7
Inequalities in the Network Society

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Introduction

At the first sight, the claim that information and communication networks such as the Internet contribute to more inequality of information and communication seems rather odd. Aren't networks particularly appropriate to diffuse and exchange information among all those connected? Isn't the Internet a medium where you can retrieve most information for free and exchange emails, chats, twitters, SMS messages and others almost without cost? Hasn't the Internet become much more accessible and user-friendly since the days the World Wide Web started? Yet, in this chapter the claim is made that the actual use of information and communication networks, such as the Internet, in contemporary society most likely leads to more instead of less inequality when no effective policies are invented to prevent this.

To support this claim, I have to first define how contemporary society can be characterised and what types of (in)equality are at stake.

The concept network society is no alternative for the concept information society, but it is an addition to it. Both concepts are inextricably connected (van Dijk, 1999, 2006). Other characterisations such as capitalist society, democracy, post-, late- or high-modern society and environmentally (un)sustainable society remain equally valid. In the concept information society, the changing *substance* of activities and processes in contemporary developed societies is emphasised. In the concept network society, attention shifts to the changing organisational *forms* and (infra)structures of these societies.

Castells (1996, 1998, 2001) defines the network society as an informational society with networks serving as the basic structure of organisation pervading all spheres of this society. He considers networks as a

superior organisational form as they combine precise task performance with great flexibility, coordinated decision making with decentralised execution and global communication with individualised expression (Castells, 2001: 2). The author of this chapter (van Dijk, 1991, 1999) defines the network society as an information society with a 'nervous system' of social and media networks shaping its prime modes of organisation and most important structures. I consider social and media networks as the social counterpart of individualisation, the individual becoming the basic unit of contemporary modern societies. From the perspective of technology, media networks are an essential infrastructure of these societies. In the view of society, this applies to both social and media networks.

In this chapter, it will be argued that a number of structural properties of these social and media networks contribute to more or less inequality. According to structuration theory, these properties are always created by the communicative action of human beings.

What types of (in)equality come forward in a network society? According to Amartya Sen, every investigator of a problem concerning equality has to answer the basic question: 'Equality of *what*?' (Sen, 1992: ix). A first glance through the social-scientific and economic literature already results in ten potential answers that can be listed as technological, immaterial, material, social and educational types of (in)equality.

I will show that all these types of inequality can be observed in contemporary network society. The most popular is technological opportunities because physical access to computers, networks and other technologies has achieved the biggest attention. Considering demographics the three forms of capital and resources have been amply used. In the last few years the focus of attention is shifting to capabilities and skills, particularly when educational solutions to problems of inequality of access and participation are proposed. In this chapter, I will emphasise the material, social and educational types of inequality.

The presence of all these types of inequality in the network society shows that classical sociological concepts of inequality might serve as a valid background. Concepts of inequality in terms of possessions (Marx), status and profession (Weber) or relationship and power (Simmel and Dahrendorf) could still be relevant. However, we may also ask *whether these classical sociological concepts are still adequate to explain inequality in the information and network society?* This general question might lead to the following two other basic questions.

The suggestion in many investigations of inequality in the information and network society, for example in so-called digital divide

Table 7.1 Types of (in)equality and (un)equally divided properties

Type of (in)equality	Properties divided
Technological	Technological opportunities
Immaterial	Life chances
	Freedom
Material	Capital (economic, social, cultural)
	Resources
Social	Positions
	Power
	Participation
Educational	Capabilities
	Skills

research, is that this phenomenon is just as new as the technology it is linked to. However, the divides observed in fact are related to age-old demographics of income, education, age, sex and ethnicity, and no comparison is made with other things that are unequally divided in contemporary societies such as most properties listed in Table 7.1. Most often any historical perspective is lacking. However, there is no escape for the following basic question: *What is exactly new about the inequality of access to and participation in social and media networks as compared to other scarce material and immaterial resources in society?*

When this question is answered in an affirmative way (there are new aspects to be observed), this could lead to a second question: *Do new types of inequality rise or exist in the information and network society? If so, what are these types?*

I will try to answer these questions first describing a large number of structural properties of networks, both social and media networks. Some of them are liable to increase equality, others tend to support inequality. The balance sheet will decide whether the network society will be more or less equal as compared to older types of society. Subsequently, I will summarise my answers to the questions framed above. Finally, I will pay attention to potential policy directives that might counteract inequality when this becomes a goal.

Access and connectivity

A network is a collection of links between at least three elements or nodes. A link between two elements is a relation. As soon as the number of three is passed the questions of connectivity (collective property)

and access (individual property) arise. Are the fourth and next elements allowed to connect? Connectivity and access to and subsequently within networks (to all others in the network) are the primary structural properties that decide about network equality. They shape the frequently discussed issue of inclusion or exclusion.

This issue appears in both social and media networks. Social networks are of all ages, but in the transition between what is called the mass society or modern society and the network society or post- or late-modern society (van Dijk, 1999/2006) they reach a stage of development in which exclusivity becomes a striking characteristic. In traditional modern communities, many people were taken along in the solidarity of proximity in villages, neighbourhoods, work places and public meeting places. In post- or late-modern network society, individuals have to organise their own social network. This is marked by the high grade of selectivity that characterises network individualisation (Wellman, 2001; van Dijk, 2004). The number of so-called short-distance strong ties for the individual tends to decrease while the number of highly selective long-distance weak ties increases (Granovetter, 1973). In a network society, an individual has to stand firm and to fight for a place in particular social networks that give access to all kinds of resources.

The media networks that are built in the network society all start with the problems of connectivity and access. At first, they are only solved by the innovators and early adopters among the social, cultural and information elites. Passing the so-called *critical mass* – where access becomes beneficiary because connectivity is high enough: a sufficient number of others are connected – the early majority of the population reaches access. The present stage of telephone diffusion in the world as a whole is now crossing the phase from early to late majority: almost half of the world population still has touched no telephone according to International Telecommunication Union (ITU) figures! Diffusion is now going at a faster rate on account of the supply of mobile telephony in the Third World. Regarding the Internet we have to acknowledge that this important global network is approaching a diffusion rate of only 20 per cent at a world scale in 2009. Hugh inequalities of access exist. Even within the small continent of Europe, we have Internet access rates of more than 80 per cent in Northern and Western Europe while Southern and Eastern Europe lag behind with access rates of 40 per cent and less (van Dijk, 2009).

Access to and connectivity of social and media networks increasingly merge in a network society. Those who have less connection in social networks usually also have less access to and connection within media

networks. The combination of inclusion and exclusion of both social and media networks might be a powerful creator of structural inequality in the network society. It could create the following tripartite structure of the network society.

The core of this concentric picture of a network society comprises an information elite of about 15 per cent of the population in developed societies with high telecommunication and Internet access that have very dense and overlapping social and media networks. They are people with high levels of income and education, they have the best jobs and societal positions and they have more than 95 per cent Internet access. This elite lives in dense social networks. They are extended with a large number of long-distance ties used in a mobile lifestyle.

The majority of the population (50–60 per cent) in these societies has less social and media network ties and less Internet access, skills and use. The Internet applications used are relatively less of a serious and more of an entertainment kind (see below).

Finally, we have the unconnected and excluded part of society that is relatively isolated in terms of social networks and media network connections. They comprise at least a quarter of the population of (even) developed societies. They consist of the lowest social classes, the unemployed, a part of the elderly, ethnic minorities and a large group of migrants. They participate considerably less in several fields of society.

Such a dark picture of structural inequality does not have to appear, though many current trends go in this direction as I will argue in the remainder of this chapter. After all, connectivity and access also enable a wider dispersion of information, contacts, goods, services and resources than the media did before. The Internet offers a gigantic library of printed sources, pictures, video's and music, most often freely available to all those who have access directly or indirectly via others. Email offers instant access to all those connected to the Internet. It can be used by citizens and consumers to reach institutions, officials and shops. Consumers are able to make price comparisons and to unite with others to enforce lower prices. The Internet offers extremely cheap facilities to start one's own business on the Net. Lots of other opportunities for user, citizen and consumer empowerment can be mentioned. Only, the big questions are who will actually use these opportunities and for what purpose?

So, access and connectivity are structural properties of networks that can both increase and decrease inequality. They can lead to inclusion and exclusion. It depends on conditions. In any case, access and connectivity are necessary but not sufficient conditions for equal participation

in society. Physical access is required but the level of social and digital skills and actual usage of social resources and Internet sources decide about more or less equal participation (van Dijk, 2005).

Centrality

The most popular idea about the structure of networks is that it is supposed to be flat. As compared to traditional modes of organisations such as hierarchies and bureaucracies with their vertical, top–down structure networks are believed to be horizontally structured. The best known metaphor is the picture of a pyramid that is exchanged by the image of an archipelago. As networks are supposed to offer a decentralised structure, for example, in so-called peer-to-peer networking they are easily associated with equality and democracy. In my opinion this is a very one-sided portrayal of actual social and media networks. Real networks reveal a structure of differentiation and they regularly have a plurality of centres or cores. This goes at all levels, which means the level of society, organisations or associations and individuals.

In the former section, we have seen that the rise of networks is compatible with a structure of society that is marked by a core and a periphery. This is the structure that appears in Figure 7.1 indicating a single society. In the world system of societies that are linked in networks of

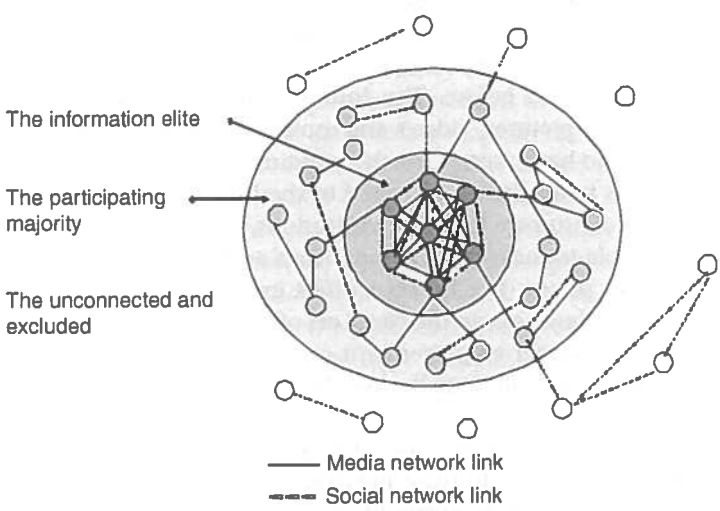

Figure 7.1 Potential tripartite structure of the network society

trade, transport and communication, the same core–periphery structure is likely to appear. Centres of trade and transport (ports and other hubs) are very unequally divided across the world. The same goes for traffic across the Internet, a (media) network itself. Northern America, North-Western Europe, Eastern Asia and Oceania comprise the vast majority of global Internet traffic.

At the level of organisations, concentrations inside networks appear equally big to those in the market. Markets supposedly also reveal horizontal modes of control and coordination with equal chances for market actors. In fact, we know that in contemporary capitalist economies vertical integration, monopolisation and oligopolisation often result. Network organisations that are linked in chains of departments or (semi) independent firms or government branches show regular patterns of core–periphery relations. The same goes for organisations providing ICT networks themselves such as Google, Microsoft, Yahoo, MySpace and eBay. According to Hindman (2008), news and media organisations on the Internet are even more concentrated than in the traditional press and broadcasting.

At the level of individuals, we can use the metrics of centrality in network analysis to show that the positions of individuals in networks can be very unequally divided. In Figure 7.2 a so-called kite network is portrayed with different measures of centrality. Unit or node D has the highest *degree*, that is, the highest number of direct links with other actors. In a directional network they can be divided into 'indegree' or

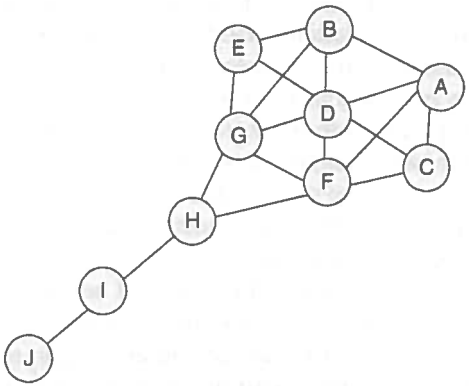

Figure 7.2 Kite network with different positions of centrality: highest degree (D), highest closeness (F) and highest betweenness (H)
Source: Adapted from Krackhardt (1990) and Bruggeman (2008).

incoming ties that can indicate popularity and 'outdegree', the number of outgoing ties that can signify expansiveness.

However, in Figure 7.2 unit or node F has the highest *closeness*, which means the extent to which an actor is close to or can easily reach all the other actors in the network. In this way, the unit is able to be fastest in accessing important or strategic information, directly or indirectly 'through the grapevine' (Monge and Contractor, 2003).

Finally, H has the highest *betweenness*, the extent to which an actor mediates or falls between any other two actors. This actor can be an intermediary or a broker or a gatekeeper and benefits from information others in the network don't have because they have no direct ties with the information source (in this picture I and J).

The meaning of all three central positions for inequality is that they enable to draw more social and material (scarce) resources or benefits than other positions. Charles Tilly (1998) has invented an appropriate name for this capacity: opportunity hoarding.

Variation and differentiation

So, real-world networks reveal a picture of differentiation. The structural background network property of differentiation is variation. In the following paragraph, this will be linked to the property of selection. This serves as an analogy to evolution biology because this combination can be used to explain the presumed superior quality of networks in organisation science that is called flexibility (Anderson, 1999; van Dijk, 2001). The analogy is often used in the theory of complex adaptive systems (Kauffman, 1995; Holland, 1995; Monge and Contractor, 2003). Adaptation occurs through constant variation. In the notion of everyday networking, this is known as the call that you have to vary your contacts, relationships and information sources in order to acquire better opportunities (for selection and survival). Every networker knows that one has to break out of one's own small circle of people. It is important to add a large number of weak ties, mostly at a distance to the less differentiated strong ties, often local, one already possesses (Granovetter, 1973). People with high degree, closeness and betweenness in network ties are better positioned to do this (these measures of centrality are both a cause and a result of variation). Others remain so-called isolates or members of cliques. These positions indicate increasing differentiation and clustering in a network when it grows. This also is a structural basis of inequality in networks.

However, the most important structural basis of inequality in both social and media networks is the *power law* that appears with variation in network links (Barabási, 2002; Buchanan, 2002). With the growth of a network the so-called 'the rich are getting richer phenomenon' or the *Matthew effect* (Merton, 1968) occurs. A power law indicates a distribution in which there are a small number of actors with a lot of links and a large number of actors with only few links (a long tail in the distribution picture). This unequal distribution tends to grow in networks making those already rich even richer (the Matthew effect). This is a structural property of the development of network ties. The mechanisms linking the structure to human action and consciousness are preferential attachment and contagion. In social networks, the most popular people attract growing attention, while nobody wants to be with the lonely person 'standing in the corner'. In media networks, the big portals and other sites increase their popularity assembling ever more links. They are supported by search engines such as Google and Yahoo that put the most popular sites on the top, in this way making them even more popular. On media networks, such as the Internet, the aids of search engines and other intelligent agents simply have to be used to reduce the information overload of sources. Additionally, we can observe the social and communicative processes of preferential attachment (popularity) and contagion (rumour, gossip and crowd behaviour on the Internet).

In this way, a *paradox of variation* appears: while in theory and in short-term practice variation increases the chances for equal opportunities as more chances are offered, in practice and in the long term these chances are reduced because in network links they become similar and concentrate in power distributions. The only way to prevent this from happening is a break with the social processes of preferential attachment and contagion in networks and the ranking practices of search engines and other intelligent agents. The importance of this phenomenon is big because the popular opinion is that the Internet offers equal and ample access to all voices and interests in society simultaneously. In fact, this medium might become even more concentrated than the traditional media. Matthew Hindman (2008) has shown this for the case of political communication.

Selection and competition

Networks are created by the selection of relationships among the variations just discussed by units. Units can be individuals, groups,

organisations and even societies. These selections depart from the proximate social environments of everyday life and social or family origin. They are outbound on a larger distance and are made to improve ones position. The aim is to find new sources of information, all kinds of resources, contacts, relations, dates, jobs and the like. While the proximate environments select people by birth, ascription or application, networks are selected according to norms of achievement and performance. The result is either inclusion or exclusion. This is not a permanent result as with birth and ascription but a temporary condition. Being included in a network, participants continually have to fight for their position. Networks are a social assembly that is both marked by continuing cooperation and competition. Therefore, the network society tends to be a harsh, individualised type of society, as compared to the relatively united traditional and mass societies (van Dijk, 2005, 2006).

Selection is a property of and activity in networks at all levels, from individuals to society at large. Selectivity is one of the main communication capacities of the new media (van Dijk, 1999, 2006). For individuals, it means that they are able to select in much greater detail than they could in the old media. This goes for favourite contacts using email or mobile telephony and for information, communication and transaction sources in the extended menus and site provisions on the Internet. High selectivity is the main characteristic of the extremely popular social networking sites such as Facebook, Hyves, Friendster or LinkedIn. When people would only select equals, these social media might support equality. However, the selectivity of the users of these sites might also increase inequality because people with at least equal and preferably higher status are chosen, not people with lower status, unless one simply competes for the number of 'friends'. In any case, users of social networking sites fight for social capital in this environment.

At the organisational level, the rise of segmentation and personalisation in customer-relationship and direct marketing can be observed. Hugh databases are created to select and differently approach particular groups of consumers. This certainly increases the inequality among consumers as some groups receive credits and special offers and others don't.

At the societal and governmental level, the practice of social sorting creates inequality among consumers and citizens. In social sorting categories, customers and citizens are generated with ever more ingenious techniques of data-mining. They stigmatise people. According to David Lyon (2007: 103): 'social sorting privileges certain consumers, clients and citizens over others, through differential pricing mechanisms or

through shorter and longer waiting times. The corollary, of course, is that the same automated processes produce neglect and abandonment for other groups.' As a consequence, social sorting is a problem not only for privacy but also for equality.

Differential mobility and speed

Except for these structural properties of networks that support or ameliorate inequality, we have a number of action parameters that are linked to the capacities of human beings to operate in social and media networks. The first of these is the capacity of mobility. Networks transcend place and time more than physical assemblies of people. However, not all people are equally mobile. The range of action among higher social classes usually is larger than among the lower social classes. The use of ICT reinforces this difference as it supports mobility, and the higher classes use this technology relatively more. For Manuel Castells (1996, 1998), this is the most important reason for the rise of inequality in the network society. According to him, networks create a 'space of flows' that overwhelms and pervades the age-old 'space of places'. Networks first of all link the most valuable functions, people and localities around the world, while switching off those populations and territories deprived of value and interest for the global capitalist economy (Castells, 1998: 337).

This means that some people are geographically and physically excluded from networks or that they only attain a marginal position within networks. Increasingly, the excluded and the marginal are doing local and mainly physical work, fixed to particular places. Simultaneously, those connected and occupying central places in the network through high mobility are using this advantage to find strategically important information and important new ties, jobs and functions at a distance. They participate in the 'jet life', in exclusive clubs and international congresses not even known to those who are excluded from or marginalised in networks.

Inequalities of skills

The second human capacity that determines the actual use of network properties is differential social and digital skill. Clearly, in social networks a high level of social skill is required and in (new) media networks an adequate level of digital skills. Taking the last type of skills first, it must be acknowledged that digital skills currently are the key for access

to the information society. In my digital divide research (van Dijk and Hacker, 2003, van Dijk, 2005, 2006), I have made a distinction between four types of access in succession: motivation, physical access, skills and usage. With the full-scale diffusion of the new media in society, the lack of motivation in adopting digital technology (for example, caused by fear and hate of computers) is getting less. Also, the lack of physical access to computers and the Internet is decreasing, even approaching a stage of universal access in the most technically advanced countries. However, the relative differences of digital skill and of computer and Internet use tend to grow with the diffusion of this technology in society (Howard et al., 2001; Hargittai, 2002; van Dijk, 2005). All existing social differences and inequalities come forward in the command of digital skills and in the differentiation of the length, variety and type of usage of the Internet (van Dijk, 2005).

Van Deursen and van Dijk (2008, 2009) have conceived an operational definition of digital skills and applied this to Internet skills. They distinguish four types of skills. The first is *operational* skills, the skills to command hardware and software. This is known as 'button knowledge' in everyday language. The second is *formal* skills: every medium has particular formal characteristics that have to be known and mastered. The Internet consists of sites and (hyper)links and requires skills of browsing and navigating. The third type of skill is *information* skills: the ability to find, select, process and evaluate information in computers and network sources according to a specific question. The fourth and last type is *strategic* skills: being able to employ the Internet as a means to reach a particular personal or professional goal.

Van Deursen and van Dijk have put a representative cross-section of the Dutch population to several performance tests of Internet assignments in 2007 and 2008 laboratory experiments, an altogether different approach than the usual approach of survey measurement. On average 80 per cent of the operational skill assignments and 72 per cent of the formal skill assignments were successfully completed by Dutch Internet users. However, the levels of information skills and strategic Internet skills attained were much lower. Information skill assignments were completed on average by 62 per cent and strategic skill assignments on average by only 25 per cent of those subjected to these performance tests.

All performances, both in number of tasks completed and amount of time spent on tasks, were significantly different for people with high, medium and low education. Age was the second most important correlating factor. However, this was only observed for operational and

formal skills. An interesting conclusion was that the so-called 'digital generation' (18–29) did not perform significantly better in information and strategic skills than the older age groups, despite the fact that the elderly people score lower on operational and formal skills. No gender differences were found.

Comparable results on the demographics of age and education were observed in performance tests of digital skills in the United States (Hargittai, 2004).

The command of operational skills, in particular, has a significant relationship with the amount of Internet use (van Deursen and van Dijk, *forthc.*). Amount of use, the type of use and Internet application favourites are also related to the demographics of social class, education, age, gender and ethnicity (see Howard et al., 2001; Horrigan and Rainie, 2002a; UCLA Center for Communication Policy, 2003 for the US). Social, cultural and personal interest and differential skills are the most important explanatory variables. I myself, together with others (Bonfadelli, 2002, Park, 2002, Cho et al., 2003), have observed 'the first signs of a *usage gap* between people of high social position, income, and education using the advanced computer and Internet applications for information, communication, work, business, or education and people of low social position, income, and education using more simple applications for information, communication, shopping, and entertainment' (van Dijk, 2005: 130).

Sociology and the theory of inequality in the digital age

In the preceding paragraphs, we have seen that the use of social and media networks in the network society favours inequality rather than equality, despite the fact that networks are able to diffuse information and to enable communication among more people than in older associations and media. Focusing on media networks, ICT should be analysed as a *trend amplifier* reinforcing social trends already occurring in society (van Dijk, 1999/2006). So, when social inequality in society is already rising – as seems to be the case in most countries of the contemporary world according to many observers that cannot be discussed here (IMF, 2007) – the use of digital media will primarily reinforce this trend. But how can we explain this rise of social and 'digital' inequality' with the classical concepts and theories of sociology? How can they assist in answering the three questions posed in the Introduction?

The first question is whether the classical sociological concepts of sociology in the field of social inequality are still relevant for

information and communication inequality in the network society. My answer would be that the following shifts would offer steps forward in approaching this issue.

Classical sociology departs from *individualistic* views of inequality and from methodological individualism in empirical research. Inequality of access to and usage of digital media is linked to individuals and their characteristics such as level of income and education, employment, age, sex and ethnicity. These are demographics that have a background in more abstract classical sociological categories such as possessions (Marx), status and profession (Weber) or power (Dahrendorf) and modern sociological categories such as social, economic and cultural capital (Coleman, Bourdieu and others). I think these old categories are still relevant today. The demographics and categories derived might be useful in surveys and experiments. However, the question remains whether they offer adequate explanations of inequality in an information and network society marked by digital media and networks.

For an adequate explanation an alternative notion of inequality might be more appropriate: a *relational* view using a network approach. Here inequality is not primarily a matter of individual attributes but of categorical differences between groups of people that have a particular relationship. It goes without saying that relationships are a primary analytical category to understand networks. In classical sociology this finds a basis in the work on social relationships and forms of Simmel and the socio-metrics of Moreno. Network analysis is an appropriate empirical research strategy.

A contemporary sociologist working with this view is the American Charles Tilly. In his book *Durable Inequality* (1998) he does not depart from the characteristics of individuals or social systems to explain (in)equality in contemporary society but from bonds, relationships, interactions and transactions. 'Large, significant inequalities in advantages among human beings correspond mainly to categorical differences such as black/white, male/female, citizen/foreigner, or Muslim/Jew rather than individual differences in attributes, propensities, or performance' (1998: 7).

Though Tilly speaks no word about media networks such as the Internet, I myself have tried to apply his approach to inequality of using digital media in the network society (van Dijk, 2005).

A second shift in sociological thinking is required to explain inequality in the *information* society. This would help to answer the second and third questions from the Introduction: what is exactly new about inequality in the digital age and are new types of inequality appearing?

Classical sociological concepts of inequality have emphasised material types of inequality with the exception of concepts focusing on power and status differences. Property, income and access to all kinds of scarce resources had the main focus of attention. In contemporary sociology, this focus still is on material types of (in)equality, for example, in the most popular concepts of social, cultural and economic capital. In the information society, attention has to shift to immaterial types of inequality that depart from the special properties of information that is both abundant and scarce. A number of economists, sociologists and philosophers have called attention to these special properties.

First, information is considered to be a *primary good* (see Rawls, 1971; Sen, 1985). Primary goods are material and immaterial goods that are so essential for the survival and self-respect of individuals that they cannot be exchanged for other goods, such as a basic (survival) level of income, life chances, freedoms and fundamental rights. Information has become a primary good in contemporary society as a particular – rising – absolute minimum of it is necessary to participate in it. Not all people possess such a minimum, for example (functional) illiterates. When digital media are gradually replacing and surpassing the analogue print media, they add another category on top of the traditional illiterates: the 'digital illiterates'.

Even more important than this absolute type of inequality in processing information is the increasing role of relative differences in possessing and controlling information in an information society. According to Castells (1996), information has become an independent source of productivity and power. Van Dijk (2005) adds that the relative differences between social categories, that were already unequal in terms of 'old' types of resources and capital, are amplified by the use of digital media. This happens because the control of positions in an increasingly complex society and the possession of information and strategic skills to acquire and maintain these positions are increasingly unequally divided. In this way, digital media usage contributes to new types of absolute and relative inequality on top of the old ones or they reinforce them.

This is backed by another characteristic of information. It can also be a *positional good* (Hirsch, 1976). These are goods that, by definition, are scarce – imagine the best places in concert halls and on beaches. Despite the phenomenon of information overload in society, information can be scarce in particular circumstances. Some positions in society create better opportunities than others in gathering, processing and using valuable information. I have emphasised that the importance of this condition is increasing in the nascent network society (van Dijk, 1999,

2005). In this classification of society, the positions and relations people have in social and media networks determine their potential power. As the importance of the media networks created by computers and their networks increases in contemporary society, having no position in these networks, or a marginal one entails social exclusion. – see Figure 7.1. Contrary to that, those that are very much included because they do have a central position, the so-called information elite, increase their power, capital and resources. So, this is a second effect of the possession of information in the information and network society that amplifies old inequalities.

A third amplifying effect comes from *information as a source of skills*. Increasingly, not material or physical access to digital media is decisive but the ability to use them and to turn this use to ones own benefit. As was discussed before, contemporary investigators of the digital divide find ever more evidence of growing relative inequalities of Internet skills and uses. In this early stage of development of ICTs, this already has effects on job opportunities and even wages. Two Dutch economists Centraal Plan Bureau/Central Planning Agency (CPB) have shown that the successful appropriation of ICTs creates a so-called 'skills premium' (Nahuis and de Groot, 2003). On the basis of very extensive quantitative longitudinal data of a large number of countries, they argue that the skills premium of having ICT skills is one of the main causes of increasing income inequality in these countries in the 1980s and 1990s. Recently, Goldin and Katz (2008) have shown that since about 1980 education in digital literacy and ICT skills was not able to keep up with technological development and that this has produced rising wage inequality in the United States.

To conclude: in the network society inequality shifts to positions, relationships and power in networks and in the information society it changes to competencies or skills to process and benefit from information. These moves produce new types of inequality that come on top of the old ones. Unequal competencies and skills are reinforced by unequal positions in social, economic, cultural and political networks and they lead in turn to an unequal division of material resources.

Policy directions

I do not want to leave it with this rather dark picture of inequality in the network society. The trends observed are not a matter of natural necessity. Policies are designed to counter these trends by broadening access to and within networks and by building the skills required to

process information. These policies can be divided into two big classes. The first takes the orientation of *equal chances or opportunities*, the second tries to achieve *equal outcomes* to a particular degree.

The less a bitious policy goal is equal chances. This can be divided in attempts to safeguard formal equal chances and in measures to realise equal material chances by the distribution of resources needed to achieve or maintain them. In government and telecommunication policy, the conception of equal formal chances appears as the broadly supported principle of *universal or public access*. In this context, this means that every citizen or inhabitant should either have a private connection to a computer and the Internet, preferably at home, but also students at schools and employees in working places (universal access). The other option is a connection in a public place such as a library and a community access centre (public access). Achieving this goal has been by far the most important principle of all policies concerned in the last two decades. Behind this principle of providing technological opportunities – see Table 7.1 – is a clear hardware orientation: everybody should have physical access to computers and networks. The common opinion was, and unfortunately still is that the problem of 'digital inequality' is solved as soon as everybody has a computer and Internet connection. The main impetus of this policy is to distribute the relevant hardware, including broadband connections and to connect schools, hospitals, libraries and community centres.

A step further towards the goal of equal chances is made by those who find that formal chances or opportunities of access are not enough in a society that is unequal in so many respects and that a particular (re)distribution of resources is necessary to create not only formal but also material equal chances. Policies based on this assumption usually support the principle of *universal service*. This means more than the availability of a connection (universal access); it means the provision of services every citizen has a right to, such as public information, health services and compulsory education. These services are realised and subsidised in the context of Internet provision by government and public agencies. Special attention can be given to disadvantaged groups and communities. Schools and community access centres are provided not only with connections and equipment but also with staff, software and educational tools.

With the provision of material chances, the transition is made to the policy goal of *equal outcomes*. This means that not only the conditions of access are supplied but also attempts are made to achieve a particular minimum of equal outcomes for everybody. This is not necessarily some

kind of socialist principle. Such a minimum is also widely known and accepted as the number of years and the obligatory results of compulsory education. In this context, it primary means the support of digital skills in education and by providing public or government websites that are simple, accessible and usable enough to be suitable for every citizen who can read and write. Following the analysis in this chapter, it is a vital condition of participation in the contemporary network society to have a minimum of computer and Internet skills of the four types distinguished above. This means not only operational and formal skills but also the 'higher' Internet competencies of information and strategic skills. They should be a part not only of primary, secondary and tertiary education but also of adult education of all kinds. Special attention can be called for the elderly, people with disabilities, functional illiterates and migrants only speaking foreign languages.

Recently, since about 2005 and the discovery of the so-called 'second-level divide', the official policies of governments are beginning to shift from a hardware orientation on physical access to an orientation on education and social and cultural Internet participation (van Dijk, 2009). A clear case is the European Commission that explicitly states in its 2010 action plan and the Riga Declaration (2006) that most support should be given to full participation and to providing people with basic digital competence. Not only governments, but also corporations, public organisations and individuals are obliged to invest more in a minimum of equal outcomes in digital media skills, use and participation in the network society.

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