach to the spatial dimension of the digital divide is focus on how the technology and users are socially embedded in various places. This perspective may be represented by Gilbert et al. (2007), who in their paper on poor American women using telemedicine, place emphasis on how ICT use is embedded in the geography of people's daily life. The embeddedness of technology is an approach that is also visible in other geographical approaches to digital technology. Graham (2005), for example, explores how surveillance technology contributes to the social segregation of the city, while others such as Dogde and Kitchin (2005) consider how new technology changes people's daily life. The research presented in the present paper may be placed in the rural–urban perspective, or more precisely it follows a central–peripheral approach, as it also is about peripheral urban locations. Moreover, the qualitative approach in this paper also enables exploration of how access to and use of technology are embedded in the user's daily environment. This involves an examination of how students' daily life is organised in relation to obligations regarding family and work and also how access to and use of the Internet is related to a regional context by analysing how it is linked to the level of infrastructure in the places where the students live.

For identifying and measuring differences that exist within the digital divide, the main indicators have typically been private ownership of computers and the

use of Internet (for example: Bradshaw, Fallon, & Viterna, 2005; NTIA, 1995, 1998, 1999, 2000; Tien & Fu, 2008; Tiene, 2002). However, as the rates of ownership and the use of Internet have reached close to 100% in many countries there has been a need to use new indicators. Likewise, it has become evident that the presence of computers is not automatically followed by use and that the results of use are highly variable. If the main objective of researching the digital divide is to understand how access to technology is related in turn to access to material wealth, it is claimed that a more complex understanding of this relation has to be applied (Gunkel, 2003; van Dijk, 2006; Warschauer, 2003a). Accordingly, the concept has recently been widely criticised and several researchers have made an effort to reconceptualise the digital divide. One such attempt has been made by Wilson (2006), who identifies eight aspects of the divide: physical, financial, cognitive, design, content, production, institutional, and political access. Another approach has been to focus on the concept of digital literacy and by so doing the aim is to gain a deeper understanding of ability to handle digital technology (Livingstone, 2004). Others, such as Warschauer (2003a p. 297), have criticised the concept for its technological determinism and Warschauer claims that: '*access to online information has very little to do with [the] Internet per se, but has everything to do with political, economic, cultural and linguistic contexts that shape the meaning of the Internet in people's lives*'. Thus, he argues that the inequality that exists is social not digital, and so doing he follows several researchers who argue that the material orientation is an inherent constraint in the concept. This is especially visible in educational perspectives where it is widely argued that what is important is how the technology is used and how the uses are embedded in social possesses (Atwell, 2001; Harper, 2003; Ligth, 2001).

A last critique of the digital divide focuses on the bipolarity fitted into the concept's metaphors. van Dijk (2006) claims this is the most confusing myth produced by popular ideas about the digital divide. Usually, the digital divide refers to a division between those who *have* and *have not* access to new technology. In between these two groups there is believed to be a gap, which divides the rich from the poor and the privileged from the unprivileged. In the literature related to the digital divide in developing countries the focus has often

been on those in the latter group and how to bridge the divide so that the underprivileged can join the privileged (Wade, 2004). To do this bridging, an often suggested solution has been to give equal access to new technology, simply because limited access to technology has been considered the cause of the social divide (James, 2003). The most optimistic critics talk about 'leapfrogging', where those with no access can jump over to those who have access and thereby bridge the gap (van de Bunt-Kokhuis, 2001). Several others reject the dichotomy and claim that connectivity and technology access should rather be considered as a continuum where there is a huge variation in type and quality of connectivity (van Dijk, 2005; Warschauer, 2003b).

Distance education, technology and place

Efforts towards closing the gap in the digital divide have, in many ways, similarities with the movement of distance education. Such education has a long history of striving to reach those who have not been able to connect themselves with society's core institution regarding information and knowledge, the university (Perraton, 2000; Tiene, 2002; UNESCO, 2002). By offering such students access to higher education, at distance, they have been expected to be better prepared to receive their share of public wealth as well as being able to effectively contribute to society's development. The question of access has, on the one hand, been about making higher education institutions open for all by limiting barriers of a financial, social and geographical character. On the other hand, it refers to enabling students to organise their lives so that they have the possibilities to enrol on higher education courses. From the very beginning in the history of distance education various technologies have been applied in efforts to create access possibilities for students who for several reasons have been excluded from ordinary higher education (Dhanarajan, 2001; Gandhe, 1999; Rumble, 2001a; Zuhairi, 2001). More recently, new digital technology, and particularly the Internet, has been vital in such efforts (Carr-Chellman, 2005).

However, by developing distance education where the use of the Internet is assumed, it is also assumed that students are able to access the technology, i.e. access to education depends on students' access to technology (Perraton, 2000). Here, we may make out the contours of the digital divide and the result might be that a technology that initially was intended to connect people to information and knowledge instead becomes exclusionary. Those who do not have access to technology do not have access to education (Kirkwood, 2001; Perraton, 2001; Rumble, 2001a). Nevertheless, following van Dijk's (2005) argument, for most students it is not about being online or not, but rather about the quality of the connection and how they are able to use it, and in the end, to what extent it contributes to higher education participation. It is also necessary, as claimed by several researchers, to relate the technology of distance education to the social processes at the place where such education is located (Dunbar, 1991; Kirkwood, 2001). Following Nicholas' (2003) argument, the reason why some students are able to take advantage of Internet-supported distance education while others are not has to be related to political and economic processes in the societies in which they live. As stated by Evans (1989; 1995), distance education will always take place somewhere, and that place probably matters.

Analytical frame

In the remaining part of this paper I will present and discuss how the students in two Internet-supported distance education programmes in Indonesia encountered constraints in accessing and using the Internet due to social obligations in their daily life and limited infrastructure at the place where they were living. The aim is to highlight how their ability to use of the Internet affected their participation in the programme, but also how such a programme may influence the digital divide. The frame for analysing data is inspired by van Dijk's (2005) model for successive access to digital technology, in which he attempts to incorporate the main implications of the critics against the digital divide (as have been discussed above). He does this by suggesting four types of access, whereby each represents a successive stage necessary before the next is to be passed and before full

appropriation of the digital technology can occur. The initial condition is *motivation* to use digital technology. After acquiring motivation to access, the challenge is to act on it and this is represented by the next stage, the *material properties* of accessing the technology. Such access is identified as the location of computers and Internet connections and permission to use them. If the potential user is motivated and has the possibility to physically access the technology, the next step is having the *skills* necessary to use it. Such skills may be linked to using a computer, but they are as much about the ability to handle the content. The fourth and last step is to use the technology for particular purposes, where time and quality of use will determine the outcome. How an individual passes through these stages depends on the available resources and characteristics of the user. Finally, the consequences of the use of technology are identified by social participation, which in the case presented in this paper refers to participation in education.

This model has some obvious advantages when analysing variation in technology access. For example, even though each step is basically characterised by social features, van Dijk (2005) emphasises that the technological properties of ICT (hardware, software and content) are also of great importance as they work in conjunction with social conditions. The model thereby aims to avoid technological determinism but not neglect the importance of the technology, as such. Another interesting aspect by the model is how it grasps what is between the extremes of *have* and *have not*, by focusing on situations where some kind of technology is present. Nevertheless, there are also problematic issues regarding this model. One is the emphasis on individual users and their relation to the technology. It may therefore be interesting to look to Nicholas (2003), who introduced the concept of *geographic capital* in her attempt to capture the nature of digital divide. By this concept she wishes to include the physical characteristics of places and the actions of telecommunications firms and policy makers in the understanding of differences related to connectivity. How these parts work together determines the extent to which the Internet will be beneficial to the rural disadvantaged. Hence, inspired by Nicholas (2003), in the present paper a further category, *supporting infrastructure*, is added when empirical sources are analysed. Under this category I examine how the use of new

technology is embedded in students' surroundings. These surroundings are identified as information and communication structures, such libraries, book shops, internet access and postal systems, as well as human resource for operating the physical information and communication structures.

A qualitative case study of successive access to digital technology

The empirical basis for this paper is, as mentioned, two Internet-supported distance master's programmes in Indonesia, both offered by Universitas Terbuka (Open University Indonesia, hereafter abbreviated to UT). One is a Master of Public Administration (MPA) programme[11] offered to students in the province of Bangka Belitung. The other is a Master of Management (MM) programme located in Jakarta. The MPA was launched in 2003 and one year later the MM in Jakarta was launched using the same basic model and technology as the MPA. However, the subject content was adjusted and related to management in the private sector.

Empirical sources for this paper originate from the second semester of the aforementioned study programmes. The methodological approach was qualitatively oriented and similar to what Marcus (1995) has described as *multi-site ethnography*. Based on the different actors' narratives, the aim was to trace variation and tendencies within and between the two study programmes. The main empirical source comprised interviews and dialogues with fourteen students, of whom seven lived in Bangka Belitung and seven lived in Jakarta. The students were selected by a maximum variation sampling method (Patton, 2002) with the help of knowledge about the students provided by UT. The aim

[11] During the course of the empirical investigation the master's programme in Bangka Belitung was renamed ACP (Advanced Course Programme). This term was used by UT pending formal acceptance by Directorate General Pendidikan Tinggi (GDPT), for designating the degree obtained from the programme as a master's degree. The formal acceptance from GDPT was obtained in September 2004. The Indonesian name of the degree is now Master Administrasi Publik, and the programme as whole is designated Magister Administrasi Publik.

was to obtain information on variations in age, sex, level of Internet participation, and place of residence. The interviews were conducted in Indonesian or English, depending on the student's preference, and were taped. Then the interviews were transcribed and those conducted in Indonesian were later translated into English. In addition, informal conversations were held with several students, including those who had been interviewed. The interviews were conducted at the students' workplaces or their homes during March 2004 (Bangka Belitung) and February 2005 (Jakarta). The interviews with the students were centred on an interview guide containing questions and topics related to their experiences of using the Internet and how this use was embedded in their daily life.

In addition, I also relied on interviews and conversations with informants working at UT and who were involved in the development and implementation of the MPA and MM. These informants comprised a dean, a vice dean, member of the multimedia department, head of the regional office, and external tutors or lecturers, all of which were selected in order to represent different sectors and interests within UT. The interviews and conversations were held at UT's headquarters in Jakarta during March and April 2004 and January and February 2005. The aim was to gain insight into the structure, content and strategic purpose of the two programmes as well as to raise questions about the students' use of technology. In addition, official documents published by UT were used for mapping background information relating to how the programmes were organised and institutional goals. The documents consisted of internal evaluations, strategic plans and information distributed to the students (Universitas Terbuka, 2004a, 2004b, 2005). Finally, while it was not possible to closely shadow the students in their daily study activities, to some extent their activities could be traced by, for example, visiting their homes and workplaces when carrying out interviews. This proved to be of importance when analysing and interpreting the information.

Two distance master's programmes in Indonesia

The students on the MPA and the MM programmes were recruited by public announcement, followed by an entry selection process that was relating to subject matters as well as computer skills and knowledge of the English language. A total of nineteen students enrolled for the MPA and twelve for the MM. The students from Bangka Belitung were living and working on the island of Bangka, which is the major island in province of Bangka Belitung. Some of the students lived up to three hours distant by car from Pangkalpinang, the provincial capital. Most of the students worked within management and administration at different levels in the public sector, though others, such as a journalist, also attended the study programme. The students' ages ranged between late twenties up to mid-fifties. Only two of them were female. The students in Jakarta worked in management in private business and state-owned companies. Among the firms were a medium-sized pharmaceutical company, a state-owned airline company and an international oil company. The ages of the students in Jakarta ranged between early thirties and late forties. The gender balance of the students in Jakarta was almost equal.

The study mode for the two master's programmes was based on face-to-face and online tutorials, where both parts were compulsory. The face-to-face tutorials were held four times every semester and were a mix between lecturers and discussion. Online tutorials took place eight times every semester and were related to compulsory assignments. In addition, students were able to access Web-based discussion groups and could download additional resources and information related to their studies. All of the Web activities were organised through a learning management system (LMS). UT also developed a multimedia CD covering some basic topics relating to the study programme. However, even though new digital media was emphasised, the basic instructional material consisted of printed books. The students' study activities were strictly organised and scheduled through modules containing assignments and tutorials as described in a study guide. Although the students were expected to follow the set schedule, they were free to find their own way through the programme as long as

they completed the compulsory parts. The students were expected to make their own arrangements for access to computers and Internet connection, either privately or through their employees.

Even though the study mode and the use of technology were quite similar for the two master's programmes, the context of the students' daily lives was quite different. Bangka Belitung is a relatively remote province with a low income level and generally poor infrastructure. Transportation around the island of Bangka takes time, as the roads are generally in bad condition and often damaged by heavy downpours of rain. There is sparse settlement, as the economy is based mainly upon agriculture and mining at various locations on the island. In contrast, Jakarta is a huge city and the national political and financial centre, with strong ties to the global economy. Even though, in many ways, Jakarta is a modern international city, with its skyline in the central business district, it is not easy to travel around. Public transport is poorly developed and there are almost continuous traffic jams. To cross the city by car can take up to three hours, and sometimes even longer.

Students' experiences of the use of the Internet: Bangka Belitung

The MPA in Bangka Belitung was the first programme offered by UT where ICT was expected to be comprehensibly used. The experiences were rather mixed but the interviewed students in Bangka did not openly complain much regarding the use of new technology. However, it was also apparent that the use of the new technology had its limitations and sometimes even constrained the students' study activities. Altogether, students' use of ICT was limited, though it varied in its extremes, from one student that connected to the Internet several times a week to another who had only ever accessed the Internet a few times. This situation was evident from the students themselves as well as from all of the staff at UT, including in their own evaluation report (Universitas Terbuka, 2004a). Why was this situation the case?

Motivation

It is likely that initially the students were fully motivated to use the Internet as they had applied for an Internet-supported distance education programme. However, the students informed that they had not paid much intention to the use of the Internet before they started on the programme. What was most important to them was the possibility to earn a recognised master's degree while continuing their daily lives on a daily basis, such as keeping their work positions and continuing to remain at home with their families. This is not surprising, as most of the students (with one exception) did not have much experience in the use of ICT, and as van Dijk (2005) suggested, experience in the use of technology may be an important motivation factor in itself. Nevertheless, the students were generally aware of the potential that the technology had for distance learning, but their motivation was reduced by the realisation that access was difficult. One of the students made this quite clear when asked whether online tutorials were a useful complement to the face-to-face tutorials: '*Yes, online tutorials can probably be very useful, but we have no Internet access in this area*'. Another student claimed: '*I would rather study through the Internet than face-to-face tutorials as then I don't have to go to Pangkalpinang*'. Pangkalpinang was one hour's drive away from his home and workplace. Both students recognised the potential of the new technology but were not capable of realising it fully. Nevertheless, all of the students seemed to be committed to the requirement of using ICT, and were searching for ways to access the technology so that they could complete the necessary tasks. Thus, the empirical data in this research suggests that motivation may be a precondition for accessing the Internet, however, this motivation may also result from accessibility to the technology, and this aspect will be further discussed in the following.

Material properties

Accessing the Internet from home could have been a way of connecting to UT's Web service, as all students we were in contact with had a landline link at their home. However, while this option was considered by only two of the students interviewed, their negative experiences did not encourage them to continue using

it. Their main argument was the price and quality of connection: the time when the interviews were conducted the cost of private dial-up connection for one hour was *c*.10,000 Rp (*c*.0.8 euro). An alternative way of accessing the Internet could have been to visit an Internet café (*warnet* in Bahasa Indonesia), which is the main method of accessing the Internet in Indonesia (Kristiansen, Furuholdt, & Wahid, 2003). However, on the island of Bangka, the only place with Internet cafés was Pangkalpinang, but there were only a few. These were cheaper to use than private dial-up – 4000 Rp (*c*.0.3 euro) for one hour – but were still considered expensive by several students, and hence were not a frequently used option. This is understandable as, in addition to the expenses incurred by using the Internet, some of the students had to travel for approximately three hours to reach an Internet cafe.

The only other option available for connecting to the Internet was access through the workplace. However, according to some of the students, this form of access was often of poor quality during working hours, when the computers were typically being used by others or were located in places that were usually not suitable for study purposes. When asked about using computers during work hours, one student (who had good computer skills as well as Internet connection at his workplace) responded: '*I just read some books. I hardly use the computer – it is too busy or it is difficult to concentrate*'. None of the interviewed students used computers and the Internet at their workplaces on a regular basis, but on the occasions when they did, most of them faced a new problem, namely lack of necessary silks.

Skills

As mentioned previously, many of the students in Bangka Belitung said that they had limited experience in the use of computers and the Internet and, furthermore, the training given by UT was limited. This was also confirmed by the head of the computer department. Several students claimed that their first experience of the Internet was through UT, even though they had some familiarity with computers, as expressed by one student: '*It is difficult to understand how to use the Internet, so I don't use it much as part of my study. I used the Internet the first time when I started my study at UT*'. To some extent, this reflected the whole situation in

Bangka Belitung, where computer penetration was rather low. When walking around in the offices there were some computers could be seen, but usually they were not for personal use and were not connected to the Internet. To compensate for limited individual skills, however, some of the students used the skills of lower ranking colleagues at work, friends, and children to perform most of the essential work that was expected to be done on computers and the Internet.

Use and participation

Together, the limited motivation, material conditions, and lack of skills created a problem for the students, as online tutorials were compulsory and were supposed to count for 10 per cent of the final marking. The positive potential of using ICT was thus problematic for the students when it had to be used under the given conditions. However, as the head of the regional office told us, UT finally made an arrangement whereby students who did not participate in the online tutorials were awarded a lower total grade, and students not using the Internet were excluded from several resources. Other students used the Internet to some extent, but usage was limited to simple actions, such as downloading assignment texts, some few postings in forums, and submitting assignments by e-mail. Thus, the advantages for the students in Bangka Belitung regarding ICT were evidently limited and possibly even negative when the positive effects of usage are compared with the negative aspects related to efforts involved in finding access points.

With regard to participation, it is interesting to note that the student who had most experience from the use of the Internet also had the highest and most concrete expectations regarding the use of this technology. He also made the most intensive use ICT and voiced the strongest criticisms against the way it was employed in his study programme. However, his situation and background were quite different from most of the other students. This student was among the youngest and lived in Pangkalpinang (the provincial capital). He also had reasonable access to computers and the Internet at his office. Furthermore, he had recently studied in Yogyakarta, a student city with one of the highest densities of Internet cafes in Indonesia (Kristiansen et al., 2003). There, he had gained basic experience and knowledge about the use of computers and the Internet. A main

problem for him was that the other students and tutors were not very active on the Web. For him, therefore, the limitations were related to online activities, although he was eager to use the Internet more.

Supporting infrastructure

It is worth noting that even though the students regarded the use of ICT as problematic due to their limited access possibilities, this was not the only problem relating to ICT. Accessing and using other kinds of technology were also, to some extent, considered to be a problem. For instance, according to the head of the regional office and as confirmed by the students living in the most remote area, the postal system was not reliable and often took a long time to deliver. There was also poor or no access to libraries and book shops. According to the students interviewed, the existing few book shops and two public libraries did not serve their needs and were located in Pangkalpinang. One student described the libraries as follows: '*I can find some books there, but their quality is not so good because the books are few and old*'. Access problems were thus not limited to ICT but reflected the general poor development of infrastructure in the province of Bangka Belitung. Hence, when students described the use of new technology as a problematic issue, it did not necessarily imply that ICT was considered as a bad alternative to other existing technology.

Students' considerations of technology in use: Jakarta

For the students in Jakarta, the situation was quite different from that in Bangka Belitung. During the interviews, the students from Jakarta did not report any serious problems regarding access to and use of the Internet. However, there were some major constraints regarding utilisation of the Internet in their studies. Thus, while their use was definitely more frequent than was the case for the students in Bangka Belitung, it was still far from optimised, according to the students and several members of staff at UT.

Motivation

The main motivation for the students in Jakarta to attend the study programme seemed to be the possibility to obtain a master's degree from a recognised university by independent study outside working hours and without being forced to cross the city to attend evening or weekend classes at a campus. When asked, the students said they had been aware in advance that the programme involved use of the Internet, but this was accorded little significance when they chose it as mode of study. Still, most of them found the use of the Internet was somewhat exciting and they had positive attitude towards the technology before they started to study. One exception was a female student who was slightly anxious about the use of technology. A prevailing positive attitude seems to have its origin in the fact that all students were already familiar with the use of new technology, even though none of them had used it for educational purposes before.

Material conditions

The interviewed students' familiarity with the use of new technology followed from the fact that they all had computers and Internet access at *home.* However, they also had families (with one exception) and including children to be taken care of, and this competed with their use of the commuter. This, in combination with long working hours and time spent in traffic jams, resulted in not much time left for accessing computers for study purposes at home. Thus, even when computers were readily available, the possibility of accessing them proved limited. This may be exemplified by one of the students (female), who responded as follows when asked whether assignments were completed at home: '*No, I don't do so many of them at home; I rather type them at work. The computer at home is mostly used by my children. ... I do not have much time to use the computer at home*'. Similar statements were expressed by almost everyone interviewed in Jakarta, although all, with one exception, had domestic help. Moreover, some of the students 'escaped' from the disturbance at home by using Internet cafés, which was also financially more appropriate. One of the students said: '*It's cheaper to use the Internet at the Internet café [than the home connection]. And I can control the expenses ...*'. This quotation exemplifies that

even for the middle-classes in Jakarta there may be financial constraints regarding the use of the Internet. The price of a dial-up Internet connection from home was about the same as in Bangka Belitung. Altogether this shows how although the material features of access (hardware, software and Internet connection) were present at the students' home, the social obligations and economic conditions in the students' daily life constrained the access.

The *workplace* was thus the place where the students mostly accessed the Internet, and where all of them had broadband connection and the workstations were of a personal character. However, there the access was constrained by the organisation of the workplace. Due to work pressures, few of them were able to use computers and the Internet regularly during working hours. When asked whether computers and the Internet were used during working hours as a part of their studies, one of the students answered: *'No, I do not. When I am at the office, I can only concentrate on my job. ... I'm always busy at work ... Friends of mine at work are not that happy to see me studying when I'm supposed to work*'. All of the students in Jakarta were working in the 'modern sector' where the pressure for productivity is high. The aforementioned student worked in customer services for an airline company. Even though this student was encouraged by his superior, he did not have much time to use a computer for studying during his working hours. Therefore, he had to arrange his time so that he could access the Internet at work outside regular working hours. Some of the students used their lunch breaks for studying, while others sometimes stayed for a couple of hours longer after work and studied while waiting for the rush hour to end.

Skills

None of the interviewed students in Jakarta expressed that they were limited by personal knowledge and experience regarding the use of computers and the Internet at home. All of them were already familiar with the use of computers through their employment and all had a computer at home when they started the study programme at UT: '*Before I started studying at UT, the Internet was already familiar to me. It has been a major part of my daily activities, especially as a part of my job*'. Other students expressed that the limitation was not physical access and knowledge about using computers and the Internet, but rather the time

available and the services delivered by UT. Some of the students demanded faster response from their tutors. Only one student expressed some difficulties in accessing the Internet.

Use and participation

The students in Jakarta seemed to benefit considerably from the use of the Internet as a part of their studies. In addition to downloading information from UT, they all had regular contact with fellow students and tutors. Also, all of the interviewed students used external references from time to time when working on their assignments. When they complained, it was not because of problems regarding accessing and handling the technology but rather because the Internet was not used enough by UT or, as one of the students expressed, '*I expected that UT would have more information on the Web that would be useful for the students in our study [programme]*'. Other students demanded faster response from the tutors when they had sent a request relating to their studies. Some also companied about tutors not being particularly active in the learning management system (LMS). An interesting point here is that while the students in Bangka had to find ways around using the technology, the students in Jakarta extended their usage by creating their own systems. For instance, one of the students established an additional news group and mailing list for his fellow students.

Supporting infrastructure

The students in Jakarta lived and worked in an environment where digital technology was present. At their homes the technology was a simpler version, but still readily accessible. Indeed, their use of technology at the workplace seemed often to be more advanced than was the case in their studies. So, the workplace empowered the students with digital skills and infrastructure. What the workplaces did not facilitate was time for the students to study. All of the students considered themselves to be working in hectic environments where their employers were not committed to setting aside time for study even they supported them in studying. This might be seen as the cost of working in the modern sector with high digital density. At the same time, the students'

environments were also characterised as extensively low-tech. Much of the land in Jakarta is occupied by low-income groups, the majority of whom have never used a computer. However, this did not much seem to affect directly their ability to study. Nevertheless, due to the poorly developed transportation systems, it took all of them a long time to travel between their homes and workplaces. This was time which the students could have used for study-related activities. Ironically, it was the time consuming transportation that had originally led to their decision to study at distance with the help of the Internet.

Discussion: the same technology but different results

The empirical investigation suggests that the use of the Internet in distance education in a developing country, such as Indonesia, is likely to face serious constraints, at least in peripheral areas such as Bangka Belitung but also to some extent in big cities such as Jakarta. In Jakarta, however, it was found that the students used the Internet regularly and it seemed to be beneficial regarding their daily study activities. It probably gave them an advantage regarding participation in higher education as they could communicate with fellow students and tutors while studying from their offices or other places during the course of their daily life. Furthermore, problems facing the students in Jakarta had little to do with their motivation, the practicalities of Internet connection, or their skills. According to the students, constraints were related to UT's ability to serve their needs for communication and Web-based services. However, even in cases where their employers supplied them with technology, there was limited time available to use the Internet for study purposes. In contrast, in Bangka Belitung the use of the Internet did not increase the students' participation in the education programme significantly. In some ways, it rather created a problem, as they encountered serious difficulties in connecting to UT in order to obtain important resources for their studies. Although the students in Bangka Belitung had a basic motivation for connecting, they were hampered by weak local infrastructure, the location of Internet, and financial constraints. Thus, the Internet did not support

their participation in higher education much; rather, it excluded them as some activities and resources were only accessible on the Internet, a net that they were poorly connected to.

These findings seem to some extent to support van Dijk's (1999; 2000) claim that access problems gradually shift from motivation and material access to skills and use. Following this, it may be claimed that Internet uptake in rural and peripheral places in developing countries tends to be constrained by lack of motivation and limited ability to access the technology, whereas in central areas constraints are related more to skills and use. However, as seen in the empirical sources the successive move in the direction of participation is not so obvious. For example, the analyses show how the students in the peripheral part of Indonesia were motivated but this was reduced by difficulties in physically accessing the technology. In Jakarta, the students had skills but their daily life practices regarding obligations at home and the workplace constrained their use of the technology. Thus, access to the Internet is not simply a successive process where steps are passed one by one on the way to social participation. Even if there seems to be some kind of succession, the various forms of access as should rather be considered as necessary conditions for accessing the Internet, whereby one kind of access may enable or constrain other forms of access. Likewise, peripheral areas should not just be considered a step behind urban places. Rather, urban and rural access have to be approached as two distinct situations where access conditions, as described by van Dijk (2005), are related to each other in distinct ways. Probably, the same argument might be used when comparing developed and developing countries.

What is also interesting regarding the digital divide is why two similar programmes give such different experiences for the students. Harvey (1989), for example, explains the spatially uneven distribution of wealth by the capitalist production structure, whereby new technology will normally support this system. A similar argument is used by Fuchs and Horak (2008) and Ya'u (2004) in their analyses of how restructuring of the economy towards liberalisation and deregulation of markets affects the digital divide. However, Harvey (1996) has developed his position by strengthening the importance of place when exploring the geography of difference and the process of social change. His re-evaluation

of the relation between social structures and place results from the need for a better understanding of why local differences occur despite the fact that they are influenced by the same economic structures, namely global capitalism. Such a reconsideration of the position of space and place may also be interesting with respect to the digital divide approach to inequality, and how the Internet is used in distance education. As suggested by Dunbar (1991) and Kirkwood (2001), the extent to which the use of the Internet can increase students' participation in distance education depends much on the place where it is used. For some students the Internet may open up the possibility for participating in high quality higher education, for others the result may be exclusion from distance education programmes. When the situation in Bangka Belitung was compared to Jakarta it was evident how the level of supporting infrastructure differed. Following this, it was not surprising to find that students in environments characterised by high technology density were more likely to be able to take advantage of using the Internet in their studies than those living in areas with poor infrastructure. In line with suggestions made by several researchers (such as: Kirkwood, 2001; Perraton, 2000; Rumble, 2001a), this research shows the contour of a pattern where the use of the Internet in distance education is suitable only for the middle-classes living in central areas and working in the modern sector. Nevertheless, those living in peripheral areas may be more in need of the new digital technology. Theoretically, this implies that practices of daily life and local structures are significant when the local results of using a global phenomenon such as the Internet are to be evaluated.

Nevertheless, although the use of the Internet was not very beneficial for the students in Bangka Belitung, the empirical investigation suggests, following Nicholas (2003), that this region's geographical capital was extended by UT's engagement in Internet-supported distance education. The programme probably did contribute to demand for digital infrastructure or development of human resources and awareness about what the new technology can and cannot do. Accordingly, such a project can be claimed as making its small but important contribution together with similar projects engaged in the development of digital resources. For example, the public sector in Indonesia is gradually implementing computers and the Internet as working tools (Hill & Sen, 2005; Rose, 2004).

Regarding such development, the students' experiences in the use of new digital technology, even though limited and problematic, may contribute to a purposeful use of ICT in their future employment situation. Thereby, the Internet-supported education in Bangka Belitung may result in the public sector in the region being better prepared to take advantage of the emerging development of digital infrastructure. This can be illustrated by the case of one of the students with the poorest facilities for connection and who had few skills in operating computers. He informed that in the following year his office was going to take over the computers used in the national election, and Internet connection would also be established. He expressed that his frustrating experiences in attempting to use computers and the Internet had made him more aware of how to use the new technological resources. The presence of the MPA and the use of the Internet was thereby, following Nicholas (2003), supporting a greater regional averseness regarding the use of new technology. In Jakarta, the situation was different, and UT's study mode did not bring much new use of communication technology into people's lives and workplaces or the region as a whole. The value of the Internet in this the distance education programme was thus limited to supporting the individual students in their daily study situations.

The discussion above clearly supports researchers who have suggested that the digital divide has to be understood as a continuum with variations in conditions of access and that access to technology is not a question of something that exists or not (van Dijk, 2005; Warschauer, 2003b). The two investigated cases from Indonesia also show how variations in access within developing countries might be as large as between developing and developed countries. All of the students in Bangka Belitung and Jakarta had some degree of access to the technology, but this access was limited in various ways. Thus, it is evident that accessing the Internet is about much more than having the hardware, software and Internet connections present. Nevertheless, while material access is a precondition, several other conditions also have to be in place before social participation can result from using the digital technology. Action directed towards erasing the uneven distribution of new technology (and wealth) thus have to be as much about empowering those with poor access conditions as about the distribution of cheap technology to those who cannot access new technology

at all. Moreover, using new technology as a development strategy needs to be carried out with care so that negative consequences can be avoided. From the case of Bangka Belitung it can be learned that the digital level of both the students and the region as a whole were at the limit regarding applying the Internet in distance education. If the target group had been those in the provinces that were even more marginalised and from a lower income group, resources would be needed for investment in public access points, upgrading skills, etc., and this would probably have to be funded from outside, as the financial strength of the province of Bangka Belitung is weak. Following Wade (2004) and Ya'u (2004), this might result in a new form of dependency which would be a paradox as much of the motivation for establishing the programme is to eliminate dependency on importing human resources from Java. The same kind of argument could be used concerning the relation between developed and developing countries, and hence, following Ramanujan (2002), developing countries should rely more on their own experiences when new technology is introduced to new educational programmes than focusing all their attention on what is going on in technologically advanced societies. At the same time, and in accordance with Nicholas' (2003) argument, whether these students and others will gain this access depends on the political processes deeply rooted in economic systems and power relations, not only between developed and underdeveloped countries but also within developing countries such as Indonesia.

Concluding remarks

This paper has revealed how students living in remote areas with poor developed infrastructure did not benefit considerably from using the Internet as part of their studies whereas those living in a central area benefited considerably from the use. The presences of the Internet by the way distance education seems, however, to contribute positively to the remote place as a whole, while its use in the central location did not seem to add much new to the students' surroundings. Results from the use of new technology in remote areas should therefore not only be assessed in terms of individual benefits but also by how regional digital capacity

is increased. Differences in access to digital technology then seems to be increased on an individual level by the introduction of Internet-supported distance education, while on a regional level the differences may be reduced. Further research on this issue should focus on structural conditions at the place where the technology is applied. Approaching students' daily life practices or structural features at regional level may be one way to approach this. Following from this, when comparing different places and differences in terms of access to digital technology along a geographical dimension, the successive model of access may mislead people to presume that central and peripheral places just follow the same path but on different stage. This research rather suggests that different places should be considered as separate ways of how access conditions work together on the way to social participation. When considering this variation, the material dimension should not be prior to social conditions, or vice versa. Social and material preconditions for accessing the Internet are equal in importance and they will influence each other.

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