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OPENING THE BOX
-Exploring the presumptions about the ‘Net Generation’

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ABSTRACT

There are many names or labels which refer to the generation growing up with digital media and these include labels such as ‘Net Generation’ (Tapscott, 1998), ‘digital natives’ (Prensky, 2001), ‘cyberkids’ (Holloway, 2003) and ‘MySpace generation’ (Rosen, 2008). The core idea behind these labels is that young people who have grown up surrounded by digital technology are very different to previous generations in their way of using and even thinking about the new digital technology. This appears to be reinforcing a generational divide and makes the assumption that young people can be categorized into one group in relation to their use of ICTs. The approach in this thesis is to empirically explore, in order to nuance, some of these presumptions about the ‘Net Generation’ (defined according to Tapscott). Thus, the research question is: How can the presumptions about the ‘Net Generation’ be nuanced?

The following three presumptions have been explored within the three papers included in the thesis: i) The ‘Net Generation’ diverges from previous generations in relation to the use of internet; ii) The ‘Net Generation’ is techno-savvy or digital competent; iii) The digital competent ‘Net Geners’ are also digital participants since there is a causal relationship between digital competence and digital participation. The explorations are conducted by using the theoretical concepts ‘digital skills’, ‘self-efficacy’ and ‘participatory culture’. Several hypotheses, deduced from previous research, have been tested on a national representative sample of people born between the years 1978 and 1997 (categorised as the ‘Net Generation’). The results show that ‘Net Geners’ internet usage is diversified; hence, it is simplified to talk about them as a homogeneous group. Those included in the categorisation have different opportunities to participate in the digital
Their internet usage differs both in terms of how much time they spend and what they do online. Their digital skills and self-efficacy in the use of computers are also different and so is the perceived feeling of participation in the information society. This implies that the ‘Net Geners’ do not have equal conditions in relation to participation in the digital society. However, what is meant by participation is still an unresolved question which requires further exploration.

**Keywords:** ‘Net Generation’, presumptions, deconstruction, digital competence, digital participation.
SAMMANDRAG

Idag beskrivs ofta generationen som vuxit upp med internet och digitala medier i termer av att vara en ”internetgeneration” (Tapscott, 1998), ”digitala infödingar” (Prensky, 2001), ”cyberkids” (Holloway, 2003) eller ”MySpace-generation” (Rosen, 2008). Dessa antaganden bygger på att det finns en generationsskillnad i förhållningssätt till internet, d.v.s. att ”internetgenerationen” är de som är kunniga och vana internetanvändare till skillnad från äldre generationer som inte helt naturligt kan ta till sig den nya digitala tekniken. Avhandlingens syfte är att empiriskt undersöka ett antal antaganden om ”internetgenerationen” för att ta reda hur dessa kan nyanseras. Således är frågeställningen: Hur kan antaganden om ”internetgenerationen” nyanseras?

Följande tre antaganden har utforskats inom de tre artiklarna som ingår i avhandlingen: i) ”internetgenerationen” skiljer sig från tidigare generationer när det gäller användningen av internet, ii) ”internetgenerationen” är tekniskt kunniga eller digitalt kompetenta; iii) den digitalt kompetenta ”internetgenerationen” är också digitalt delaktig eftersom det finns ett orsakssamband mellan digital kompetens och digital delaktighet. För att empiriskt undersöka antagandena om internetgenerationen har teoretiska koncept så som ”digital skills”, ”self-efficacy” samt ”participatory culture” använts. Ett antal hypoteser som deducerats utifrån tidigare forskning har testats på ett riksrepresentativt urval av personer födda mellan 1978 och 1997 (de som tillhör internetgenerationen). Resultaten visar att ”internetgenerationens” internetanvändande är komplex och det är därmed förenklat att prata om ”internetgenerationen” som en homogen gruppa. De som ingår i den kategoriseringen har olika förutsättningar att delta i det digitala samhället. Deras internetanvändning skiljer sig åt både när det gäller hur mycket tid de spenderar samt vad de gör online. Deras digitala kompetens och självförtroende när det gäller användning av datorer skiljer sig också åt och det gäller även den uppleveda känslan av delaktighet i informationssamhället. Detta indikerar att inte alla har samma förutsättningar att vara delaktiga i det digitala samhället. Vad som däremot innebär att vara delaktig är fortfarande en obesvarad fråga som behöver ägnas mer uppmärksamhet i framtida studier.
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Sheila Zimic, October 2010
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1. INTRODUCTION

It has been shown in many studies that young people in the industrialized part of the world have adopted the internet with alacrity (Hart, 1992; Lenhart & Madden, 2005; S. Livingstone & Haddon, 2009; Montgomery, 2008; Rheingold, 2008a). In the five Nordic countries, Sweden, Norway, Denmark, Finland and Iceland, more than 95 percent of young people have internet access and the majority are daily users (NORDICOM, 2009). All of these five countries were among the top 15 of 181 countries listed in the digital opportunity index in 2007 (Drotner, 2010). In World Internet Institute’s report Unga Scenskar och Internet (Findahl, 2009) it is stated that over 40 percent of 3-5 year olds uses the internet at least sometimes. It is not only the internet but also other digital media such as mobile telephones and video games that appear to also be highly accessible for Swedish children and young people. ‘Surfing the net’ is ranked as the fourth most popular leisure activity among 9-16 year olds. Watching video clips on YouTube, playing games and visiting online communities and chat rooms appear to be the most popular online activities (Medierådet, 2008).

Based on this early usage and rapid adoption of Information and Communication Technologies (ICTs) a common believe has spread that there is divergence between young people and the older generations in relation to ICTs in general and the internet in particular. Selwyn (2009) argues that the images of the distinctly different technological use that young people are seen to be involved in have proved to be highly influential in popular and political discourse, as well as some scientific discussion. The notion of ‘digital native’ is taken for granted by policymakers, technology vendors and opinion formers worldwide. Selwyn states that “…the ease with which these commonsensical “stories” of the digital native generation are being repeated and “re-told” should be cause for some alarm.” The common-sense thinking is uncritical and there is, according to Selwyn, a need to develop and promote a realistic understanding of young people and digital technology (Selwyn, 2009, p. 366). In scientific discussions the labels such as ‘digital native’ (Prensky, 2001) and ‘Net Generation’ (Tapscott, 1998) established the image of the ‘techno-savvy’ youth.

In this introduction I will criticise several presumptions about young people’s ICT use and explain how this thesis will question these presumptions.

1.1. Stereotypes of the ‘techno-savvy’ youth

There are many names or labels referring to the generation growing up with digital media including those such as ‘Net Generation’ (Tapscott, 1998), ‘digital natives’
According to Tapscott (1998) the ‘Net Generation’ includes those born between 1977 and 1996 and involves ten main aspects that causes the divergence of the ‘Net Generation’ from previous generations. The aspects are: i) strong sense of independence and autonomy which makes ‘Net Gener’ active information seekers instead of information recipients; ii) emotional and intellectual openness which emerges in online communication; iii) communication online allows for opportunities to get to know other people and move from the local to the global arena which makes the ‘Net Gener’ more tolerant of people’s differences; iv) since the internet exposes the ‘Net Generation’ to a much greater range of ideas and opinions it forces them to express their own standpoints; v) they are innovative; vi) ‘Net Gener’ are pre-mature. They show this by being more “techno-savvy” than the majority of adults; vii) they are investigators since they are often interested in how to work new technologies and how to create online content; viii) the notion of the internet is that everything goes much faster than was the case previously. Immediacy is therefore very natural for ‘Net Gener’; ix) ‘Net Gener’ are sensitive to corporate interests since they are critical thinkers and investigators; x) they are used to authenticating everything they find on the internet since the information could be manipulated, hence they are according to Tapscott ‘internet literate’.

The ‘Net Generation’ is, according to Tapscott, the first generation to be more comfortable, knowledgeable and literate than their parents, teachers and other adults and this is because it is easier for children to learn how to use the new technology as it has been around since their birth. Children assimilate technology while adults must accommodate technology which is a difficult learning process, Tapscott argues (Tapscott, 1998, pp. 36-42). The reason why Tapscott talks about a generation instead of life-stages is because he claims that ‘Net Gener’ are different from older generations not only in using technology, but that their brains are developed differently (Tapscott & Dawsonera, 2009, p. 29). The differences mainly concern the processing of fast-moving images.

Prensky (2001) has a similar argument about the learning process of ‘digital natives’ and ‘digital immigrants’. The digital natives are those born during the era of new technology. They are fluent in the digital language of technology and do not even reflect upon the fact that technology is technology. The digital immigrants
must learn to adapt to the new technology in a similar manner to that of an immigrant learning a new language (Prensky, 2001).

The core idea associated with attaching these labels is that the young people have grown up surrounded by digital technology are very different from previous generations in their way of using and even thinking about the new digital technology. This implies that it is not even worth attempting to become a ‘digital native’ or a ‘Net gener’ if you belong to a generation which did not grow up with digital technology. According to Tapscott and Prensky adults might come close to becoming ‘techno-savvy’ but they are never going to be as competent as the young people who have grown up in the digital world. This, I will argue, is problematic since it reinforces the generational divide and undermines other social divides. The categorization of young people as ‘Net Geners’ implies that they are one category and that the internet has a monolithic impact on their lives (Lee, 2005). In this thesis I have chosen to question some of the presumptions about the ‘Net Generation’ by exploring them empirically.

1.2. Deconstruction of ‘Net Generation’

Deconstruction is perhaps generally identified with the philosopher Jacques Derrida (born 1930) and it is often associated with “a strategy of critical analyses of language and texts which emphasizes features exposing unquestioned assumptions and inconsistencies” (Royle, 2000). Derrida states that language is not something passive and objective. The nature of language is to produce meaning and it is produced only with reference to other meanings. Essentially, he argues that we can never establish stable meanings since meaning is the result of the differential significances attached to words. Our choice of meaning is always incomplete since it excludes some other competing meaning. So what does this imply? It implies that the Derridian approach is highly relevant to social science because deconstruction can help reveal values suppressed far beneath the surface of science (Agger, 1991). Deconstruction is not a method but is better described as the logic of destabilization (Royle, 2000). It deciphers the methodology and opens it up to readers in order for them to make their own interpretations regarding the assumptions and empirical findings that are imbedded in the densely technical and figural work. Science from the perspective of deconstruction avoids overreliance on technical and figural gestures; instead it reveals its assumptions to full view and invites readers to join or challenge them (Agger, 1991).

My work does not strictly follow the deconstruction approach but it is, I will argue, inspired by it. My approach is, in accordance with deconstruction, concerned by looking beyond what appears to be “true”; in this case regarding the ‘Net
1.3. Presumptions about the ‘Net Generation’ intended to be explored

The attempt in this thesis is to empirically explore some of the above mentioned presumptions about the ‘Net Generation’. The data used in this thesis is based on quantitative studies. Thus, it is, for instance, not possible to explore whether the ‘Net Generals’ process fast-moving images in a different manner to those of the older generations. However, there are some presumptions that could be explored by using the data and this involves how ‘Net Generals’ use the internet, how they perceive their competence in using computers, what they say they can or cannot do in relation to some particular use of computers and the internet. According to Tapscott (1998) the ‘Net Generals’ are creating content online since they know how to work the technology, which can be interpreted as meaning that since they are techno-savvy they are also participating online. But is it really the case that the ‘Net Generals’ are participating online and what is really meant by participation? In the empirical material it is possible to explore ‘Net Generals’ own feelings regarding being part of the information society. If the image regarding ‘Net Generals’ being digital participants really is true then they should probably also feel that they form part of the ICT-dependent society. The following presumptions that are augmenting the myth of ‘Net Generation’ are empirically explored in the thesis:

- The ‘Net Generation’ diverges from previous generations in relation to the use of the internet.
- The ‘Net Generation’ is techno-savvy or digitally competent.
- The digitally competent ‘Net Generals’ are also digital participants since there is a causal relationship between digital competence and digital participation.

1.4. Why should we question the stereotypes of the ‘Net Generation’?

According to the sociologist Thomas Ziehe (1982) it is a natural consequence in the postmodern society that adults create projections regarding young people. Being young is desirable in the modern society because it is a reminder or a symbol of all the choices, hopes and dreams that are ahead. However, the purpose of the attention given towards young people is not to learn more about their actual lives. Ziehe states that the attention is focused on the myth regarding youth which consists of three types of projections:
1) Backwards projection: The adults are scared of ageing.
2) Present time orientation: Young people should, in their search for a change in life styles, serve as vicarious explorers for the incredulous adults.
3) Future projection: Attempting to discover whether the next generation has the ability to solve those problems that have proved impossible for the adults.

(Ziehe, 1982)

Bearing in mind Ziehe’s argumentation, there is reason to believe that the ‘Net Generation’ is an idealized image of young people in the digital world. Some researchers have criticized the projection of the ‘techno savvy’ ‘Net Generation’ by exploring the digital inequalities among young people (Bennett, Maton, & Kervin, 2008; Helsper & Eyon, 2010; Livingstone & Helsper, 2007; Peter & Valkenburg, 2006; Sherry & Fielden, 2005). Kirsten Drotner (2010) writes:

“Young media users have been idealised and defined in terms of generation or technology through phrases such as the net generation (Tapscott 1998), the digital generation (Papert 1996), cyberkids (Holloway & Valentine 2003) and thumb tribes (Rheingold 2002). Such celebratory simplicities serve to obfuscate the uneven takeup and use of digital media and to underestimate very real structural barriers in terms of media ownership, organisation and power (Buckingham 2007, Drotner 2009).”

(Drotner, 2010, p. 30)

In relation to young people and media, Drotner emphasizes that in both the official and scientific debate young people and media are seen either from a pessimistic or an optimistic perspective even though the optimistic approach is not as common (Drotner, 1999). The optimistic approach is possible because of young people’s increasing wealth and free time and their importance as a group of consumers (Drotner, 1999, p. 28).

This thesis focuses on the ‘Net Generation’ which is an optimistic projection. In the context of that projection there is a focus on young people’s digital competence and digital participation. Moreover, participation is often associated with political participation (Carpentier, 2007) and when dealing with youth participation Coleman (2007) states that the normative discourse is even more pronounced. The government-sponsored agenda to promote youth participation encourages activities such as voting, party-joining, newspaper-reading, but discourages activities such as strike action and posting political graffiti. Coleman suggests that
governments do not simply seek to create engaged citizens; they want to create virtuous citizens who only engage in approved means of participation.

1.5. Aim of the thesis and research question

In this thesis I focus on the presumptions about the ‘Net Generation’, often ascribed to young people in the digital society. My thesis is from a Swedish perspective however the findings could be of value in a broader context. The aim is to empirically explore so as to nuance some of the ‘taken for granted’ images about the ‘Net Generation’.

The research question is;
RQ: How can the presumptions about ‘Net Generation’ be nuanced?

By questioning the ‘taken for granted’ it is hopefully possible to achieve a more balanced perspective and escape the risk of making ill-informed decisions about young people’s participation in the digital society.

2. QUESTIONING THE PRESUMPTIONS ABOUT YOUNG PEOPLE IN THE DIGITAL WORLD

The questioning of the presumptions about the ‘Net Generation’ has generally taken its starting point from the digital divide debate. This section presents the implications of the digital divide debate and how it has further developed in questioning the taken for granted images regarding young people in the digital world.

2.1. Implications of the digital divide

The classical definition of ‘digital divide’ aimed at explaining the gap between those who have access to the Information and Communication Technologies (ICT) and those who do not. However, some researchers have stressed that much research on the digital divide is oversimplified (Mossberger, Tolbert, & Stansbury, 2003; Van Dijk & Hacker, 2003; Warschauer, 2003). DiMaggio et al. (2001) criticized sociology for being slow in relation to following the development of new technologies within society. Instead basic research from non-academic survey organizations which have collected data has caused DiMaggio, Hargittai, Neuman and Robinson (2001) to be critical in relation to their findings. Research concerning the internet and particularly the digital divide has caused the authors to emphasize that more effort should be placed on analyzing differences among people having access to the internet. This should be conducted by studying the significance of different technical means, where and how people use the internet, what skills
people have in using the internet, if they have social support and the purpose of the usage (DiMaggio, et al., 2001).

Nilsson (2005) identified several barriers in relation to the use of ICTs. He states that the hindrances are not only related to having physical access to the internet but also to the willingness of people to using it, allowances in relation to using it (limitations due to number of family members, household work, lack of time etc.), the ability to use it (skills and knowledge, registration problems, physical disabilities etc.) and daring to use it (limitations due to personal risks, virus attacks or risks for their children).

In a similar manner Selwyn (2003) concludes that an individuals’ interaction with ICT is not as simple as the use/non-use dichotomy often presented in previous research. It is, rather, dependent on the complex relationship of agency and structure. The non-use is bounded to ‘opportunity structure’ (to have access to the internet and have functional equipment), structural circumstances which prevents individuals from making use of ICT and sometimes it is about individual choices meaning that people make their own decisions in relating to the impact that ICT should have on their lives. Some people are users of some of the new technology but not others, for example some use mobile telephones but do not use the internet (Selwyn, 2003).

Facer (2001) also explains the multidimensional aspects of the non-use of ICT. She states that we often think that we know what it means to be a part of the digital society, but often forget to ask the questions – “what do we really mean by the ‘digital divide’” and what does it mean to be computer literate, to have access to a computer and finding a way of using computers in our daily lives? (Facer, 2001). As Facer has shown computer access at home has a significant impact on the regular use of computers. Those who do not have ‘easy access’ to the internet are less likely to identify the advantages for their own computer usage. Types of usage are highly dependent on interest. Facer argues that those who are interested in art will use computers to design and make images whilst those who are interested in writing will use the computer as a tool to carry this out. Similar to the notion of interest, as a means of explaining use, is the attitude towards ICT. Facer and Furlong (2001) found that some children did not want to be identified as ‘computer nerds’ for using the school computers. Last, but not least, the explanation of use is related to the importance of social networks. Families who did not know how to use a computer or fix a computer problem did not make significant use of their family computer (Facer & Furlong, 2001). In recent years some researchers have turned their attention to the importance of skills with regards to the use of ICT, as a part of the digital divide debate (Hargittai, 2005; Livingstone, VanCouvering, & Thumim, 2005; Van Dijk & Hacker, 2003).
2.2. Digital inequalities among young people

There are few studies that have addressed the issue of digital inequalities among children and young people and have thus criticized the presumptions about the ‘Net Generation’ (Bennett, et al., 2008; Livingstone & Helsper, 2007; Peter & Valkenburg, 2006; Sherry & Fielden, 2005). Peter and Valkenburg (2006) tested the disappearing digital divide approach against the emerging digital differentiation approach by testing their predictions regarding the varying use of young people with regards to internet use. The disappearing digital divide approach assumes that the gap will be closed once everyone obtains access to Information- and communication technologies, while the emerging digital differentiation approach assumes that, regardless of access, people will have different internet use patterns mainly because of differences in socioeconomic, cognitive, and cultural resources (Peter & Valkenburg, 2006). The authors found that the tendency of young people towards a broader internet use can be predicted by the emerging digital differentiation approach. Young people with greater socio-economic, cognitive, and cultural resources would show a greater tendency towards broader internet use than those adolescents with limited access to these resources (Peter & Valkenburg, 2006).

Bennett, Maton and Kervin (2008) emphasize that there are studies indicating that youngsters are very familiar with technology, using it for a variety of operations but there is a significant proportion of the youth who do not have the access to technology or digital skills often ascribed to the ‘digital natives’. This, according to Bennett, Maton and Kervin (2008), could lead to the neglect of those who are less interested or less able to use new technology and that socio-economic and cultural factors will be overlooked. In the study of Sherry and Fielden (2005) it is suggested that the Millennials (born after 1983) are more confident with technology when compared to older generations. They were more likely to have studied aspects of computers in school and stated that they were confident in their ability to teach themselves regarding the use of computers. However, Microsoft Word was the only application on which the Millennials scored significantly higher than their older cohorts. Thus, it is emphasized by Sherry and Fielden that the Millennial cohort are more confident than competent with regards to computers and computing.

Cheong (2008) critically examined the techno-savvy image of young adults in Singapore as the majority of youngsters have access to the internet. Cheong found that the internet skills and problem-solving behaviour of the young people was varied. A significant proportion proved to be unfamiliar in relation to solving computer related problems while others stated that they were able to diagnose and
solve computer problems on their own or with some assistance from the technical support staff. Based on the results, the author states that there appears to be a secondary digital divide among young adults in relation to internet skills, problem-solving behaviour and internet usage patterns which challenges the image of the techno-savvy youth (Cheong, 2008).

Facer and Furlong (2001) also found that there are children who are low computer users. The ‘low users’ were interviewed and some themes regarding their position at the margins of the digital society were identified. Firstly the authors identified that access to computers at home is not only dependent on the socioeconomic status but is also associated with the values of the family regarding the purchase and use of a computer. Secondly it appears that the lack of access at home does not increase computer usage in other places. In fact it appeared that those with home access to a computer are more likely to avail themselves of opportunities to use computers in other places such as the school or at a friend’s house. Thirdly the children who are low computer users referred to those possessing a computer at home as being the ‘brainy ones’ and thus likely to attain higher academic success. Thus social and cultural resources have a significant impact on access (Facer & Furlong, 2001).

In a recent study by Duimel and de Haan (2009) it has been shown that young people are not necessarily more skilled than their parents in using ICT. It was the easier skills required to operate a computer and software, such as adding a picture to a document and creating an email list, which proved to be higher among teenagers than their parents. However, in relation to the more difficult skills involved in the operation of computers, such as the installation of a new version of Windows, adults, and, in particular fathers in the family, proved to be more skilled than their teenagers. When dealing with information skills such as awareness of reliability of the information found on the internet, the adults again proved to be more skilled than their teenagers and this was also the case in relation to ‘strategic skills’ such as saving money and time and making better choices when buying products (Duimel & de Haan, 2009).

This thesis follows the abovementioned tradition of questioning the images that have been taken for granted regarding the usage competence of young people in relation to digital technologies as these are some of the most pronounced assumptions in the ‘Net Generation’ discourse. In previous research it can be seen that the main focus is on digital skills of the young people, what they know and do not know regarding the use of computers and the internet. I have chosen to explore this aspect further, but I also attempt to relate the exploration of digital skills to the context of digital participation since the main reason for being skilled is to be able to take part in the digital society (EuropeanCommunities, 2007).
3. **THEORETICAL CONCEPTS AND FRAMEWORKS**

To be able to nuance some of the presumptions about the ‘Net Generation’ I have first of all gained some insight from previous research with regards to what has already been questioned and what ought to be further explored. And this has also provided assistance in relation to the choice of theoretical frameworks. In this section I attempt to explain my choice of theoretical concepts and frameworks and how they can contribute as tools in order to gain new understandings about how presumptions about the ‘Net Generation’ could be nuanced.

3.1. **Skills and self-efficacy**

In relation to the stereotypes regarding the ‘techno-savvy’ young people (stereotypes that dominate the ‘Net Generation’ discourse) the main focus in previous research has been to explore how skilled they are in using computers and the internet. However, there are many different ways in which these skills could be described. Often, instead of skills, the broader concept *literacy* is used. Warschauer (2003) explains that there is not just one type of literacy but many types and their meanings vary according to the context. Literacy has always meant not only education but also power and the same could be applied to ICT according to Warschauer. What ‘digital literacy’ really means is a question that has been attempted by some researchers in recent years (Erstad, 2005; Eshet-Alkali & Amichai-Hamburger, 2004; Hargittai, 2005; Van Dijk & Hacker, 2003).

Bawden (2001) attempted to explain the meaning of various concepts regarding digital literacy, such as the commonly used concepts *computer literacy, media literacy, network literacy*. These are all similar to the concept of digital literacy and are sometimes used as synonyms. However, digital literacy is a broader concept which can be compared to, for example, computer literacy which regards the ability regarding the use of computers. Bawden (2001) stressed that digital literacy is the ability to understand all kinds of content (audio, visual and text). It should also include ‘information literacy’. Different types of skills are embedded in the notion of ‘digital literacy’ such as photo-visual skills, combining and reproducing skills, branching skills, information literacy skills and socio-emotional skills (Eshet-Alkali & Amichai-Hamburger, 2004) or according to Erstad; ‘digital literacy’ contains “skills, knowledge and attitudes in using digital media to be able to master challenges in the learning society” (Erstad, 2005).

In this thesis I have used the framework ‘digital skills’ and ‘self-efficacy’. At a later stage these will be discussed in relation to how they are operationalised the theoretical explanation will firstly be presented.
3.1.1. Digital skills

Digital skills is a framework used by van Dijk and Hacker (2003) which, they propose, should include three different levels; i) instrumental skills, ii) information skills, iii) strategic skills. The instrumental skills refer to being able to operate both hardware and software while information skills refer to a slightly more advanced type of internet usage as it refers to being able to search, select, process, and apply information using the hardware and software. The strategic skills are at the highest skill level and they refer to being able to use the discovered information to improve one’s own social position in society (Van Dijk & Hacker, 2003). At a later stage, van Dijk and van Deursen (2008) developed a definition of the skills and used the framework to apply it to internet related skills (van Deursen & van Dijk, 2009). They emphasize that many previous studies concerning digital skills of citizens do not go beyond a conceptual definition and common sense thinking. The authors argue that their framework attempts to go a step further by producing an elaborate system of indications and empirical measurements for four types of digital skills and that it is applicable in multiple digital domains, both stand-alone computers or multimedia and networks such as the internet. The four types of skills is a deflocculated framework from the original three types of skills framework:

“Operational skills: the skills to operate digital media;
Formal skills: the skills to handle the special structures of digital media such as menus and hyperlinks;
Information skills: the skills to search select and evaluate information in digital media;
Strategic skills: the skills to employ the information contained in digital media as a means to reach a particular personal or professional goal.” (van Deursen & van Dijk, 2009)

In this thesis the questions that van Dijk and van Deursen developed have served as an inspiration but I have chosen to use the former definition of ‘digital skills’ (Van Dijk & Hacker, 2003). The first reason is that this later framework was unknown at the initiation of my studies and the second reason is that the three type of skills model was simpler to apply to the empirical data since I intended to explore both internet and computer related skills. The framework van Dijk and van Deursen used in 2009 was more suited to measure internet skills.

This particular framework was chosen because it takes a holistic perspective regarding what kind of skills people are supposed to know in order to be able to participate in the digital world. Van Dijk and van Deursen (2009) criticized the European Computer Driving License module ‘e-citizen’ as being limited to operational skills or the so called ‘button knowledge’ hence the authors developed a broader definition of digital skills. The framework also shows that the skills are cumulative; meaning that it is not possible to possess good information or strategic
skills if there is no ability regarding how to operate the digital media and how to navigate within the structures of digital media.

I argue that a holistic perspective is necessary in order to nuance the assumption that “digital competent ‘Net Gener’ are also digital participants”. In order to explore the relationship between digital competence and digital participation it is important to consider the set of skills said to be crucial in order to participate. Analyzing only one type of skills could provide a biased picture since the possession of one type of skills does not necessarily mean that one is able to participate in the digital world.

There are however other holistic perspectives regarding digital skills such as that developed by Eshet-Alkali and Amichai-Hamburger (2004). The reason for choosing the framework of van Dijk and Hacker is because it is also applicable to the specific empirical data used in this thesis. The empirical data is based on the answers from Swedish people regarding what they are doing online and how they themselves rate their skills. It is for example not based on experiments or in-depth interviews but on questionnaires. For this reason specific definitions regarding what each type of skill includes are crucial to develop adequate questions which could measure these skills. The framework developed firstly by van Dijk and Hacker (2003) and later by van Dijk and van Deursen (2008) is operationalised in such way that each skill level is specifically defined by the type of tasks that should be able to be performed. The authors have phrased specific questions regarding digital skills (see appendix); hence it was possible to compare the questions with the existing questions in the World Internet Institute’s questionnaire.

3.1.2. Self-efficacy

Another way of exploring skills is to measure self-efficacy in using digital technology by asking people how confident they are in using it. The individual’s belief in his/her own ability to perform, self-efficacy (Bandura, 1997) is important for the use of digital technologies. LaRose, Mastro and Eastin (2001) found that positive outcome expectations, internet self-efficacy, and perceived internet addiction were directly related to internet usage. Negative outcome expectations, self-disparagement, and self-slighting were negatively related to internet use. Torkzadeh and van Dyke (2002) also found that an individual’s belief in his/her ability to perform affects his/her performance. They followed 189 students before and after computer training and found that both male and female respondents benefited from training and improved their self-efficacy scores for all factors.

This is a relevant perspective in order to nuance the stereotypical images regarding the ‘Net Generation’ since self-efficacy, according to previous findings, is
important for the use of computers and internet. Tapscott (1998) has argued that for the first time young people are more knowledgeable than their parents, teachers and other adults and that the power relations have changed for the first time. In addition to this, young people should feel empowered and confident in their use of computers and internet. For this reason it is interesting to explore their self-efficacy in the ICT context.

3.2. Digital participation

In Swedish language there are two words describing participation. ‘Deltagande’, which means to take part in something (not necessarily active) and ‘delaktighet’ which means to be part of something (to actively participate in something). Participation could be applied to many spheres but in relation to digital participation there are often associations with being an e-citizen. As previously stated, according to van Dijk and van Deursen (2008), digital skills are necessary in order to be able to participate in the digital society or in being an e-citizen. From this perspective, participation is considered to be a democratic issue and the digital participation is often concerned with various forms of active participation in order to take part in the civic and political sphere.

When dealing with children and young people, the democratic issue often refers to the freedom of speech and is stated in article 12 of the Convention on the Rights of the Child:

“State Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child.” (UNICEF, 1989)

However, according to Hart (1992) there are different degrees of participation. Through the model “the ladder of participation” Roger Hart (1992) explains the different degrees of young people’s participation. The ladder consist of eight steps in which the first three steps consider the non-participation and steps four to eight are different degrees of participation:

1. Manipulation - children act as the adults tell them to act without knowing the aim or consequences of their act.
2. Decoration - children take part in events by performing (singing, dancing) or wearing T-shirts with logos but do not really understand the cause. They take part in events because of other reasons that are interesting for them, such as refreshments or an interesting performance.
3. **Tokenism** - is used to describe occasions when young people are asked to say what they think about an issue but have little or no choice about the way they express their views. For example they are asked to choose from predefined choices, which may not correspond to their true expectations.

4. **Assigned but informed** - children understand the intentions of the project; they know who made the decisions concerning the involvement and why; they have a meaningful rather than ‘decorative’ role and they volunteer for the project after the project has been made clear to them.

5. **Consulted and informed** - the project is designed and run by adults but children are consulted. Children understand the process and their opinions are treated seriously.

6. **Adult-initiated, shared decisions with children** - decision making is shared with the young people but the project/act is still initiated by adults.

7. **Child-initiated and directed** - children have the initial idea and decide how the project should be carried out. The adults are available for support but they do not take charge of the project.

8. **Child-initiated shared decisions with adults** - young people have the initial idea, set up a project and finally invite adults to join them in making decisions. (Hart, 1992)

Hart’s model for the participation of young people is in line with Carpentier (2007) who states that the definition of participation struggles between the minimalist and the maximalist variations of democracy and politics. The minimalist approach is limited to elections of political representatives who organize their decision-making and the maximalist approach considers both representation and participation in the sphere of political decision-making, but also in other societal spheres such as the economy, culture and media.

With reference to digital participation, the question is then whether people use the internet to participate in society at large, or participate in the internet for its own sake (S. Livingstone, 2009). The internet is often seen as a potential for increasing participation within society, especially among young people since they are considered to be those who are most engaged with it (Loader, 2007).

Livingstone, Bober and Helsper (2005a) argue that extending the concept of participation in relation to internet use (by including activities such as communicating, peer-to-peer connection, seeking information, interactivity, webpage/content creation as well as visiting civic/political websites) shows that young people are actively engaged in a wide range of activities online. However,
Livingstone, Bober and Helsper did not resolve the question about which internet activities merit the label of ‘participation’.

In an attempt to define what is meant by digital participation, Henry Jenkins (2009) defined the concept of participatory culture. The participatory culture is with:

1. relatively low barriers to artistic expression and civic engagement,
2. strong support for creating and sharing creations with others,
3. some type of informal mentorship whereby what is known by most experienced is passed along to novices,
4. members who believe that their contributions matter, and
5. members who feel some degree of social connection with one another (at least, they care what other people think about what they have created).

(Jenkins, 2009, pp. 5-6)

The concept of a participatory culture offers an idea in relation to the kind of internet activities which are defined as being involved in a participatory culture. It is used in this thesis to explore which internet activities, defined by the concept, merit the feeling of participation in the information society. Jenkins’ definition of participatory culture relates to the concept of ‘interactive media’ which is used to explain the notion of how digital participation takes place. It refers to a more active participation and is therefore used as a framework in an attempt to nuance the image regarding the relationship between digital competence and digital participation. In one of Tapscott’s (1998) aspects regarding the ‘Net Generation’ it is stated that the ‘Net Geners’ are information seekers rather than information recipients, which indicates that they are active participants. In addition to this, it is relevant to explore the framework of ‘participatory culture’ since it relates to the image of ‘Net Geners’ being active participants.

Some researchers claim that the interactive media is helping young people to attain skills for civic and political engagement (Montgomery, 2008; Rheingold, 2008b) by inserting their voices in the public discourse. The nature of the interactive media is simply requiring active participation (Rheingold, 2008b). However, there are also some critical voices regarding the participatory potential of the interactive media (Carpentier, 2007). The expectations regarding the participation of young people in the information society builds upon stereotypes both in relation to the image of youth and to the image of technology. There is an existing technology deterministic view which poses generational differences to be produced by technology, rather than being as a result of social, historical and cultural factors (Buckingham & Willett, 2006).
Furthermore, in accordance with Hart (1992) and Carpentier (2007), Livingstone (2009) states that the concept ‘participation’ is problematic since it means different things to different people and it is not clear whether we should consider the participation in peer communication and sharing content with the help of social media as participation. Previous findings have shown that the efforts regarding young people’s political and civic engagement online tend to attract those who are already engaged and interested. Thus the internet can serve as a powerful tool to organize those who are already engaged but it is not obvious that it succeeds in increasing the political and civic engagement among young people at large. Moreover, Livingstone argues that the issue related to the attempts of engaging children and young people through the internet also concerns the status of young people as citizens, especially those who are not old enough to vote (S. Livingstone, 2009).

4. METHODOLOGICAL POINTS OF DEPARTURE

The aim in this thesis is to nuance some of the assumptions about the ‘Net Generation’. This has been performed by exploring the internet use, digital skills, and self-efficacy in computer use and perceived feelings of participation in the information society for young Swedes. The following three images are explored:

- The ‘Net Generation’ diverges from previous generations when it comes to the use of the internet.
- The ‘Net Generation’ is techno-savvy or digitally competent.
- The digitally competent ‘Net Geners’ are also digital participants since there is a causal relationship between digital competence and digital participation.

The explorations are presented within the three papers included in this thesis. The procedure in each paper will be discussed, however, before providing details concerning the methodological procedure; I wish to describe my research process.

4.1. My research process

I started my research process as an industrial Ph D student at the World Internet Institute, a Swedish research institute that studies the internet usage of Swedes. My task was to analyze data and write reports regarding young people’s internet usage and at the same time use this data for my research. From the literature review I found two main approaches regarding young people’s internet usage. One approach focused on the risks associated with young people’s internet usage and the other approach focused on the aspect that as the younger generation has
grown up with digital media their approach to its use and their competence is totally different to previous generations. I found that this difference was assumed to exist because of a generational divide but also because of a digital divide and that this digital divide was partly the result of unequal digital skills. The second approach was more suitable because of my own interests regarding young people’s life standards.

The initial idea was to discover how digital skills are defined not only in the literature but also with regards to how young people themselves define digital skills. That is, what is important to them in relation to digital skills? Finally these approaches were supposed to lead to the discovery of a suitable means of measuring digital skills, something that would also provide the World Internet Institute with some results.

However, when I started to look into definitions regarding digital skills I found that there was no distinct, universal definition. I was inspired by a definition framed by van Dijk and Hacker who made an effort in operationalising what digital skills are about. Since it proved impossible to discover a distinct definition for use in relation to discussions concerning digital skills, I started to become even more critical about the aspect regarding young people being ‘techno-savvy’. In addition it proved very difficult to recognize myself in the definition of ‘Net Generation’ even though, according to Tapscott’s definition, I belong to that category.

I set out to empirically explore some of the images regarding the ‘Net Generation’ and discovered that it was not possible to only give a descriptive analyses regarding how the so called ‘Net Geners’ use the internet, but that there had to be a comparison with at least one older generation. This is what has been attempted in the first paper. The results in the first paper did, however, cause there to be doubts with regards to continuing to find a measurement for digital skills. In the search for suitable questions in relation to measuring digital skills, the question to be answered appeared to be in relation to what are the skills supposed to be good for. From previous research it became clear that the focus is from the perspective of the citizen. The digital skills are supposed to be important in order to be able to participate in the digital world. At this point I decided to use van Dijk and Hackers model regarding digital skills.

One question in the World Internet Institute’s questionnaire measures peoples own feelings with regards to participating in the information society. I decided to make use of the question and to examine which type of skills and online activities merit a
feeling of participation in the information society. The initial idea was to categorize users and examine which type of use merited a feeling of participation. However, this meant that there should be an idea relating to the make-up of these categories, which did not exist at this stage. I also wanted to find out which skills merited the feeling of participation in order to nuance the image that all ‘Net Geners’ are ‘techno-savvy’ and digital participants. However, not many new questions were added regarding digital skills and the decision was made to include those deemed to be suitable and which were in accordance with the theoretical framework.

The starting point was an exploration of the relationship between digital participation and skills, self-efficacy, attitudes toward new technology and background variables (paper 2) and at a later stage Rolf Dalin and I explored which internet activities merited the feeling of participation in the information society. Since the word “participation” has two meanings – two words in the Swedish language, it was somewhat confusing as to how to define participation. This is also not clear in the literature. However we were interested in some kind of active participation and assistance was offered from Jenkins’s concept of participatory culture. This would assist in exploring what is meant by ‘Net Geners’ being digital participants. Do they engage in activities classified as participatory culture? And if this is the case – are these activities related to their feelings of participation?

Throughout my research I have used the data in an attempt to go beyond the presumptions about the ‘Net Generation’ but it did not prove to be possible to meet the initial aim of attempting to understand the definition of digital skills given by the young people.

4.2. Research setting

The data used in the thesis comes from a Swedish research institute called the World Internet Institute which is a part of the international World Internet Project (www.worldinternetproject.net). The World Internet Project (WIP) is an international, collaborative project looking at the impact of the internet around the world. Today the project has 33 member countries represented by universities and research institutes. Every member country is responsible for its own funding. The national samples are representative of the populations in the countries. About 100 questions are “Common Questions”, meaning they are formulated in the same way, and are thus comparable cross-nationally. Beyond the common questions each member country is free to include other questions which may be interesting in relation to their specific national context. However, the possibility of including new questions is often limited due to the extent of the questionnaire but also in addition to the continuity in questions in order to be able to conduct follow-up studies. The World Internet Project started in 1999 in the USA at the Center of
Communication Policy/UCLA and is now at the Digital Center of Annenberg School of Communications. Sweden joined the project in the year 2000.

4.3. Sampling strategy

World Internet Institute (WII) has, since the year 2000, collected data regarding Swedish people’s use of information and communication technologies and its effect on individuals, families and the society at large. This has been conducted primarily through a revolving panel study “Svenskarna och Internet” using telephone interviews, but also by means of a web questionnaire which is the same questionnaire as is used in the telephone interviews. “Revolving panel” means that the initial sample base consists of a panel of respondents interviewed each year. Some of the respondents chose not to be a part of the panel for various reasons and the “drop-offs” are compensated for by new samples of people. For the first year (year 2000) of data collection, a sample of 2000 persons 18 years and older was randomly selected from the Swedish national population register. In order to maintain a constant number of 2000 panel respondents, each year about 700 new respondents are randomly selected to compensate for the “drop-offs”. The new recruits for the panel are conducted by using stratified random samples on age and gender in order to maintain a constant and representative distribution with regards to these variables.

Since the year 2008 the panel has extended its remit to include those of the Swedish population who are 12 and above. For different reasons two separate questionnaires were designed, one for the young people within the age group from 12-15 and one for those who are 16 and older. One reason for this is that the psychological development of young people is important to consider with regards to the answers given to the questions (Dillman, 2007). Another reason is that young people under the age of 16 must have the permission of their parents or guardians in order to be able to participate in the study. Thus, the interviewers spoke first with the parent/guardian and asked some questions regarding the household, background information, their internet use and about the child’s internet use. Following this, the interviewer asked to talk to the child (12-15 year old) and performed the interview with the child. The duration of the interview was approximately 20 minutes. The first year of the interviews with the 12-15 year olds (in 2008), was considered to be a pilot study while in 2009 an even larger sample was drawn for 12-20 year olds in order to be able to perform more detailed statistical analyses on that age group (WII, 2010b).

In this thesis data from 2008 and 2009 is used and in the table below the sample sizes for the two years are shown.
Table 1. Sample sizes for year 2008 and 2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Sample size</th>
<th>Age</th>
<th>Period for data collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>2,266</td>
<td>12 years &lt;</td>
<td>February – May 2008</td>
</tr>
<tr>
<td>2009</td>
<td>2,353 (weighted 2,063)</td>
<td>12 years &lt;</td>
<td>February – May 2009</td>
</tr>
</tbody>
</table>

4.4. Variable creation

The questionnaire consists of a range of different questions about internet activities, attitudes towards the internet and questions about skills in using computers and the internet. Both users and non-users are represented in the study. The questionnaire is extensive and will not be presented in its entirety; however, the questions that from the focus of this thesis, which involve questions concerning digital skills and digital participation are presented in table 2. The full questionnaires can be found at [www.wii.se](http://www.wii.se) (WII, 2010a).
Table 2. Questions about computer self-efficacy, digital skills and participatory culture

<table>
<thead>
<tr>
<th>Self-efficacy</th>
<th>How competent are you when it comes to using the computer? Not competent at all, not that competent, fairly competent or very competent?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital skills</td>
<td><strong>Instrumental skills</strong></td>
</tr>
<tr>
<td>Computer: Do you know how to do following things with a computer and computer accessories?</td>
<td>How difficult or easy would you say it is to do the following things online? Please answer on a scale from 1 to 5. 1 means it is very difficult and 5 means it is very easy.</td>
</tr>
<tr>
<td>- Plug in and install new computer accessories such as a printer, external hard drive etc.?</td>
<td>- Search and find information you are interested in?</td>
</tr>
<tr>
<td>- Install or configure a network in order to share files, printer and broadband at home?</td>
<td></td>
</tr>
<tr>
<td>- Install a new computer program?</td>
<td></td>
</tr>
<tr>
<td>- Install a new operating system?</td>
<td></td>
</tr>
</tbody>
</table>

| Participatory culture & Civic and political oriented participation | - Do you write a blog? | - Are you a member of a community online? | - How often, if ever, do you use the services for price comparisons in order to compare prices for a service or a product? | - How often, if ever, do you upload video clips online on web pages such as YouTube? |
| | - How often, if ever, do you upload photos? For instance on a blog, webpage or community? | | - How often do you use services for file sharing such as BitTorrent, Kazaa, DC++ or the Pirate bay? | - How often, if ever, do you use the internet to search for political information? |
| | - Do you ever use services for file sharing such as BitTorrent, Kazaa, DC++ or the Pirate bay? | | - How often, if ever, do you use the internet to search information about the society? | - How often, if ever, do you use the internet to search for official information from the government or municipalities? |

*Note: Instrumental internet and computer skills – answers are coded: 0=No; 1=Yes. Information and strategic skills are measured on a five-point scale with the values 1 to 5 (1 means very difficult and 5 means very easy), never is coded as 0. The question about self-efficacy is coded with values 0 to 3 (0=
not competent at all; 3 = very competent). The questions about participatory culture are coded 0=No; 1=Yes for the questions regarding the use of blogs and communities and the rest of the questions are measured on a five-point scale 1=Sometimes, 2=Monthly; 3=Weekly; 4=Daily; 5=Several times daily and 0=Never.

The questions presented in table 2 are all included in the 2009 years questionnaire while the questions regarding instrumental computer skills and information skills are absent in the 2008 years questionnaire. This is because the questionnaire is revised every year before going into the field and in the study for 2009 the aim was to include more questions regarding digital skills. However, at the time revisions were made it was not definite that van Dijk and Hackers framework was going to be used. Instead a set of questions were included that were considered to complement the already existing questions. Thus, some questions referring to computer use (here defined as instrumental computer skills) were designed and included. In addition, a set of questions measuring the experience of using digital media in different contexts was included because this was considered to be in accordance with some previous findings (Erstad, 2005; Eshet-Alkali & Amichai-Hamburger, 2004). These questions can be found at www.wii.se (WII, 2010a).

Once the decision had been finally taken to use the framework of van Dijk and Hacker for my research, the questions regarding experience in using digital media in different contexts were excluded from the analyses. Thus the questions used in this thesis were not designed by using van Dijk and Hacker’s framework. The already existing questions in World Internet Institutes questionnaire were deduced or interpreted with assistance of the model for digital skills designed by van Dijk and Hacker. When dealing with digital participation Jenkins’ framework for participatory culture was used to identify the questions in the questionnaire relating to that concept. It is also important to clarify that all the questions are based on people’s own answers and are thus based on the respondents’ own estimations and perceived feelings.

Questions about instrumental skills are found both in relation to computer usage and to internet usage (see table 2). The chosen questions are not exactly in accordance with van Dijk and van Deursen’s (van Deursen & van Dijk, 2008, 2009) definition of operational internet skills and formal internet skills but they are interpreted to be at the level of instrumental skills since they refer to knowledge in relation to operating hardware and software and operating specific internet related activities. However, all the items are not necessarily on the instrumental level of skills. It appears that some of the skills are more advanced than others. In the case of instrumental internet skills “sending email” and “attaching documents to email” are the most basic skills while “downloading music” and “making voice calls” are
more advanced skills. The basic skills in instrumental computer skills are “install a new program” and “plug in and install new computer accessories” while the more advanced skills are “install or configure a network in order to share files, printer and broadband at home” and “install a new operating system”. According to van Dijk and Hacker and van Dijk and van Deursen, the instrumental skills are the basic skills, which are prerequisites for being able to fully use the information and strategic skills. However, the skills of downloading music, making voice calls, installing a new operating system and configuring a network are not the most basic skills and should not have been classified as such. At the time the classification was made, these skills were interpreted as instrumental skills because they were related to operating hardware and software. The information skill relates to several of the proxy questions on measuring information skills (see appendix). It relates to questions:

- How often do you have no idea on where to find information on the internet?
- How often do you find it hard to come up with suitable search queries?
- How often do you have no idea which search result to pick?
- How often do you find the desired information on the internet?

In this thesis the information skills are measured by asking:

*How difficult or easy would you say it is to do the following things online? Please answer on a scale from 1 to 5. 1 means it is very difficult and 5 means it is very easy. Search and find information you are interested in?*

The phrasing of the question is not the final version since it only refers to two things, searching and finding information. It would have been more precise to measure these separately by asking two questions instead of one. The question regarding information skills was included in the 2009 questionnaire but it is not a totally new question. It has been included in the early studies of “Svenskarna och Internet” and was re-included in the 2009 study. The reason for this was that a measure of information skills for my research was required and it was considered to be more reliable to use a question that had already been tested and used in previous studies. Another reason was the limited opportunity to include new questions due to the extension of the questionnaire thus it was rationalised that one question regarding information skills would be sufficient.

The strategic skills in this thesis refer to the benefit of performing price comparisons (see table 2), which is proposed by van Dijk and van Deursen (2008) as one type of strategic skills. This means that as previously mentioned with the information skills, the strategic skills in this thesis do not cover the entire concept of the specific type of skills. They do however measure strategic skills in relation to
economic benefits, that is, when making price comparisons. These questions are almost identical to the proxy questions regarding strategic skills in making price comparisons defined by van Deursen and van Dijk (see appendix). The reason for not including more questions regarding strategic skills in the 2009 questionnaire was because, as mentioned previously, the theoretical framework for use in further studies had not been determined at this stage. The strategic skills are specific for the framework of both van Dijk and Hacker and van Dijk and van Deursen, while information skills is a concept which has been also defined and used by other researchers (Livingstone, et al., 2005). In a future study the requirement would be for more extensive measurements, covering more of the aspects regarding digital skills in order to be able to come closer to the goal of having a holistic perspective regarding the digital skills necessary in order to be able to participate in the digital world.

Another important question is that concerning the perceived feeling of participation:

_You have now answered a range of questions about different media and you have probably heard or read about surfing the internet, using email and information technology. Do you feel like a part of this new information society?_  
The answers are: 0=No, not at all, 1=Yes, but only a little, 2=Yes, for the most part, 3=Yes, totally.

Participating or being a part of the information society, in this question, refers to the general use of ICTs. It is measuring the perceived feeling of people in relation to being part of the ICT related society. It does not provide information about the extent of that participation. This question is used because one hypothesis relates to the feeling of participation being linked to how much people participate in the ICT related society.

### 4.5. Background variables

The background variables that were analyzed in the papers are gender, age, education (young people’s education) and socioeconomic status (household income per year). The variable education was divided into three levels – primary/secondary school, high-school and university. It would have been valuable to have an indication relating to the education level of the parents/guardians but, unfortunately, this question was not asked. The inclusion of the ‘Net Geners’ level of education in the analyses could be misleading because it is obvious that those younger than 18-19 years have not yet completed their secondary education and for this reason the education variable is highly correlated
with the age variable. However, it is shown in the second paper for this thesis that the highest level of education (university) does increase the likelihood of feeling part of the information society. Even if it is somewhat confusing as to how this should be interpreted it is worth noting that the older, well educated ‘Net Geners’ tend to feel more engaged with the information society. Would this still have been the case if we had asked about the perceived feeling of engagement in society at large? Perhaps this has something to do with the younger people’s feeling with regards to their status as citizens?

Socioeconomic status was defined by the variable household income per year which is categorized by eight different levels of income. These are:

1) up to 100,000 SEK/year
2) 100,000-200,000 SEK/year
3) 200,000-300,000 SEK/year
4) 300,000-400,000 SEK/year
5) 400,000-500,000 SEK/year
6) 500,000-600,000 SEK/year
7) 600,000-700,000 SEK/year
8) more than 700,000 SEK/year

The word household income should have been used since socioeconomic status is a broader concept than merely the family’s annual income. The household income did not have any significance in explaining the variance in ‘Net Geners’ internet skills (paper 1) or the self-efficacy in computer usage. However, another measure of socioeconomic status could have had an impact on internet skills and self-efficacy among the ‘Net Geners’ still living at home with their parents. Other studies (Livingstone & Helsper, 2007) have shown that socioeconomic factors do play a crucial role when considering the online engagement of young people. One of the reasons is, for example, the possibility of being able to purchase new hardware and software. Another problem with the variable household income is that there are many non-answers. Only approximately 60 percent of the ‘Net Geners’ answered this question.

Gender is simply measured by two values, man and woman. These are representing the biological gender, or in other words sex, and there was no third category for people who cannot place themselves within these two given categories. In this thesis it is not really the biological gender that is of interest but the social gender. The variable gender is included to be able to analyze gender differences in internet usage, digital skills, self-efficacy in computer usage and the
perceived feeling of participation. In other words, it is assumed that potential
gender differences in skills, self-efficacy and perceived feeling of participation are
related to socially constructed differences between women and men.

As mentioned at an earlier stage, age was examined by focusing on the ‘Net
Generation’ as it is defined by Tapscott (1998), partly by comparing the ‘Net
Generation’ with an older generation and partly by more in-depth studies into
exploring different age groups within the ‘Net Generation’. Tapscott defines the
‘Net Generation’ as those born between the years 1977 and 1997. However, in
paper 1 those born between the years 1978 and 1996 have been examined and in
papers 2 and 3 those born between the years 1978 and 1997. In paper 1 the upper
age limit was set to be 30 years of age (in 2008 those born 1978) and this was
retained for the following papers. This means that the ‘Net Geners’ born in 1977
are not represented in the thesis. In paper 1 the youngest respondents were born in
1996 thus the last year of ‘Net Geners’ (those born in 1997) were not represented in
2008. Since the panel was extended to 12 year olds those born in 1997 were
interviewed in 2009. It should be mentioned, however, that the presumptions
regarding ‘Net Geners’ are not really limited to a lower age limit since it is the
notion of growing up with digital media that is the essence of such presumptions.

In this thesis analyzing some of the differences within the ‘Net Generation’ was
presented by dividing the ‘Net Generation’ into four age groups 12-16; 17-20; 21-25
and 26-30 (26-31 in 2009). These breakdowns were used, in general, for descriptive
statistics while the logistic regressions were performed on the total ‘Net
Generation’. However, in paper 3 it was discovered that those born in 1993 and
later probably did not understand the question concerning being engaged in the
new information society hence the regression analyses regarding internet activities
and feeling of participation was performed on those born between 1978-1992.

4.6. Limitations

4.6.1. Data collection

There are some limitations in respect to the use of internet statistics as the use of
internet can be defined in different ways. Is an internet user a person who uses the
internet daily, weekly or just occasionally? It is important to define which measure
is used. It is also important to separate the access from the use. Some people might
have access but still do not use the internet. In comparisons with other countries, it
is crucial to make ensure that the comparisons are made for the same measures.
The upper age limit is another aspect that could be problematic when comparing
different countries. Some countries have an upper age limit in their sample while
other countries do not. This affects the results since the majority of the oldest people in the society are non-users. This means that a younger sample might give a higher internet penetration.

Other problematic issues are with regards to the method of data collection. Telephone interviews have their advantages and disadvantages. The advantages are that they are cost effective, they have a higher answering rate in comparison to postal surveys and partial “drop-off” can be prevented by the interviewers. The disadvantages are that there is a risk that people do not want to answer sensitive questions, do not understand the Swedish language or have difficulties in hearing. Because of the two latter limitations there is a risk that some minority groups might not be represented in the study (Fowler, 1995).

There is also a risk that the results might be affected by the mixed methods for data collection even though the questions are the same in the web questionnaire as for the telephone interviews (Fowler, 1995). A web questionnaire is more similar to a postal questionnaire in its nature but it should not be compared to a postal questionnaire because there is the possibility of including images and sounds in a web questionnaire. However, an advanced web questionnaire could also be difficult to configure between different systems. A web questionnaire could appear to be different on the respondents screen in comparison to the original design because of different settings on different computers (Dillman, 2007). According to Dillman (2007) a web questionnaire should be designed to be as simple as possible. The World Internet Institute’s web questionnaire is generally constructed in accordance with the principals suggested by Dillman for the construction of web questionnaires. It has a simple design, each question is numbered, the text is large and distinct, and an instruction text appears if the respondent does not provide an answer. Even though the web system is carefully designed it is still difficult to avoid problems such as some miss-registrations or other unexpected problems.

4.6.2. Interviewing children

Another important aspect for discussion involves the issues regarding interviews with children. Previous studies have shown that children’s psychological development has a significant importance in relation to how they answer questions (De Leeuw, 2007). Children up to 10 years of age think that adults already know everything and because of this they tend to answer in a way that they think is “correct”. After 11, children’s logical thinking is already well developed and by the age of 16 they are considered to be similar to adults in the manner in which they process information (De Leeuw, 2007).
Because of all these reasons a separate questionnaire has been developed for those who have not yet turned 16 years. The length of the questionnaire was limited; some of the questions are clearly addressed to the adult population such as “How often, if ever, do you use the internet to pay the bills” were removed from the questionnaire that was used to interview 12-15 year olds. Some of the questions, such as the annual household income, were addressed to the parents/guardians. There are, however, some specific questions that are only addressed to the 12-15 year olds. These involve questions concerning internet usage in school, more detailed questions about the use of so called online communities and, additionally, some questions regarding regulations set by parents/guardians relating to their children’s internet usage (WII, 2010a).

There are several problematic issues associated with the fact that adults had formulated the questions. Firstly, adults have different understandings and associations with words and secondly, it is the adults who are steering and defining which information is relevant. If we truly want to learn more about young people’s digital skills and digital participation we should allow the young people themselves to define what digital skills and participation means to them. So even in the efforts of attempting to understand young people’s conditions in the digital society it is easy to fall into the trap with regards to making decisions about the prerequisites. According to Hart (1992) this would count as tokenism (the level of non-participation) where the young people are asked to express their opinions but have only a limited choice to provide answers, that is the answers are predefined. In respect to this, it is possible to be critical about what we really learn about young people’s digital lives.

Before the field study in 2009 some adjustments were made to both questionnaires (12-15 year olds and 16 years and older). Four young people in the age 12-13 were interviewed and for those questions in which difficulties appeared, adjustments were made. One example is the question about communities. This question was adjusted so that it first describes what is meant by online communities and then we asked about the frequency of use. The same question was then used in both questionnaires (WII, 2010a). Changes might affect the comparisons over time but it is difficult to avoid adjustments, especially in relation to questions regarding the use of the internet. This use is changing rapidly and some examples used in questions might be outdated in a couple of years or even in the period of time between the data collections.
4.6.3. Questions
There are some limitations regarding the questions which concern digital skills. There is not an exhaustive list in relation to what form digital skills. van Dijk and Hackers (2003) theoretical framework was used to identify questions in the questionnaire that are related to what they call digital skills. It is also important to clarify that the questions measure how respondents rate their own skills and there is some variation in how the skills are measured. The instrumental skills are measured by asking people if they know how to perform specific tasks when using either the internet or a computer. The information skills are measured by asking people to rate their ability in relation to searching and finding information. Finally the strategic skills are measured by asking people how often they perform certain tasks. The reported use and their rating of their skills in relation to that use are not identical. We do not exactly know how much people might have over- or underrated their instrumental and information skills in relation to their frequency of use.

Another problematic issue is the question concerning participation in the ‘information society’. Using the abstract term ‘information society’ is problematic because it can mean different things to different people. However, in this study the aim was more to obtain a sense of people’s perceived feeling of participation in an ICT-dependent society. Hence the question refers back to the questions concerning internet use and information technology in general. Thus, in this case, the ‘information society’ is defined as a broad concept of many different aspects of ICT usage.

There are also limitations to the questions regarding the participatory culture. They do not necessarily measure active participation. The questions about using services for file sharing and services for price comparisons do not have to mean that those using these services actually participate by sharing content themselves. However, the questions are in line with the concept of participatory culture defined by Jenkins (2009). Also the questions regarding civic and political information do not measure active participation but they do measure an interest in searching for information regarding civic and political issues.

4.7. Overview of the papers
In table 3 an overview of the papers included in the thesis is provided. Within the first paper the stereotypes of the ‘Net Generation’ are challenged by examining the internet usage, skills and self-efficacy in using computers by comparing the ‘Net Generation’ with an older, equally large age group. In the second paper the questions regarding digital skills were used in order to examine their relation to
the perceived feeling of participation in the information society. Finally, in the third paper the concept of digital participation was explored by combining the questions regarding participatory culture and political and civic engagement and relating them to the question about the perceived feeling of participation. In all three papers, the stereotypes of ‘Net Generation’ are challenged since the stereotypical images assume certain relationships between competences and participation in the digital society. A hypothetical deductive approach has mainly been used in the thesis and in order to test the hypothesis empirically different types of statistical analyses were used.

Table 3. Overview of the included papers

<table>
<thead>
<tr>
<th>Paper</th>
<th>Paper 1</th>
<th>Paper 2</th>
<th>Paper 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim</strong></td>
<td>Nuancing the prevalent stereotypical images of ‘Net Generation’.</td>
<td>Recognise what is said to be important regarding being a part of the information society by exploring the relationship between the perceived feeling of participation and background variables, digital skills, self-efficacy in computer use and attitude towards using new technology.</td>
<td>Exploring which internet activities merit the feeling of participation in information society.</td>
</tr>
<tr>
<td><strong>Empirics</strong></td>
<td>Self-efficacy: (according to table 2)</td>
<td>Digital skills: (according to table 2)</td>
<td>Participatory culture &amp; Civic and political oriented participation: (according to table 2)</td>
</tr>
<tr>
<td></td>
<td>Internet skills: (Instrumental internet skills according to table 2) Do you know how to do the following things on the internet? Send email?; Attach documents to your email?; Download music?; Make voice-calls online?; Set up a server</td>
<td>Self-efficacy: (according to table 2) Relation with Technology: Please rate how much you agree or disagree with the statement “I like to try out new technology”. (1=do not agree at all – 5=totally agree)</td>
<td>Perceived feeling of participation: You have now answered a range of questions about different media and you have probably heard or read about surfing the internet, using email and information technology.</td>
</tr>
</tbody>
</table>
| **Internet use:** Communication: Email, Instant messaging, chat rooms, voice calls  
Information: searching for facts; looking up a meaning of a word; searching information regarding school related work  
Entertainment: listening/download music; watching/download videos; watching online TV; playing games; listening to online radio  
(Frequency: Never, Sometimes, Monthly; Weekly, Daily, Several times daily)  
Web 2.0 related activities: Do you have a weblog? (Yes; No); Are you a member of a social networking site online? (Yes; No) | **Perceived feeling of participation:** You have now answered a range of questions about different media and you have probably heard or read about surfing the internet, using email and information technology. Do you feel like a part of this new information society? (No, not at all, Yes, but only a little, Yes, for the most part, Yes, totally)  
**Background variables:** Age, Gender, Education | Do you feel like a part of this new information society? (No, not at all, Yes, but only a little, Yes, for the most part, Yes, totally)  
**Background variables:** Age, Gender, Education |

| **Method** | Descriptive statistics, non-parametric tests  
Descriptive statistics, correlations, binary logistic regression | Descriptive statistics, correlations, binary logistic regression | Descriptive statistics, correlations, binary logistic regression |

4.7.1. Paper 1: “Not so techno savvy – challenging the images of the ‘Net Generation’”

The aim in the first paper was to explore stereotypes of the “techno-savvy Net Generation” by using the statistical representative study about Swedes internet usage from 2008. The results were linked to an analytical frame of “internet skills” (Hargittai, 2005; S. Livingstone, Bober, & Helsper, 2005b; Van Dijk & Hacker, 2003) to explore the presumptions:

- The ‘Net Generation’ diverges from previous generations when it comes to the use of internet.
- The ‘Net Generation’ is techno-savvy or digital competent.

These presumptions were empirically explored by attempting to answer the following questions:

- Are all ‘Net Geners’ internet users?
- Do all ‘Net Geners’ use the internet in the same way?
- Are there any generational differences between the ‘Net Generation’ and an older generation when it comes to internet behaviour?
- Are the ‘Net Geners’ relying more on the internet and abandoning traditional media?
- Do ‘Net Geners’ use internet from various places?
- Is the ‘Net Generation’ techno-savvy?
- Is the ‘Net Generation’ also the ‘MySpace generation’?

For the comparison between the ‘Net Generation’ and an older generation non-parametric Mann-Whitney tests and Kruskal-Wallis tests were performed. In addition, descriptive statistics and significance test were performed. The tests were performed on various age groups both within the ‘Net Generation’ and between the ‘Net Generation’ and an older generation. In order to nuance the stereotypical images both within and between the different groups it was necessary to perform comparisons.

4.7.2. Paper 2: “Predicting the Participation in Information Society”

The approach in the second paper is to recognize what is said to be important regarding being a part of the information society by linking social factors, digital skills, self-efficacy in computer use and attitudes towards using new technology in order to explore how much they affect the feeling of participation in the information society. Binary logistic regressions were performed in order to find a model of factors explaining the variance in the perceived feeling of participation.
Furthermore, simple descriptive statistics were performed as well as correlations and tests of significance between factors. The hypothesis tested in the paper is deduced from the theoretical reasoning regarding the relationship between digital skills, self-efficacy in computer and internet usage, attitudes towards new technology and level of participation online. The hypothesis deduced from previous studies is that skills, self-efficacy and positive attitudes towards new technology have a positive relationship with online participation. The secondary hypothesis, tested in the paper, is that these factors (skills, self-efficacy and positive attitude to technology) have a positive relationship with the feeling of participation in the information society (H1-H3). Once again it is important to remember that one should not be confused by the term “information society”. In this thesis the concept refers to the use of the internet and other information and communication technologies in general by asking people “You have now answered a range of questions about different media and you have probably heard or read about surfing the internet, using email and information technology. Do you feel like a part of this new information society?”.

Hypotheses H4 - H6 concern the relationship between the feeling of participation and the factors age, gender and education. Once again the deduction was made from the secondary hypothesis that the feeling of participation is strongly related to participation online, meaning that those relationships shown to be important for online participation are also important for the feeling of participation. Previous studies have shown that boys, middle class children and older teenagers have a broader online participation (S. Livingstone, et al., 2005a); hence they should perceive a higher feeling of participation in the information society.

4.7.3. Paper 3: “Actual and Perceived Online Participation among Young people in Sweden”

In the third and last paper the aim was to question the concept of digital participation in relation to young people’s own feelings of participation in the information society by examining which internet activities (related to the concept participatory culture) merit this feeling of participation. In this paper participation was related to Jenkins (2009) concept of ‘participatory culture’ in order to determine whether the activities related to participatory culture can explain the variance in the perceived feeling of participation in the information society (once again remember the concept refers to a general use of the internet and other ICTs’). Descriptive statistics, significance tests and binary logistic regression analyses were used.
5. RESULTS

5.1. Results from the papers

5.1.1. Paper 1: “Not so techno savvy – challenging the images of the ‘Net Generation’”

In paper 1: “Not so techno savvy – challenging the images of the ‘Net generation’” it was discovered that not all young people believe they are competent in using computers. Approximately 8 percent (n=58) are non-users or low users of the internet. It was also shown that the group defined as the ‘Net Generation’, in this case 12 to 30 year olds, have very different ways of using the internet. When examining communication, information and entertainment related activities between four age groups (12-16, 17-20, 21-25 and 26-30 years) it was found that the internet usage differs a great deal between the younger and the older groups of ‘Net Geners’. There are large variations among ‘Net Geners’ and there are very few statistically significant differences between the ‘Net Generation’ and an older generation. In terms of using the internet for communication, entertainment and searching for information there are no statistical differences between the generations. However, in relation to the use of social networking sites and writing blogs there is a difference between the ‘Net Generation’ and the older generation. The ‘Net Geners’ tend to use social networking sites and write blogs to a greater extent than the older generation. It is however important to point out that these activities online were not adopted by all ‘Net Geners’. Writing blogs was, at the time, a rather unusual activity.

In relation to using the internet at various places, it was shown that ‘Net Geners’ primarily use the internet at home. Swedish 12-16 year olds spend approximately 1 hour online in school and almost 15 hours at home every week. The somewhat older Swedish ‘Net Geners’ (17-20 year old) spend approximately 4 hours online in school and 20 hours online at home every week. Those spending more time online at home tend to spend more time online in school, which is in accordance with previous findings (Facer & Furlong, 2001). Although the 12-30 year olds spend a great deal of time online they do not appear to be abandoning the traditional media such as newspapers and TV.

Moreover, the level of internet usage is important for the perceived competence in using computers. The low internet users tend to see themselves as less competent in using computers even though the majority of 12-30 year olds see themselves as
fairly or very competent in relation to the use of computers. Among the ‘Net Generers’ age did not explain the variation in self-efficacy in computer usage. However, gender was significant in relation to the self-efficacy (R=0.269**). The self-efficacy in the use of computers and the internet skills among 17-30 year olds is significantly lower for girls. For the age group 12-16 year olds there were no significant differences in gender or age in relation to internet skills and self-efficacy in computer usage. However, 12-16 year olds scored lower on the internet skills scale in comparison to the 17-30 year olds. 13 percent of 12-16 year olds scored 1 or lower and only 2 percent of 17-30 year olds scored 1 or lower on internet skills. This is similar to the findings in a study by Sherry and Fielden (2005) in which they discovered that the Millennial cohort is not as competent with computers as they are confident.

The paper does not provide an answer to the question regarding how competent young people are when using the internet and computers, but it evokes questions such as – What is it young people refer to when estimating their competence in use of computers? What do they know and what are they expected to know? What does emerge from the article is that some of the images of young people’s internet usage are oversimplified and exaggerated and there are definitely young people who have low self-efficacy regarding their use of computers. The lack of questioning these stereotypical images of the so called ‘Net Generation’ leads to some youngsters being left behind, and thus they are not offered the opportunities to develop their digital competence. But, who are those who are at risk of being excluded? This is a question examined by Livingstone and Helsper (2007) and in this thesis it is approached in a slightly different way.

5.1.2. Paper 2: “Predicting the Participation in Information Society”

In paper 2: “Predicting the Participation in Information Society” the feeling of participation in the information society was examined by examining the relationship between the perceived feeling of participation and social factors (age, gender and education), digital skills, self-efficacy in computer usage and the relationship with technology. It was shown that the highest number who perceive a low degree of participation occurs among the oldest age group in the survey (60 +). However, it appears as if the use of the internet determines whether a person feels engaged with the information society or not. By limiting the analyses to the internet users, the age was no longer significant in explaining the variation in the perceived level of participation.

Furthermore, a high level of education (university) is important for the perceived feeling of participation (Sig. =0.006). In relation to the digital skills, the information
skills were shown to be the most important (Exp (B) = 3.835; Sig. = 0.002) regarding a feeling of participation. Surprisingly, the strategic skills which are at the highest skill level did not have as strong an effect as expected (Exp(B) = 1.737 vs. Exp (B) = 3.835 for information skill). As the information skills have been shown to be the most important it becomes even more obvious that the educational level does matter in order to feel engaged with the information society since learning and practising the strategies associated with searching for information, in general, occur within the educational system. It was also rather surprising that the attitudes towards attempting to use new technology was not significant in explaining the variance in perceived feeling of participation which indicates that the technology is not of significant importance in relation to perceiving a high degree of participation. Based on this information, it could further be argued that mastering the basic technological skills or so called instrumental skills in using computers and the internet should not form the main focus in discussions relating to the school curriculum associated with digital competence.

5.1.3. Paper 3: “Actual and Perceived Online Participation among Young people in Sweden”

In paper 3: “Actual and Perceived Online Participation among Young people in Sweden” it was explored which internet activities merited the feeling of participation in the information society. This was conducted by linking the internet activities assumed to be important in relation to the ‘participatory culture’ (see Jenkins, 2009) to the perceived feeling of participation. In addition, the civic and political participation online was linked to the perceived feeling of participation in the information society. The findings suggest that those who perceive that they have a low degree of participation do not have a broad use of the internet. In accordance with other studies (Hargittai & Hinnant, 2008; Livingstone & Helsper, 2007) it is shown that the less experienced internet users, and younger children mostly engage with few, specific activities such as communication related and entertainment related activities. 17 to 31 year olds who perceive that they have a high degree of participation engage more often with many more of the internet activities included in the analyses in comparison to those 17-31 year olds who perceive that they have a low degree of participation. As mentioned previously some of the communication and entertainment related activities such as emailing, instant messaging and listening to music do not cause divergence between the two groups because both engage with these activities almost equally. However, there are some activities that show much larger differences, thus those perceiving a high degree of participation engage to a greater extent in comparison to those perceiving a low degree of participation. These activities are civically and politically oriented as well as in accordance with ‘participatory culture’. It is activities such as searching for
society, politics and governmental information; uploading videos and photography, and finally, file-sharing. Including these internet activities in a regression analyses under control of age and gender, it was shown that two internet activities – writing blogs (Exp(B)=3.329; Sig. = 0.015) and searching for information about society (Exp(B)=2.546; Sig. = 0.001) were significant in relation to a feeling of participation in the information society. Age and gender were not significant in explaining the variance in the perceived feeling of participation among 17-30 year olds. The 12-16 year olds were excluded from the analyses since their answers differed greatly, probably because they were unable to relate to the question regarding participation in the information society.

5.2. Synthesized results

In order to nuance stereotypical images it is important to first of all recognize and define them. In this thesis the take-off-point is the presumptions about the ‘Net Generation’ (see Tapscott, 1998) which have been empirically explored. It has been conducted by using the concepts of digital skills – operationalised using inspiration provided by van Dijk and Hacker’s (Van Dijk & Hacker, 2003) model; ‘self-efficacy’ (Bandura, 1997; LaRose, et al., 2001; Torkzadeh & Van Dyke, 2002) but also examining young people’s perceived feeling of participation in the information society. Participation was defined in relation to Jenkins (2009) concept of ‘participatory culture’ and the more traditional civic and political engagement (or at least interest in civic and political issues). The following three presumptions were explored:

- The ‘Net Generation’ diverges from previous generations when it comes to the use of internet.
- The ‘Net Generation’ is techno-savvy or digitally competent.
- The digitally competent ‘Net Generers’ are also digital participants since there is a causal relationship between digital competence and digital participation.

5.2.1. ‘Net Generers’ internet use is diversified

The common belief is that the ‘Net Generer’ diverge from older generations when it comes to the relationship with and the use of the internet and other ICT’s is mainly challenged in the first paper.

It is shown that the ‘Net Generers’ have very different ways of using the internet. There are large variations among ‘Net Generers’ because there are very few statistically significant differences between the ‘Net Generation’ and an older generation. In terms of using the internet for communication, entertainment and
the search for information there are no statistical differences between the
generations. However, when it comes to the use of social networking sites and
writing blogs there is a difference between the ‘Net Generation’ and the older
generation. The ‘Net Geners’ tend to use social networking sites and write blogs to
a greater extent than those of the older generation. It is, however, important to
point out that these activities online were not adopted by all ‘Net Geners’. Writing
blogs was, at the time, a rather unusual activity. It was also found that the
youngest group, in this case 12-16 year olds, are not the most engaged with the
various internet opportunities. Young people in their late teens and twenties are
the most active internet users among the so called ‘Net Geners’.

5.2.2. Not all ‘Net Geners’ are techno-savvy or digital competent

Digital competence is a broad concept of a set of skills required in order to take
part in the digital society (EuropeanCommunities, 2007). It has been stated that it
can be defined and measured in different ways depending on which concept is
used – digital literacy (Eshet-Alkali & Amichai-Hamburger, 2004), media literacy
(Livingstone, et al., 2005), internet skills (Livingstone & Helsper, 2007), digital skills
(Van Dijk & Hacker, 2003) etc. The different concepts are used for different
purposes and as Livingstone (2009) states these different measurements are all
important.

Within this thesis van Dijk and Hacker’s definition of digital skills is used. In paper
one and two it is shown that not all young people tend to think of themselves as
competent in using computers and nor do all feel engaged with the information
society. Treating the whole group as highly digitally competent is therefore
problematic which has also been emphasized in previous studies (Bennett, et al.,
2008; Cheong, 2008; Facer & Furlong, 2001).

Furthermore, in papers one and three, it has been shown that young people’s
engagement in different online activities is diverse. This implies that their expertise
in using the internet is also diverse. One of the results suggests that the group of
young people perceiving a high degree of participation in the information society
consistently scored higher on all of the internet activities included in the analyses
when comparing them to the group that perceive a low degree of participation. In
accordance with studies examining the importance of self-efficacy for internet
activities uptake (Torkzadeh & Van Dyke, 2002), it has been shown in this thesis
that there is a positive relationship between the self-perceived feeling of
participation in the information society and engagement with various internet
activities.
It has been found that the 12-16 year olds spend less time with the internet and do not have as broad internet usage as their older cohorts. Those using the internet very little tend to have lower self-efficacy in computer usage in comparison to those using the internet more often. Socioeconomic status did not have any statistical significance within this analysis, however when looking at the perceived feeling of participation in papers 2 and 3, a high educational level appeared to be important in explaining the variance. Those using the internet more often and having a rather broad internet usage appear to have a higher self-efficacy in their use regarding computers and a stronger feeling of participation in the information society. Thus, those at the greatest risk of being excluded are those low internet users who do not practice a variety of digital skills and do not participate in activities that appear to merit the feeling of participation. In addition to this they have low self-efficacy which can be both a cause and effect with regards to a limited use of the internet.

Education, gender and age are factors which cannot be ignored. Education proved to be important for the feeling of participation in the information society and it can also be argued that education is crucial for learning and practising digital competence, not least the information skills which proved to be important in relation to the feeling of participation. Gender proved to be significant when it comes to the relationship with self-efficacy in computer usage. This is interesting since there was no significant gender difference when it comes to the measured self-rated internet skills. Torkzadeh and van Dyke (2002) also stated that women tend to rate their competence lower than men do, which did not correspond to their actual internet and computer skills. They appear to have a lower self-efficacy in relation to their actual skills. The reasons for this require further exploration. In this thesis, when examining the perceived feeling of participation in the information society, the group answering “totally engaged” has a larger proportion of men than women. However, there is no statistical support for the relationship between gender and the perceived feeling of participation in the information society. Age is important because the internet usage, and according to other studies expertise (Livingstone & Helsper, 2007), differ in relation to age. It is important to remember that it is not the youngest within the group of ‘Net Geners’ who are the most experienced.

5.2.3. Information skills and experience with internet use are important for the feeling of participation

As stated previously those perceiving a high degree of participation tend to have a broader internet usage then those perceiving a low degree of participation. They tend to use the internet to a greater extent to search for information concerning
society, write blogs and make price comparisons. Thus the competences required for engagement in these activities are more practised by those who perceive that they have a higher degree of participation in the information society. Further it has been shown that some digital skills are more important for the self-perceived participation than others. Based on van Dijk and Hacker’s model (2003), it should be the strategic skills that are most important, however, within this thesis it has been shown that young people tend to relate to information skills as being the most important for participation in the information society. All in all, digital skills are important for the perceived feeling of participation but it is not necessarily the basic instrumental skills or the advanced strategic skills that should form the main focus. The findings in this thesis suggest that 17-30 year olds tend to relate to the information skill as being the most important skill for taking part in the information society. When it comes to defining digital participation the relationship between internet activities and the feeling of participation suggests that young people tend to relate to the activity of searching for information about issues regarding the society and the writing of a blog. In this sense the definition of civic and political participation and engaging in activities related to ‘participatory culture’ could be used to define digital participation.

6. CONCLUSION

The aim of this thesis was to empirically explore in order to nuance some of the ‘taken for granted’ images about the ‘Net Generation’. In relation to this, the research question is:

“How can the presumptions about ‘Net Generation’ be nuanced?”

In some ways the results in this thesis could be used to substantiate the stereotypical images about the ‘Net Generation’. For instance, the results show that young people, classified as ‘Net Geners’, have adopted the internet to a significant extent. However, I have throughout this thesis argued that there is a need to nuance the presumptions about the ‘Net Generation’ because the presumptions appear to be simplified, deterministic projections about young people in the digital society. Therefore I have attempted to use a deconstructive approach when exploring some of the presumptions about the ‘Net Generation’.

This resulted in the divisiveness of the dominating story concerning young people, born into being ‘techno savvy’ ‘Net Geners’. The results show that there are both ‘Net Geners’ who do not feel engaged with the information society, who do not have broad internet usage and who do not feel very competent in using computers and those who are ‘techno-savvy’ ‘Net Geners’ who feel a high degree
of participation and self-efficacy. This implies that the young people classified as ‘Net Geners’ are not a homogeneous group. This also means that social factors such as gender and education cannot be ignored.

In the search for an answer to the research question three stereotypical images have been explored. One of the explorations challenges the relationship between digital competence and digital participation. The questions in this thesis, used to operationalise the theoretical concepts, did not fully accomplish the task of grasping the entire notion of the specific concepts - digital skills, self-efficacy in computer use and participatory culture. However, it is still valuable to question the relationships of digital competence and digital participation, which have both been taken for granted and the findings in this thesis suggest that there are interesting means of moving forward with the explorations of these presumptions.

The implications with regards to the findings are that skills, experience and self-perceived feeling of competence in the use of computers are important for the feeling of participation in the information society. Particular internet activities merit the feeling of participation. Also, it appears that an interest in civic and society related issues are important for this feeling of participation. This suggests that the discourse regarding political participation appears to have an impact on young people’s feeling of participation in the information society.

The results in this thesis clearly indicate that the young people classified as ‘Net Geners’ do not have the same conditions with regards to taking part in the digital society. However, what is meant by taking part in the digital society is still an unresolved question. And who should define what it is to be a digital participant? Is it the adults or is it the young people themselves?

The initial idea of this thesis was to gain some understanding about young people’s own definition about being digitally competent and this is something I wish to explore further.

### 6.1. Future research

This thesis has followed the tradition of questioning the presumptions about young people in the digital society and it raises some interesting questions that can be explored further in future studies. The relationship between digital competence and digital participation has not often been questioned. Thus there is need to elaborate this relationship and its consequences for young people. For instance, the question regarding what it means to feel part of the information society needs to be further explored. Do young people tend to define participation according to the general expectations associated with e-citizenship? Even though the results in this
thesis indicate that there might be such tendencies, this issue needs to be explored in greater detail. It could perhaps be conducted using more extensive measures regarding digital skills and digital participation, something that was not accomplished in this study because of the limitations associated with the questions used to define these concepts.

Also other presumptions regarding the ‘Net Generation’ could be questioned. Presumptions such as ‘Net Geners’ way of processing fast moving images could be questioned in other studies by using different methods. There are also other presumptions about ‘Net Geners’ learning styles that need to be explored. This is important since there is an ongoing debate about how the use of ICT’s should be applied in school.

Furthermore, there is a need to conduct more qualitative studies regarding young people’s own definitions of digital skills in relation to their online participation. If we really want to understand the meaning of skills and participation from young people’s point of view we should start to study young people from their perspective and allow them to provide their own words and interpretations with regards to these specific issues. It is also important to study the function of the projections of young people in the digital world. Where do they come from and what purpose do they serve?
REFERENCES


APPENDIX

PROXY QUESTIONS TO MEASURE DIGITAL SKILLS IN SURVEYS
Alexander van Deursen and Jan van Dijk

Following operational definitions in

Items for measuring Operational, Formal, Information and Strategic Internet skills

<table>
<thead>
<tr>
<th>Operational Internet skills</th>
<th>How often…</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>… do you save photos from a website on your PC</td>
</tr>
<tr>
<td></td>
<td>… do you erase the Internet browsing history</td>
</tr>
<tr>
<td></td>
<td>… do you save PDF-files of the Internet on your PC</td>
</tr>
<tr>
<td></td>
<td>… do you collect software from the Internet</td>
</tr>
<tr>
<td></td>
<td>… do you send files using FTP</td>
</tr>
<tr>
<td></td>
<td>… do you fill out forms on the Internet</td>
</tr>
<tr>
<td></td>
<td>… do you use the refresh button of the Internet browser</td>
</tr>
<tr>
<td></td>
<td>… do you erase temporary Internet files</td>
</tr>
<tr>
<td></td>
<td>… do you use the back and forward button of the Internet browser</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Formal Internet skills</th>
<th>How often…</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>… are you unable to find a website again</td>
</tr>
<tr>
<td></td>
<td>… are you unable to handle the structure of a website</td>
</tr>
<tr>
<td></td>
<td>… do you get lost when using the Internet</td>
</tr>
<tr>
<td></td>
<td>… do you find the menu on a website uneasy to use</td>
</tr>
<tr>
<td></td>
<td>… do you find a website inconveniently arranged</td>
</tr>
<tr>
<td></td>
<td>… do you have a feeling of disorientation on the Internet</td>
</tr>
<tr>
<td></td>
<td>… do you use multiple websites at the same time</td>
</tr>
<tr>
<td></td>
<td>… are you sure a link will take you to the correct website</td>
</tr>
<tr>
<td></td>
<td>… are you unable to find a menu on a website</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Information Internet skills</th>
<th>How often…</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>… do you look at the source of information found on the Internet</td>
</tr>
<tr>
<td></td>
<td>… do you look at the date of the information found on the Internet</td>
</tr>
</tbody>
</table>
… do you check information found on another website
… do you use advanced search options when searching on the Internet
… do you go beyond the first page of search results when searching on the Internet
… do you have no idea on where to find information on the Internet
… do you use a search engine on the Internet
… do you find it hard to come up with suitable search queries
… do you have no idea which search result to pick
… do you find the desired information on the Internet

### Strategic Internet skills

**How often…**

… do you gain financial benefits by using the Internet
… do you use websites that provide comparisons between services or products

… do you gain benefits by using the information found on the Internet
… do you work purposeful to a specific target on the Internet
… do you gain bargain products on the Internet
… do you compare products on the Internet
… do you use the Internet purely for entertainment
… does the Internet help you achieving important goals in your life
… does the Internet help you making decisions

**Questions can be posed in several types of scale extension, preferably a 5 point scale:**

**Never** ……….. **Very often**
Paper I
Not so ‘techno-savvy’: Challenging the stereotypical images of the ‘Net generation’

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Not so ‘techno-savvy’: Challenging the stereotypical images of the ‘Net generation’

Sheila Zimic

Abstract

It is often argued that young people growing up in the presence of the Internet and new media are ‘techno-savvy’. They are often distinguished as a new generation because of their relationship with new media, which is assumed to be considerably different, in comparison, to older generations. This new generation has also been characterized as the ‘Net generation’ (Tapscott, 1998). However the stereotypical images of ‘net geners’—being technologically savvy—have rarely been questioned. This article aims at nuancing these images with the objective of exploring the stereotypical images, rather than proving if the images are true or false. By using a statistical representative study of Swedish people’s Internet behaviour and linking the results to an analytical frame of Internet skills, the question, “what is it young people know when it comes to the Internet use and how is it related to the stereotypical image of the ‘Net generation’?” is explored. The main findings suggest that various Internet activities differ by age and few activities could be ascribed solely to the so-called ‘Net generation’.

Keywords:

Net generation, stereotypical images, Internet skills, self-efficacy, techno-savvy

Introduction

It is often argued that young people growing up in the presence of Internet and new media are ‘techno-savvy’. They are assumed to possess new media skills and attitudes which older generations do not. This is assumed to be the main reason for the perceived technological generation gap between the young people and their parents, teachers and other adults. This new generation has been positively characterized as the ‘Net generation’ (Tapscott, 1998) or ‘Digital natives’ (Prensky, 2001) or even ‘Millennials’ (Howe and Strauss, 2000) due to their often-unquestioned proficiency in accessing and using technology and new media. However these positive images of young people being technologically savvy have rarely been questioned (Bennett et. al. 2008). To a certain extent, they have been taken for granted.

This article aims at nuancing these overly optimistic images. The objective is not to prove if the stereotypical images are true or false, but to explore stereotypes prevalent in the literature. This is achieved by drawing on a statistical representative study of Swedish people’s Internet behaviour and linking the results to an analytical frame of Internet skills (Hargittai, 2005; Potosky, 2007; van Dijk & Hacker, 2003; Livingstone et. al., 2005) to explore the question, “what is it young people know and how is it related to the stereotypical images of the ‘Net generation?’”

The stereotypical images the article nuances are perceptions pertaining to whether or not all ‘net geners’ are Internet users and generally accepted understandings that they tend to use the Internet in similar ways or in similar locations. The article also explores the extent to which generational differences between the ‘net Generation’ and older generations affect Internet behaviours. Additional stereotypical images explored include the extent to which ‘net geners’ rely on the internet over more traditional media forms, whether they really are ‘techno-savvy’ or meeting the criteria of what is
sometimes referred to as the “MySpace generation” (Rosen, 2007) due to their use of web 2.0 related activities such as social networking.

Review of the literature

In the EU Kids Online report from 2007, twenty-five European countries are compared regarding children’s and young people’s Internet use (Hasebrink, Livingstone & Haddon, 2007). The results are based on Eurobarometer’s data regarding children less than 18 years of age. The report shows Internet adoption among children varies from about 30 percent up to 70 percent across European countries. Sweden is one of the countries where Internet adoption is largest (among children 66% and among their parents 97%). Internet access at home is also high, with 61 percent of Swedish children accessing the Internet from home. According to the 2008 World Internet Institute’s study used in this article, Internet usage among Swedish children 3-18 year olds is 73%, where 1 of 5 of the youngest ones (3 year olds) use the Internet occasionally and almost all (92-99%) teens and ‘tweens’ (11-18 year olds) use the Internet on a more regular basis (weekly or daily). Other Swedish studies on (young) people’s Internet use also show high Internet adoption and Internet use (Medierådet: Ungar och Medier 2008; Nordicom: Internetbarometer 2007; Statistics Sweden: Use of computers and the Internet by private persons in 2008).

A complementary study by Livingstone & Helsper (2007) show that in the UK, like in other developed countries, there are few children who are not using the Internet and that the previous conception of digital divide between haves and have-nots is no longer applicable to young people. However, they discovered inequalities by age, gender and socioeconomic status in relation to children’s Internet use. The main findings are that older children use the Internet more when compared to younger children. It is also reported that girls use the Internet more at a younger age (9-15) while boys use the Internet more frequently at an older age (16-19). The report also found that expertise in using the Internet is crucial for opportunity take-up. Those who are more skilled at using the Internet use it more often. Furthermore, the report highlights how expertise has a greater impact than age (Livingstone & Helsper, 2007). There are few studies that have addressed the issue of digital inequalities among children and young people. Additionally, few reports have been critical of stereotypical images of the ‘Net generation’ (Livingstone & Helsper, 2007; Cheong, 2008; Bennett et. al. 2008; Sherry and Fielden, 2005; Facer and Furlong, 2001).

Bennett, Maton and Kervin (2008) emphasise that there are studies indicating that youngsters are highly familiarized with technology and use it for various activities. They also emphasise that there are large percentages of youth who do not have access to technology or the digital skills often ascribed to ‘digital natives’ (Bennett et. al. 2008). This, according to Bennett, Maton and Kervin (2008), could lead to a neglect of those who are less interested or less able to use new technology, especially when socioeconomic and cultural factors are overlooked. Sherry and Fielden (2005) suggest that ‘millennials’ (born after 1983) are more confident with technology compared to older generations, most likely because they were more likely to have studied computer technologies in school. They also found millennials more confident in teaching themselves to use computers. However, Microsoft Word was the only application on which millennials scored significantly better than their older cohorts. Sherry and Fielden’s (2005) findings emphasize that the millennial cohort is not as competent with computers as they are confident in their perceived abilities.

Cheong (2008) critically examined the techno-savvy image of young adults in Singapore where the majority of youth have access to the Internet. Cheong found that
Being techno-savvy youth (Cheong, 2008). Facer and Furlong (2001) also found that there are children who are ‘low’ computer users. The ‘low users’ were interviewed and some themes regarding their position in the margins of the digital society were identified. Firstly they identified that their access to computers at home are not only dependent on their socioeconomic status, but also the family’s value towards purchasing and using a computer (Facer & Furlong, 2001). Secondly, it seems as if the lack of access at home does not increase computer use in other places. Those who have computer access at home, are more likely to take opportunities to use computers in other places such as school or at friends’ homes. Thirdly, the children who are low computer users, referred to the ones having a computer at home as the ‘brainy ones,’ meaning that they most likely achieve higher academic success. This points out the fact that social and cultural resources have a big impact on their access (Facer & Furlong, 2001).

In accordance to Bennett et. al. (2008), Cheong (2008), Sherry and Fielden (2005), Livingstone and Helsper (2007) and Facer and Furlong (2001), this article aims to problematise and question some of the stereotypes about the ‘Net generation’.

**Conceptualisations of the ‘Net generation’**

Tapscott (1998) was one of the first to identify the new generation growing up surrounded by digital media. He calls this new generation the ‘Net generation.’ He explains further that being surrounded by digital media has made the ‘net geners’ so used to it, that “digital technology is no more intimidating to them than a bread toaster” (Tapscott, 1998, p.1). He argues that the ‘Net generation’ is the first generation to be more comfortable, knowledgeable and literate than their parents, teachers and other adults. According to Tapscott, this is because it is easier for children to learn how to use new technology since they are more familiar with it from birth. Children assimilate technology while adults must accommodate to technology, which is often a more difficult learning process (Tapscott, 1998, pp.36-42). Prensky (2001) presents a similar argument about the learning process of what he terms ‘digital natives’ and ‘digital immigrants’. In accordance with Tapscott, Prensky labels the ones born with the new technology as ‘digital natives’. They are seen as being fluent with the digital language of technology. The digital immigrants must, on the other hand, learn to adapt to the new technology in a similar way an immigrant learns a new language (Prensky, 2001). Rosen (2007) calls this generation the ‘My Space generation’ defining them as being immersed with technology, and social networking sites.

According to Tapscott the oldest ones of the ‘net geners’ are today in their early thirty’s (2009). The eldest of the generation turned 31 in 2008 and the youngest turned 11. Tapscott talks about a generation instead of life-stages because he claims that ‘net geners’ are different from older generations not only in using technology, but because their brains have developed differently (2009). Their brains process fast-moving images differently. To sum it up, the conceptualization of the ‘Net generation’ is mainly positive and highlights the generation gap by posing young people as technologically savvy, using the Internet for everything, for extended periods of time and from various places. Being techno-savvy for this group also means not being intimidated by technology.
(Tapscott, 1998; Prensky, 2001). The ‘net geners’ are said to be using Internet to communicate with people all around the world. This includes contributing online content, finding information online and checking facts, while simultaneously being critical to the found information—because they understand online content can be manipulated. Entertainment, play and immediacy are also assumed to be very important to everything ‘net geners’ do online (Tapscott, 1998).

**Analytical frames to discuss stereotypical techno-savvy images**

To be able to nuance and discuss the rather stereotypical images emerging from the conceptualisations of the ‘Net Generation’ above, the concept of Internet skills is introduced. These include several contiguous concepts - ‘Internet skills’ (Hargittai, 2005; Potosky, 2007) “digital skills” (van Dijk & Hacker, 2003), “Internet literacy” (Livingstone, Bober & Helsper, 2005) and “digital literacy” (Erstad; Eshet-Alkali & Amichai-Hamburger, 2004). Later the choice of the concept ‘Internet skills’ is explained, but first a brief review is provided to explain how these concepts are defined in the literature.

**Digital skills**

van Dijk and Hacker (2003) propose three different levels of digital skills; instrumental skills, informational skills and strategic skills. The instrumental skills refer to being able to operate hardware and software. Informational skills refer to a slightly more advanced type of Internet use, such as being able to search, select, process, and apply information using the hardware and software. The strategic skills, being part of highest skill level, refer to individuals being able to use the found information to improve one’s own social position in society (van Dijk & Hacker, 2003).

**Internet literacy**

Livingstone, Bober and Helsper (2005) provide a similar way of thinking about Internet literacy. They emphasize three skill levels for Internet literacy. These include knowing how to access the Internet, being able to understand and/or evaluate information and opportunities online and being able to create content by being an active producer and receiver of online content (Livingstone et. al. 2005). Some attempts have been made to measure what people can or can’t do on the Internet (Potosky, 2007; Hargittai, 2005). Usually these measurements are referred to as Internet skills. Potosky (2007) constructed an Internet knowledge measure (iKnow) containing questions about different Internet knowledge items. These included being able to construct a webpage, update virus programmes, designing a background and changing preferences on the computer.

**Digital literacy**

The concept ‘digital literacy’ is a wider concept that includes not only Internet skills (what people can or can’t do with the Internet). According to Erstad ‘digital literacy’ contains skills, knowledge and attitudes in using digital media to be able to master challenges in the learning society (Erstad, 2005). By this Erstad argues that digital literacy relates both to technological skills, how to operate the technology per se and to possessing skills regarding technology use to achieve personal or collective goals. The latter can also be compared to van Dijk and Hackers concept of strategic skills (2003). It is not simple to define what is meant by the broader concept of ‘digital literacy’ and it is even harder to find a good way to measure it.
Measuring Internet skills and self-efficacy

As mentioned before, one way is to measure the 'Internet skills', another way is to measure self-efficacy by asking people how confident they are in using digital media. The individual’s belief in her own ability to perform, or self-efficacy (Bandura, 1997) is equally important for the use of Internet. LaRose, Mastro and Eastin (2001) found that positive outcome expectations, Internet self-efficacy, and perceived Internet addiction were directly related to Internet usage. Negative outcome expectations, self-disparagement, and self-slighting were negatively related to Internet use. Torkzadeh et. al. (2002, 2006) also found that an individual’s belief in her ability to perform, also affects her performance. Torkzadeh and van Dyke (2002) followed 189 students before and after computer training. They found that both male and female respondents benefited from training and improved their self-efficacy scores for all factors.

In this article the focus will be on Internet skills and self-efficacy in order to explore the relation to the concept of the techno-savvy ‘Net generation’. A lot of the concepts of ‘Net generation’ are about the Internet use and this paper deals with Internet use as well.

Method

This study is based on data collected in an annual Swedish national survey about Swedish peoples’ Internet use. It is a component of the international World Internet Project (www.worldinternetproject.net). The survey was conducted between February and April 2008. A representative random sample of 2,266 people from around Sweden from the age 12 years old answered a wide range of questions about their Internet use. Two different surveys were conducted, one with respondents 16 years and older and one with young people from 12 to 16 years old. The main reasons for conducting two different surveys were that people younger than 16 needed their parents’ permission to participate, hence the methods performing the telephone interviews were a little bit different for the two groups. Since we had to speak with parents to respondents younger than 16 years old, we asked the parents a few questions about the access to the Internet in their home, about their own Internet use and about their children’s Internet use. We also asked respondents older than 16 if they have children. For the ones that had children, we asked what their children mostly do when using the Internet and how often their children used the Internet. Most of the results in this article are based on respondents from 12-30 years old. In Table 1 we can see the sample sizes for four age groups which 12-30 year olds were divided in.

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
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<tbody>
<tr>
<td>12-16</td>
<td>211</td>
</tr>
<tr>
<td>17-20</td>
<td>178</td>
</tr>
<tr>
<td>21-25</td>
<td>146</td>
</tr>
<tr>
<td>26-30</td>
<td>179</td>
</tr>
<tr>
<td>Total</td>
<td>714</td>
</tr>
</tbody>
</table>

Table 1: Sample sizes for different age groups

The group of 12-30 year olds are referred to as the ‘Net generation’. In an attempt to explore generational differences, the group of 12-30 year olds where compared to 32-50 year olds (N=672). Non-parametrical tests were used to analyse the generational differences, but also the effect on Internet skills and self-efficacy by age and gender.
In order to explore the stereotypical images of the techno-savvy ‘Net generation’ the following questions were used about Internet skills:

- Do you know how to use the following things on the Internet? Send an email? Attach documents to your email? Download music? Make a voice-call online? Set up a server?

The question about self-efficacy was:

- How competent are you when it comes to using the computer? Not competent at all, not that competent, fairly competent or very competent?

The five Internet related items regarding Internet skills where then summarized into an index to represent the Internet skills scale. Low values on the scale indicated poor Internet skills, while high values indicated good skills. When it came to internet use, some of the questions asked were about using the Internet for communication (instant messaging, chat rooms, make voice calls and send emails), information (look up the meaning of a word, searching facts, search information to school related work) and entertainment (listening to / downloading music, playing games, watching / downloading videos, watching TV online and listening to online radio). The answers were measured through a six-grade scale (never; occasionally; sometimes per month; sometimes per week; once a day; several times per day). In order to measure regular activity, the weekly and daily users were coded as 1 and occasional users and non-users were coded as 0. All the activities belonging to the different themes such as communication, information, and entertainment were made into indexes on the same theme. Further an index on web 2.0 activities was conducted based on two questions, “Do you have a weblog?” and “Are you a member of a social networking site online?” This index had only three values, 0, 1, 2. The lowest value (0) indicated non-activity in web 2.0 related activities while the highest value (2), indicated high-engagement in web 2.0 related activities since both weblogs and social networking sites were used.

Results

The results in this paper focus on what 12-30 year olds do online and their knowledge when it comes to using the Internet. This included how they perceived their competence in using computers. The aim was to analyse the data from a Swedish national representative survey regarding peoples’ Internet use and compare the results to the stereotypical images of techno-savvy ‘net geners’, in order to nuance the images. Interpreting the conceptions of ‘Net generation’ within the dataset used in this article, the following stereotypical images were questioned:

- Are all ‘net geners’ Internet users?
- Do all ‘net geners’ use the Internet in a similar way?
- Are there any generational differences between the ‘Net Generation’ and an older generation when it comes to Internet behaviour?
- Are the ‘net geners’ relying more on the Internet and abandoning traditional media?
- Do ‘net geners’ use the Internet from various places?
- Is the ‘Net generation’ techno-savvy?
- Is the ‘Net generation’ also the ‘MySpace generation’?
Are all ‘net geners’ Internet users?
The basic assumption for the stereotypical images of ‘net geners’ is that they are Internet users (Livingstone & Helsper, 2007; Lenhart, 2005). In Sweden, the proportion of non-users 12-30 years old is 2.5 percent (n=18). 3.5 percent don’t have Internet access at home (n=25), 2.7 percent (n=12) don’t have access in school and 19.6 percent (n=42) don’t have access at work. Overall only 1.5 percent (n=11) lack access at home, in school or at work (depending on the occupation). Among Internet users there are few low users. Among those who have Internet access at home there are 7 percent (n=47) low users, meaning they use the internet only a few times per month or even less. 24 percent (n=102) of the students and 16 percent (n=27) of the working people are low users. However, when taking all three places for Internet use into consideration, the non-users and low users make up for 8 percent altogether (n=58). When comparing this to Livingstone and Helsper’s (2007) study in the UK, the low-users in the UK correspond to 13 percent of the children aged 9-19. However it is also shown that Internet use increases with age and that might be the explanation to the lower proportion of occasional users in Sweden, in comparison to the UK (the youngest ones in the Swedish sample are 12 years old). In accordance to other studies (Livingstone & Helsper, 2007; Lenhart, 2005) the proportion of non-users is about 3 percent.

A lack of interest seems to be the main reason not to use the Internet. However, many respondents, when asked about their lack of usage, have answered ‘don’t know’. It is hard to say if there might be some other reasons for non-use. The ‘no interest’ answer might have been interpreted as a socially undesirable answer and the ‘don’t now’ answer was therefore chosen. Facer and Furlong (2001) identified a group of young people that constructed their own values regarding technology/computer use that diverges from the dominant image of the ‘Cyberkid’. These children argued that the computers were not important for them in their daily activities. Some argued that computer use is not healthy, that they rather be outside engaging in physical activities. However this construction was not unproblematic. Some of the children were concerned that they should not have felt the way they did about computer use and some of them expressed the idea that their own children won’t have to face the digital inequalities because they are going to be born into the digital society (Facer & Furlong, 2001).

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No interest</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td>Don't know</td>
<td>9</td>
<td>56</td>
</tr>
<tr>
<td>No answer/other reason</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Non-users answers regarding the reasons to not use the internet (16-30 year olds)

Do all ‘net geners’ use the Internet in a similar way?
According to Tapscott (2009) young people aged 11-31 are the ‘Net generation’. That statement suggests that all 11-31 year olds are using the Internet in a similar way because they belong to the same generation. In an attempt to explore this stereotypical image of the ‘Net generation,’ the Internet use for communication, information and entertainment were compared between four age groups (12-16; 17-20; 21-25; & 26-30 year olds). The younger age groups (12-16 and 17-20 year olds) are frequent users of instant messaging (61% - 72% daily users). However the older age groups (21-30 year olds) are more active when it comes to using email (26% of 12-16 year olds and 47% of
17-20 year olds are daily users compared to 74% of 21-25 year olds; 77% of 26-30 year olds are daily users). Communicating through chat rooms and making voice-calls is rather unusual for all age groups (Chat room ≥ 53% non-users and voice-calls ≥ 70% non-users). When it comes to using the Internet for information searching it seems that using the Internet for school related work increases by age (12-16 year olds = 6% daily users; 17-20 year olds = 14%), when examining young people that attend school. The entertainment oriented Internet use also differs in some respects between age groups. The youngest (12-16 year olds) are the most frequent game players (26% daily users), 17-20 year olds are the most frequent users when it comes to downloading music and listening to music (32% daily users) while the older age groups 21-25 and 26-30 are the most frequent listeners to online radio (21-25 year olds = 29% daily or weekly users; 26-30 year olds = 19% daily or weekly users).

Are there any generational differences between the ‘Net generation’ and an older generation when it comes to Internet behaviour?

As stated before, ‘net geners’ are expected to have a different relationship with information and communication technology in comparison to older generations (Tapscott, 1998; Prensky, 2001). To be able to say something more detailed about these perceived differences, non-parametric Mann-Whitney tests were performed. The activities were categorized by communication, information and entertainment. Using these themes, indexes were constructed. The communication-index consisted of activities such as instant messaging, chat rooms, voice calls and email. The information index was about searching for facts and looking up a meaning of a word, and finally the activities regarding the entertainment online such as listening to music and watching TV online were summarized into an entertainment index. Further, an index of web 2.0 activities was also conducted. These included the use of weblogs and social networking sites online. Each activity was coded as 0 for not using the activity at all or using it occasionally and 1 for using it regularly which is weekly or daily. The activities regarding web 2.0 were dummy variables from the beginning (0=No; 1=Yes) and should be interpreted as use/non-use. The values in each index could vary between 0 for not using any of the activities regularly to the maximum amount of activities that were included in the index. The ‘Net generation’, here in accordance to Tapscott defined as 12-30 year olds, was compared to an older generation, which include both ‘baby boomers’ and ‘gen Xers’ (32-50 year olds). The two groups were compared regarding the regular use of communication, information and entertainment online.

The results show that the communication activities vary between the two generations (Z= -13.382) as well as within the ‘Net generation’ (Z=-2.338) though the differences within the ‘Net generation’ are not as distinct as between the two generations. The differences within the ‘Net generation’ are significant on a 95% confidence level while the differences between 12-30 year olds and 32-50 year olds are significant on a 99% confidence level. The reason for this could be explained by the high adoption of email in all age groups, while instant messaging and chat rooms usages were mostly used among the younger people. However, instant messaging also varies within the ‘Net generation’ because the younger group (12-20 year olds) is using it to a higher extent than the older group (21-30 year olds). The information- and entertainment-activities don’t seem to be specific for the ‘Net generation’ because the differences within the ‘Net generation’ are considerable as well as between the generations (see table 3). Some of the activities in the ‘entertainment index’, like games for example, were mostly used among the youngest (12-16 year olds) and some of the activities such as watching TV online were hardly ever used, which could explain the variation within the ‘Net generation’. The web 2.0 activities described here are defined
as using weblogs and social networking sites, by the ‘Net generation’ in a higher extent than the comparing age group (32-50 year olds) (Sig=0.209 within ‘Net generation’).

<table>
<thead>
<tr>
<th></th>
<th>Kommenn-Whitney U</th>
<th>Wilcoxon W</th>
<th>Z</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. COMMUNICATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Between the generations</td>
<td>126701.5</td>
<td>312446.5</td>
<td>-13.382</td>
<td>.000</td>
</tr>
<tr>
<td>1.2 Within the ‘Net generation’</td>
<td>53748</td>
<td>102889</td>
<td>-2.338</td>
<td>.019</td>
</tr>
<tr>
<td>2. INFORMATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Between the generations</td>
<td>173201</td>
<td>357122</td>
<td>-6.068</td>
<td>.000</td>
</tr>
<tr>
<td>2.2 Within the ‘Net generation’</td>
<td>52933.5</td>
<td>101761.5</td>
<td>-2.587</td>
<td>.000</td>
</tr>
<tr>
<td>3. ENTERTAINMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 Between the generations</td>
<td>131735.5</td>
<td>315656.5</td>
<td>-12.086</td>
<td>.000</td>
</tr>
<tr>
<td>3.2 Within the ‘Net generation’</td>
<td>50689.5</td>
<td>99517.5</td>
<td>-3.321</td>
<td>.001</td>
</tr>
<tr>
<td>4. WEB 2.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Between the generations</td>
<td>118811</td>
<td>302126</td>
<td>-15.282</td>
<td>.000</td>
</tr>
<tr>
<td>4.2 Within the ‘Net generation’</td>
<td>55498.5</td>
<td>103703.5</td>
<td>-1.255</td>
<td>.209</td>
</tr>
</tbody>
</table>

Table 3: Comparisons in regular use of Internet activities between the ‘Net Generation’ and an older generation (32-50 year olds) as well as within the ‘Net Generation’

Are the ‘net geners’ relying more on the Internet and abandoning traditional media?

Table 4 shows the average time per week spent using the Internet, watching television, listening to music and radio (not through the Internet) and reading newspapers and magazines. According to the stereotypical images of ‘Net generation’, young people are turning to Internet for everything, meaning that they are abandoning more traditional media. The time 17-30 year olds were spending with Internet in an average week was perceptually higher than the time they spent consuming traditional media. They spent almost twice as much time using the Internet as watching TV. On the other hand, the Internet is not a medium specifically limited to one age group. Since even the oldest in this analysis (36-45 year olds) are spending the most hours using the Internet when compared to other media. The youngest age group, 12-16 year olds, was spending less than 15 hours per week with the Internet which is 2 to 8 hours less than the other age groups. According to Tapscott (2009), the youngest ones should be immersed with technology and using the Internet in a much greater extent than the previous generations. This doesn’t seem to be the case for the 12-16 year olds. They are also reading books and magazines, watching television and listening to music approximately the same amount of time as other age groups, which means that they are not abandoning traditional media.
Table 4: Average time per week spent with different media

The majority of 12-30 year olds are daily users (12-16 year olds = 78%; 17-20 year olds = 84%; 21-25 year olds = 85%; 26-30 year olds = 81%) but the time spent online varies within age groups. 12-30 year olds are using the Internet approximately 3 hours daily at home. Between 29 and 41 percent of 12-30 year olds are spending one hour or less with the Internet daily in their homes (See Table 5). The heavy Internet users (those spending five hours or more online daily in their homes) are generally from the 17-20 and 21-25 year olds.

<table>
<thead>
<tr>
<th>Age</th>
<th>Newspapers and magazines</th>
<th>Music and radio</th>
<th>Television</th>
<th>Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-16</td>
<td>1 h, 47 min</td>
<td>10 h, 40 min</td>
<td>11 h, 38 min</td>
<td>14 h, 44 min</td>
</tr>
<tr>
<td>17-20</td>
<td>3 h, 26 min</td>
<td>14 h, 4 min</td>
<td>9 h, 58 min</td>
<td>20 h, 12 min</td>
</tr>
<tr>
<td>21-25</td>
<td>3 h, 24 min</td>
<td>13 h, 41 min</td>
<td>12 h, 44 min</td>
<td>23 h, 18 min</td>
</tr>
<tr>
<td>26-30</td>
<td>3 h, 30 min</td>
<td>14 h, 25 min</td>
<td>12 h, 20 min</td>
<td>20 h, 11 min</td>
</tr>
<tr>
<td>31-35</td>
<td>3 h, 48 min</td>
<td>18 h, 42 min</td>
<td>12 h, 54 min</td>
<td>18 h, 30 min</td>
</tr>
<tr>
<td>36-46</td>
<td>4 h, 22 min</td>
<td>15 h, 28 min</td>
<td>13 h</td>
<td>16 h, 10 min</td>
</tr>
</tbody>
</table>

Table 5: Time per week spent online

Do ‘net geners’ use the Internet from various places?
Using the Internet at other places than the home, such as relatives or friends houses, and public places, such as libraries and internet cafés, is not very common and the time spent online in these places is very low. Average time spent with Internet at friends’ and relatives’ houses is up to 30 minutes per week (for 12-16 year olds). At public places the weekly Internet use is almost nonexistent. 12-16 year olds and 21-25 year olds spend approximately 3 minutes per week using the Internet at public places. 26-30 year olds spend 4 minutes and 17-20 year olds spend approximately 12 minutes per week online at public places. In accordance to other studies, the home and school are the primary places they access the Internet (Hasebrink, Livingstone & Haddon, 2007).

When it comes to using the Internet in school we could only compare the two youngest age groups 12-16 and 17-20 year olds. The proportions of students in the older age groups were too small to be used in a statistical analysis. The average time spent online in school is 68 minutes per week for 12-16 year olds and 253 minutes or
approximately 4 hours per week for 17-20 year olds. The reason is that a much larger proportion of 17-20 year old students are using the Internet daily (45%) in comparison to the 12-16 year olds (7%). One explanation could be that 93 percent of 12-16 year olds who have Internet access in school say that there are rules about what they can and can’t do online when they are in school and 61 percent of the same cohort report that they are not allowed to use the Internet during breaks. However the proportion of non-users are small (12-16=9%; 17-20=4%), including those who do not have access to the Internet in school. Even though the proportion of non-users is small, the school doesn’t seem to be the arena for 12-16 year olds to take up opportunities online. It doesn’t seem to be an opportunity for low Internet users at home to be using the Internet more in school. The relationship between time spent online at home and time spent online in school is positive both for 12-16 year olds (R=0.321**) and 17-20 year olds (R=0.233**). The more time they spend online in their homes, the more time they spend online in school. This is similar to Facer and Furlongs (2001) findings about those who have computer access at home; they report these individuals are more likely to take opportunities to use computers in other places such as the school or friends’ houses.

Is the ‘Net Generation’ techno-savvy?

In order to explore the extent of how techno-savvy the ‘Net generation’ is in regards to their usage, the aspect of self-efficacy on computer use and the aspect of Internet skills were used. For self-efficacy in computer use the question, “How competent are you when it comes to using the computer?” was examined. The majority saw themselves as fairly or very competent when it comes to using the computer (12-16 year olds = 88%; 17-25 year olds = 86%; 26-30 year olds = 83%). Few said that they were not competent at all (1% - 2%). But a rather large proportion thought that their competence in using computers was not that good (11% - 17%). When looking at the low- and non-users separately, we could see that the proportions of those perceiving their competence as low is higher comparing to the total sample (12-30 year olds). 12.5 percent of the low- and non-users said that they are not competent at all when it comes to using computers.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not competent at all</td>
<td>7</td>
<td>12.5</td>
</tr>
<tr>
<td>Not that competent</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td>Fairly competent</td>
<td>32</td>
<td>57</td>
</tr>
<tr>
<td>Very competent</td>
<td>2</td>
<td>3.5</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 6: Self-efficacy among non-users and low-users (12-30 year olds)

In previous studies it is shown that Internet skills and self-efficacy vary both by gender and age (Livingstone et. al. 2005). A Kruskal-Wallis test was performed both on Internet skills and self-efficacy. The age was tested for four different age groups (12-20; 21-30; 32-40; 41-50). The results show that gender (Chi2=131.055) and age (Chi2=37.012) are both significant on 99 % confidence level for the differences in internet skills as well as in self-efficacy (gender Chi2=53.863 and age Chi2=57.786). However, within the ‘Net generation’, the differences are not so big (for internet skills within ‘Net-generation’ sig=0.057 and self-efficacy sig=0.249), which means that the age
could not explain the variation in Internet skills and self-efficacy within the group of 12-30 year olds. The youngest in this group, 12-16 year olds, stand out because there was no gender differences found concerning self-efficacy or Internet skills. For the 17-30 year olds the self-efficacy tends to decrease for females \( (R=-0.269^{**}) \). 12-16 year olds stand out for one more reason. When examining the Internet skills it is shown that they score lowest on the Internet skills-scale containing five Internet use items (email, attach documents to email, download music, make voice-calls and set up a server). The Internet skills seem to increase by age \( (R=0.143^{**}) \) within the group 12-30 year olds. 13 percent of 12-16 year olds scored 1 or lower and only 2 percent of 17-30 year olds scored 1 or lower on Internet skills. This is similar to the findings in a study by Sherry and Fielden (2005) where they found that the Millennial cohort is not as competent with computers as they are confident. The basic Internet skill seems to be using the email since almost all of the respondents scoring 1 answered that this is the one thing they know how to use. There were no statistical significant differences found when it comes to socioeconomic factors. It would have been expected to find differences among young people who are still living at home, however the socioeconomic differences in Sweden might be smaller comparing to for example the UK or the USA where other statistical surveys on young people’s Internet use were performed (UK Children Go Online, PEW Internet and American life project). The notion of ‘Net generation’ doesn’t focus on social differences among young people, though it is shown in several studies, as in this, that gender and age have impact on the confidence in using computers and the Internet (Lee, 2008, Torkzadeh et. al. 2006, Livingstone et. al.2007).

*Is the ‘Net generation’ also the ‘MySpace generation’?*

Another stereotypical statement or image is that the ‘Net generation’ also is the ‘MySpace generation’ (Rosen, 2007). As shown before the web 2.0 activities such as use of weblogs and communities seem to characterize the so-called ‘Net generation’. In Figure 1 we can see the proportion of community users and weblog users among different age groups. As pointed out before, the use of social-networking sites and weblogs decreases with age. However, it is important to notice that writing weblogs isn’t that usual (11-17\% users) even among the ‘net geners’ and when it comes to the social networking sites there are a lot of non-users in the younger age groups (33-50\% non users) even though the proportions of users are significantly higher comparing to older age groups. This would mean that even though the image of the ‘net geners’ as web 2.0 users appears to be true when comparing to an older generation, there still are a lot of non-users. In fact, when it comes to weblogs there are more non-users. This, I would argue, is a way of exaggerating the proportion of use in social networking sites and weblogs, and ascribing the ‘Net generation’ such characteristic.
Conclusion

Using a representative study about Swedish people’s Internet behaviour some of the stereotypes of ‘Net generation’ were explored by framing them as questions and analysing each question through the data. The main conclusions drawn from the results presented are that it is too simplified to talk about a ‘Net generation’. This article implies that several of the stereotypical images about the ‘Net generation’ can be nuanced. In the sense of using the Internet it could be argued that a ‘Net generation’ exists since almost all of the 12-30 year olds are using the Internet. However, the Internet adoption is generally high in Sweden and the majority of non-users are older than 60 years. It is therefore not enough to state that there is a ‘Net generation’ just because the age group defined as the ‘Net generation’ is using the Internet. There is an assumption about the similarity of Internet use as unifying factor for the ‘net geners’. In accordance to previous research findings (Livingstone et. al., 2005, 2007) it is found that Internet usage differs between age groups. Livingstone et. al. (2005, 2007) has shown that older children spend more time online and become more skilled at using the Internet. They also show that the youngest age group (12-16 year olds) do not spend as much time with the Internet as their older cohorts in the ‘Net generation’. Gender differences were also found in accordance to previous studies (Livingstone et. al., 2007). This means that social factors such as age and gender can’t be excluded from the discourse about young people’s Internet use. They are important for explanation in variance of young people’s Internet use.

Another important issue emerges in relation to the fact that some young people perceive their competence in using computers or technology as low. An uncritical assumption is that all ‘net geners’ are equally competent in using the information and communication technologies. Although the vast majority of ‘net geners’ are Internet users and think of themselves as fairly or very competent in using computers, it doesn’t mean that they all use the Internet in the same way and are equally competent. This was found to be the case for the youngest age group (12-16 year olds) in comparison with older cohorts. 12-16 year olds scored rather high on self-efficacy-measure and not so
high on Internet skills. The most likely explanation is that the Internet skills-scale did not succeed to measure the youngest age group’s skills (it is possible they would have scored higher on the Internet skills if they were asked about activities they frequently engage in). This finding questions the stereotypical image of ‘techno-savvy’ ‘net geners’ because it could be interpreted that the youngest ones do not necessarily know more when it comes to using the Internet. It could be that they just know different things. It is also interesting that no gender differences were found among 12-16 year olds concerning self-efficacy and Internet skills. Further research needs to be done in order to explore when and why men and women start to feel differently about their competence in using computers and the Internet.

When it comes to the generational differences for the Internet activities analysed in this paper it is shown that very few Internet activities can be ascribed to the ‘Net generation’. Only for web 2.0 activities a generational difference was found between the ‘Net generation’ (12-30 year olds) and the older generation (32-50 year olds), implying that the ‘Net generation’ could be characterized as a ‘MySpace generation’. However, writing weblogs is not that common even among the ‘net geners’ and the use of social networking sites is not as great as it could be expected, which means that such a characterisation would exaggerate the importance of web 2.0 related activities for the ‘net geners’. This is why it is important to explore and try to nuance the stereotypical images of ‘Net generation’ in an attempt to try to avoid ascribing certain qualities to the so-called ‘Net generation’.

The diversity of Internet use among ‘net geners’ on one hand and the consistency of self-efficacy in computer use on the other, indicates the complexity of the concept ‘techno-savvy’. Since the Internet skills were not exhaustively measured it is not possible to say how techno-savvy the ‘net geners’ really are. However, as mentioned before we can not exclude the ones who do not find themselves as competent computer users, and we can’t ignore the actual differences in Internet usage both when it comes to amount of time spent online and the usage patterns. This could result in many young people being left out of important and increasingly necessary educational opportunities to explore and become familiar with certain technologies in schools, especially if they do not have access at home. It is proposed that further analyses on measuring Internet skills are very important mainly for two different reasons; (1) in order to explore the stereotypical images and learn more about what people know when it comes to using the Internet and (2) to further explore who are the ones gaining advantage in the information society and who are those at risk of becoming excluded?

References


**Biographical statement**

Sheila Zimic is a Ph. D. Student in Informatics at Mid Sweden University. Sheila is using the national representative study conducted by World Internet Institute in her research on young people’s Internet use. The World Internet Institute is an independent research institute, representing Sweden in the international World Internet Project since year 2000. Sheila is also a member of the CITIZYS research group. The focus of the research group is Information technology and Sustainable society.

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Abstract
The approach in this chapter is to recognize what is said to be important regarding the feeling of being a part of the information society. The aim, in this case, is not to explain how young people participate online. However, by analyzing the perceived feeling of participation among young people important information about participation is provided. The perceived feeling of participation indicates something about the actual participation and is, I would argue, equally important in order to learn more about young people’s online experiences. In this chapter it is assumed that digital skills and other related concepts such as self-efficacy and a relationship with technology are important in order to be able to participate and hence to feel a part of the information society. In this case, there is an exploration into the amount that social factors, digital skills, self-efficacy and a relationship with technology are able to explain the variance in perceived feelings regarding participation. Approximately 8 percent of 12-31 year olds feel disengaged with the information society. It has been determined that education, self-efficacy, instrumental computer skills, information skills and strategic skills can explain 22 percent of the variance in the perceived feeling of participation. Since some of the factors that were expected to explain the variation in feeling of participation were not significant and others did not have as strong effect as would have been expected, the implication is that young people themselves might define other factors as being more important with regards to participation in the information society.

Keywords: Participation, Information society, Young people, Digital skills, Digital literacy, Media literacy, Information literacy, Technology literacy, Self-efficacy, Relation with technology

Introduction
15 years have passed since the start of use of the internet within Swedish society (Findahl, 2009). At the outset, only a few, technologically interested people, engaged with the internet. As time has passed more and more people have adopted it and today 83 percent of Swedish people use it. The majority (85 percent) of those who do not use the internet are 60 or over (Findahl, 2009). Because the internet has become highly adopted in the industrialized part of the world, the focus has shifted from the classical ‘digital divide’ in explaining the divide between those who have and those who do not have access to the internet to a more explorative focus on social divides (Peter & Valkenburg, 2006). With respect to the digital divide, the importance of digital literacy has been discussed where an attempt has been made to explain what it is that is important to know regarding the use of information and communication technology in order to not become disadvantaged within the information society (Hargittai, 2005; Livingstone, Bober, & Helsper, 2005; Van Dijk & Hacker, 2003). As stated previously, it is the elderly people in Sweden who pose the highest risk of not being a part of the information society. Young people’s involvement in the information society is on the other hand taken for granted since very few are non-users. However, in the case of digital literacy, previous studies have shown that it is not necessarily the young who have the highest digital skills (Duimel & deHaan, 2009). In accordance with Duimel & de Haan (2009), some of the results from my previous study have indicated that young people (12-16 years) tend to rate their competence in using computers as fairly or very high which does not entirely correspond to the rates scored in the so called internet skills (Zimic, 2009). I had come to the conclusion that it was probable
that it had not proved possible to measure their skills in using the internet. Often, when measuring digital skills, the focus lies on the “instrumental skills” – what people know in relation to operating hardware and software when using both the internet and a computer. The question then becomes what skills are expected from people in order to participate in the information society? In this chapter the concept of digital skills by van Dijk and Hacker (2003) has been used because they measured different levels of skills which are defined to be important in order to participate in the information society. The questions representing the different digital skills in this chapter are not identical to the original model for digital skills (van Deursen & van Dijk, 2009; Van Dijk & Hacker, 2003) so they can be viewed more as indicators of digital skills rather than the actual skills. The questions are used as an inspiration to explore young people’s perceived feeling of participation in order to answer the general research questions – 1) which skills do young people think are important for participation? and 2) who are those at risk of being disadvantaged because of the lack of skills?

The aim is not to explain how young people participate online but the focus is rather on young people’s perceived feelings of participation within the information society. It provides us with important information concerning young people’s online experience and what participation in the information society could mean to them because the feeling of participation is assumed to be consensually related to actual participation. Peoples’ perceived participation affects how much they actually participate online and the actual participation affects how they perceive their participation. It is important to investigate how young people perceive their feelings of participation because there are many stereotypical images regarding young people’s internet usage (Tapscott, 1998; Tapscott & Dawsonera, 2009). Being active online does not however necessarily have to mean participating in a way that is expected of citizens in the information society. In accordance with other studies which have critically explored the notion of ‘Net gener’s’ (S. Bennett, Maton, & Kervin, 2008; Cheong, 2008; Facer & Furlong, 2001; Livingstone & Helsper, 2007; Sherry & Fielden, 2005) this study explores what is said to be important for participation online by placing the focus on the perspective of young people. The approach is to recognize what is said to be important regarding being a part of the information society by linking the social factors, digital skills, self-efficacy in using computers and attitude towards using new technology (relation with technology) in order to explore how much they affect the feeling of participation in the information society.

What is meant by young people’s participation?

Being a part of the information society does not have to mean active participation in the information society. There is however reason to believe that participation merits the perceived feeling of taking part in the information society and that the same factors that explain the variations in participation should also explain the perceived feeling of being a part of the information society. But what is meant by children’s and young people’s participation? In article 12 of the Convention on the Rights of the Child the following statement has pointed out that children and young people are independent subjects and have their rights to participate:

“State Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child.”
With this as the focus Roger Hart developed a model called “the ladder of participation” which has been greatly influential for research and practice regarding young people’s participation. The model illustrates a ladder with eight steps in which the first three steps consider the non-participation and steps four to eight are different degrees of participation. The first step is called manipulation and suggests that children act as the adults tell them to act without having any understanding of why they should act in that certain way and what influence their acts have had on the final decision. The second step on the ladder is decoration. It refers to events in which children take part by performing (singing, dancing) or wearing T-shirts with logos but do not really understand the cause. They are there for other reasons, such as refreshments, an interesting performance etc. Adults organize the whole occasion and use the children to support the cause in an indirect way. The third step is tokenism which is used to describe occasions when young people are asked to say what they think about an issue but have little or no choice about the way they express their views. The fourth step is called assigned but informed and means that children understand the intentions of the project; they know who made the decisions concerning the involvement and why; they have a meaningful rather than ‘decorative’ role and they volunteer for the project after the project has been made clear to them. The fifth step of participation is consulted and informed. It means that the project is designed and run by adults but children are consulted. Children understand the process and their opinions are treated seriously. Adult-initiated, shared decisions with children is the sixth step in the ladder. Hart states that at this level true participation takes place since decision making is shared with the young people. However, the projects at this level are still initiated by adults. The next, seventh level, is child-initiated and directed. Children have the initial idea and decide how the project should be carried out. The adults are available for support but they do not take charge of the project. The final step in the ladder of participation is child-initiated shared decisions with adults. At this level young people have the initial idea, set up a project and finally invite adults to join them in making decisions (Hart, 1992).

The internet is considered to possess great potentials for making participation possible, especially for young people (Loader & Hague, 1999). The often used terms ‘digital natives’ (Prensky, 2001) and ‘Net generation’ (Tapscott, 1998) refer to young people as being born into the information society and where the use of the internet is integrated into their everyday lives. Children and young people are considered to be more skilled and knowledgeable than adults in relation to the use of the internet and other information and communication technologies. For the first time, young people are placed in a higher power position (Prensky, 2001; Tapscott, 1998). The implication of this is that they have more say and are being listened to.

There are a wide range of examples of children’s and young people’s participation online. Montgomery (2008) has investigated the “youth civic web” – platforms built for young people in order to invite them to participate. This has, according to Montgomery, shown to be promising in expanding the opportunities for young people to connect, engage and create. She concludes that the interactive media is helping to provide young people with some of the essential skills for civic and political engagement by: learning about the critical issues of the day; inserting their own voices into the public discourse; and actively participating in a range of political issues. The possibilities of web 2.0 activities online are
considered by many to be arenas for young people’s participation (L. W. Bennett, Wells, & Rank, 2009; Livingstone, Bober, et al., 2005; Montgomery, 2008). According to Bennett, Wells and Rank (2009) “good citizenship” could be practiced within the internet’s interactive opportunities and not only as traditional government-centered activities.

Livingstone, Bober and Helsper (2005) examined young people’s take-up of a range of internet activities broadly falling under the umbrella of ‘participation’. They examined what kind of activities young people engage in, what civic possibilities these sites offer, whether or not young people embrace all of the activities, and if so, why. However, the question in relation to which activities merit the label of ‘participation’ remained unresolved. In general, Livingstone et. al. (2005), found that young people do take part of a range of online opportunities and gain new experiences when it comes to participating. However, not all young people are engaged and they do not engage in the same way.

In accordance with Livingstone, Bober and Helsper (2005) there are critical voices regarding young people’s participation online (S. Bennett, et al., 2008; Cheong, 2008; Facer & Furlong, 2001; Herring, 2008; Sherry & Fielden, 2005). Herring (2008) questioned the existence of the ‘Net generation’ which is said to be creating content online. She suggested that the real ‘Net generation’ has not yet been born. The present young people are not driven by their own interests in constructing the content online. Instead the content online is still managed by corporate interests and adults are in fact thus constructing the ‘Net generation’.

Lindgren (2009) states that young people often symbolize new elements in society and that often leads to presupposing that young people are more progressive than their parents and other adults. The discourse concerning young people in the digital landscape often takes its starting point in technology deterministic views, meaning that the generational differences are seen to be produced by technology, rather than being as the result of social, historical and cultural factors (Buckingham & Willett, 2006). Buckingham (2006) states that it is important to consider what children or young people really are instead of ascribing them a set of imperatives about what they should be and what they need to become.

On the one hand children and young people are considered to be participating online but on the other hand there are critical voices with regards to the aims and form of their participation. The aim of this chapter is not to explain how young people participate online. However, by analyzing the perceived feeling of participation among young people important information about participation is provided. The perceived feeling of participation indicates something about the actual participation and is, I would argue, equally important in order to learn more about young people’s online experiences. In this chapter it is assumed that digital skills and other related concepts such as self-efficacy and relationships with technology are important for people in order to be able to participate and hence to feel that they are a part of the information society.

**Analytical frames**

To be able to participate one must have certain skills such as being able to understand important information in order to make good decisions. In the digital era it is important to know how to use the information and communication technologies in order to participate. These skills and knowledge are often referred to as *media literacy* and *digital literacy*. Livingstone et. al. (2005) pointed out three aims for media literacy. The first one is a citizen’s democratic participation in which the literate citizen can obtain information
concerning what is happening in society and participate in the formation of opinion. The second aim is that economic stability should build on knowledge and in which the literate citizen has more to offer and more to achieve in work which makes the society more innovative and competitive. The third aim is lifelong learning, cultural expression and the possibility for personal achievement. Being media literate means having the skills to critically examine the flow of information and make choices that lead to a meaningful life and to an informed, creative and ethical society (Livingstone, Van Couvering, et al., 2005).

One attempt to define and measure the skills required in the digital era has been conducted by van Dijk and Hacker (2003). Their model describes three different levels of so called digital skills: i) instrumental skills, ii) informational skills, iii) strategic skills. The instrumental skills refer to being able to operate hardware and software while informational skills refer to a slightly more advanced type of internet use involving being able to search, select, process, and apply information using the hardware and software. The strategic skills are on the highest skill level and they refer to being able to use the information discovered in order to improve one’s own social position in society (Van Dijk & Hacker, 2003). However, to achieve the informational skills one must master the instrumental skills, and to achieve the strategic skills both the instrumental and the informational skills are necessary. van Deursen and van Dijk (2009) developed the model further by specifically examining internet skills. These internet skills include operational, formal, information and strategic skills. In this chapter the former classification of digital skills will be used merely to obtain an indication of the skills at the instrumental, information and strategic level. By relating the level of skills to the previous definition of media literacy it can be argued that a high level of strategic skills entails a high level of media literacy.

Another way of describing the skills and competencies necessary in order to participate in the information society is described by Sharkey and Brandt (2008) as the information literacy and technology literacy. They define technology literacy as skills required in order to use the technical tools while information literacy involves skills for locating and using the information in addition to the knowledge for interpreting and evaluating it. The authors argue that information and technology literacy are complementary, meaning that the technologies are the tools, but it is the result of using them that is important which means that both technological and information literacy are required in the information society (Sharkey & Brandt, 2008, p. 86). Figure 1 illustrates how the different concepts of digital skills, media literacy, technology literacy and information literacy relate to each other. The digital skills are illustrated by the figure which appears to be a staircase since the different skills are considered to be at different levels. The line illustrates the continuum for media literacy; higher up along the line corresponds to a higher level of media literacy.

In relation to the model of digital skills, in this paper it is interpreted as technology literacy corresponding to instrumental skills and the information literacy corresponding to information skills.
Regardless of the manner in which the necessary competence is viewed in the information society, either as a staircase or a continuum, the highest level is considered to be a consciousness about a wider understanding of one’s own relationship to the information society. It is about an individual’s ability to grasp the whole picture – seeing how the information society could be used to make wise decisions for oneself and what he or she can do to contribute to a more informed and ethical society. In this manner, the values embedded in the definitions of high levels of media literacy and digital skills could also define what is considered to be “good citizenship” in terms of participation in the information society. In this chapter the basics from van Dijk and Hackers model (2003) were used to construct an analytical framework regarding the digital skills in order to determine whether they are able to explain the variance in the perceived feeling of participation in the information society.

**H1**: Instrumental, information and strategic skills have a positive relationship with the perceived feeling of participation. From the three levels it is the strategic skills that have the strongest correlation with the perceived feeling of participation since these skills are at the highest skill level. They entail a high degree of media literacy and support the participation in the information society.

In a similar manner to that with which the perceived feeling of participation in information society is approached in this chapter, several studies have approached the
perceived feeling of the ability to use computers and the internet (Torkzadeh & Van Dyke, 2002). The perceived feeling of one’s own ability to perform is called self-efficacy (Bandura, 1997). In this study the self-efficacy in using computers is examined. Among others Torkzadeh et. al. (2002) found that self-efficacy is very important for an individual’s performance in computer and internet use. They studied a group of students before and after computer training course and they found that all the participants benefited from the training and improved their self-efficacy in using computers.

**H2:** There is a positive effect between self-efficacy in using computers and the perceived feeling of participation in the information society.

Self-efficacy in using computers is closely related to the relation with technology, referring to how people’s attitudes towards technology affect their engagement with technology (Lindblad-Gidlund, 2005).

**H3:** There is a positive relationship between the relation with technology and the perceived feeling of participation, meaning that more positive attitudes entail a higher feeling of participation.

Further, it is expected that the feeling of participation varies among internet users regarding demographic factors. Livingstone, Bober and Helsper (2005) found that in general boys, middle class children and older teenagers are more likely than girls, working class children and younger teenagers to engage in online communication, information-seeking and peer to peer connection. Age is the most important factor when it comes to skills and the variety of ways young people participate online. It is the older children who make the most of their online experience, because they have been online for longer and have therefore gained more skills (Livingstone, Bober, et al., 2005; Livingstone & Helsper, 2007).

**H4:** Age has a positive effect on the perceived feeling of participation, meaning that the perceived feeling increases as does the age.

**H5:** Girls/women perceive their feeling of participation lower than boys/men.

**H6:** Education has a positive effect on the perceived feeling of participation. Higher levels of education entail a higher feeling of participation.
Figure 2: Illustration of relationships between digital skills, self-efficacy, relation with technology, age, gender, education with the perceived feeling of participation

Method

This study is based on data collected in an annual Swedish national survey about Swedish peoples’ internet use which is a part of the international World Internet Project (www.worldinternetproject.net). The survey was conducted between February and May 2009. A random sample of 2,063 people from all around Sweden from 12 years and older answered a wide range of questions about their internet use. Initially the survey was conducted as a panel study and through the years the “drop offs” where compensated for by a stratified random sample by age. Two different surveys were conducted, one with respondents of 16 years and older and one with young people from 12 (born in 1997) to 16 years (born in 1993). The main reasons for conducting two different surveys were that those under 16 required the permission from a parent/guardian to participate but also to obtain a larger sample of young people in order to be able to perform statistical analyses when the youngest groups are studied separately. Table 1 shows how the different age groups are distributed within the sample. The age groups 12-16 and 17-19 years are weighted by 0.5 to match the proportions within the Swedish population.
Table 1: Sample sizes for different age groups

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-16</td>
<td>143</td>
<td>7</td>
</tr>
<tr>
<td>17-19</td>
<td>116</td>
<td>6</td>
</tr>
<tr>
<td>20-29</td>
<td>258</td>
<td>12</td>
</tr>
<tr>
<td>30-39</td>
<td>285</td>
<td>14</td>
</tr>
<tr>
<td>40-49</td>
<td>321</td>
<td>16</td>
</tr>
<tr>
<td>50-59</td>
<td>298</td>
<td>14</td>
</tr>
<tr>
<td>60+</td>
<td>642</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>2063</td>
<td>100</td>
</tr>
</tbody>
</table>

In this chapter young people between 12 and 31 years are the focus and thus the cases were not given any weight. This group is somewhat overrepresented in relation to the entire sample of Swedish population. However, the aim in this chapter is to explore the tendencies among 12-31 year olds in general and for that reason the larger sample is chosen. Table 2 shows the distribution of the sample 12-31 years.

Table 2: Sample sizes for 12-31 year olds

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-16</td>
<td>286</td>
<td>33</td>
</tr>
<tr>
<td>17-19</td>
<td>231</td>
<td>27</td>
</tr>
<tr>
<td>20-25</td>
<td>173</td>
<td>20</td>
</tr>
<tr>
<td>26-31</td>
<td>168</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>858</td>
<td>100</td>
</tr>
</tbody>
</table>

The survey includes a range of questions about internet activities, attitude towards the internet and a set of questions about the so called digital skills. It is an extensive study concerning the internet usage of the Swedish people.

The digital skills – instrumental, information and strategic, in accordance with van Dijk and Hacker (2003) are defined by matching some of the questions from the data used in this paper by the questions regarding digital skills (van Deursen & van Dijk, 2009). In table 2, an overview of the questions included can be seen. The questions in table 2 are recognized as being similar to those used by van Dijk and van Deursen (2009) and the model should be interpreted as an indication of the skills defined by the authors. There is always a risk for multi-collinearity when several similar factors are included in one model. By performing collinearity diagnostics the risk for high multi-collinearity could be excluded since the variance inflation factors were lower than 5 (Instrumental computer skills VIF=1.818; Instrumental internet skills VIF=1.917; Information skill VIF=1.235; Strategic skills VIF=1.381).
**Table 3: Digital skills defined from the questions in the survey 2009**

<table>
<thead>
<tr>
<th>Instrumental skills</th>
<th>Computer</th>
<th>Information skill</th>
<th>Strategic skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you know how to do the following things on the internet?</td>
<td>Do you know how to do following things with a computer and computer accessories?</td>
<td>How difficult or easy would you say it is to do the following things online? Please answer on a scale from 1 to 5. 1 means it is very difficult and 5 means it is very easy.</td>
<td>How often do you use the Internet to get information about a product?</td>
</tr>
<tr>
<td>Send email?</td>
<td>Plug in and install new computer accessories such as a printer, external hard drive etc.?</td>
<td>Search and find information you are interested in?</td>
<td></td>
</tr>
<tr>
<td>Attach documents to your email?</td>
<td>Install or configure a network in order to share files, printer and broadband at home?</td>
<td></td>
<td>How often do you use the Internet to make price comparisons between products or services?</td>
</tr>
<tr>
<td>Download music?</td>
<td>Install a new computer program?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make voice-calls online?</td>
<td>Install a new operating system?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Instrumental internet and computer skills – answers are coded: 0=No; 1=Yes. Information and strategic skills are measured on a five-point scale with the values 1 to 5 (1 means very difficult and 5 means very easy), never is coded as 0.

The instrumental skills are, in this case, divided into internet and computer related skills. Instrumental skills in using the internet relate to what people can or cannot do in relation to using the internet to download music, send an email, attach documents to email and make a voice call. The questions are simply asked: Do you know how to do the following things on the internet? Send an email? Etc. The instrumental skills in using a computer are constructed in the same way and the questions are: plug in and install new accessories to the computer such as a printer, an external hard drive etc.; install and configure a network to share files, printer or broadband at home; install a new program; install a new operating system. The information skill refers to people’s estimation regarding the ease or difficulty in finding information online which they are interested in. Strategic skills are activities that are, in some way, strategies regarding, for instance, saving time or money. They are defined here by the questions: How often do you use the internet to get information about a product? and How often do you use the internet to make price comparisons between products or services?. As previously stated, the questions do not entirely correspond to the original model regarding digital skills (van Deursen & van Dijk, 2009; Van Dijk & Hacker, 2003) so the results should be interpreted with some caution, meaning that the relations between digital skills and the feeling of participation regards the digital skills as they are measured within this study. However, even though the digital skills within this study do not cover the entire concept of digital skills, some of the items or issues are still represented and can therefore be used in the sense of interpreting the effect of digital skills on the dependent variable – feeling of participation.

In addition, variables such as relation with technology and self-efficacy for this model were included in the analysis. Relationship with technology, which has to do with people’s
attitudes to technology, was measured by asking people to rate how much they agree or disagree with the statement “I like to try out new technology”. It is measured on a five point Likert-scale in which 1 is do not agree at all and 5 is totally agree. Self-efficacy in computer use was measured by asking people to rate their competence in using computers from “not competent at all” to "very competent". Both self-efficacy and relationship with technology measured what was supposed to be measured. However, self-efficacy is not measured as precisely as the relationship with technology since it is measured on a four-point scale instead of a five-point scale.

The dependent variable in the analysis is people’s perceived feeling regarding being a part of the information society. In this study the perceived feeling of participation was analyzed by asking the question: You have now answered a range of questions about different media and you have probably heard or read about surfing the internet, using email and information technology. Do you feel like a part of this new information society? The answers are: No, not at all, Yes, but only a little, Yes, for the most part, Yes, totally. The question is not an attempt to measure actual participation in the information society but it is an indicator of people’s subjective feelings which provides very useful information in order to explore what participation really is about.

The factor gender was coded 1 for woman and 0 for man. Age was divided into three groups 12-16, 17-19, 20-25 and 26-31 years. Finally education was divided into three levels – primary/secondary school, high-school and university.

Results

Approximately 17 percent (n=332) of Swedish people do not feel that they are a part of the information society. 48 percent of them are men and 52 percent are women. The majority (66%) of those who feel disengaged with the information society are 60 or older, 11 percent are under 30 years of age and 23 percent are between 30 and 59. Even though there is an age difference among those who claim that they do not feel that they are part of the information society, the gender difference is not significant. In table 4 the distribution of the perceived feeling of participation in information society for 12-31 year olds can be seen.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, not at all</td>
<td>61</td>
<td>8</td>
</tr>
<tr>
<td>Yes, but just a little</td>
<td>195</td>
<td>25</td>
</tr>
<tr>
<td>Yes, for the most part</td>
<td>345</td>
<td>44</td>
</tr>
<tr>
<td>Yes, totally</td>
<td>189</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>790</td>
<td>100</td>
</tr>
</tbody>
</table>

It is not obvious that all young people feel engaged in the information society. In this case, 8 percent of the young population does not feel engaged at all and 25 percent say that they feel engaged to a small extent. It is interesting to find out what characterizes the two groups of young people answering “No, not at all” and “Yes, totally” for the question regarding being a part of the information society. It is not possible to generalize the results but it is however possible to see tendencies or patterns. Among those who answered “No, not at all” there appears to be little gender difference since 34 percent are men and 27
percent are women. However among those feeling totally engaged in the information society, there is a significantly larger difference between men and women (61 % men and 39 % women). In relation to age, there is no clear tendency or pattern. It appears as if the feeling of engagement increases with age since the proportion of those answering “No, not at all” decreases with age. The factor of education appears to have a positive relationship with the feeling of participation since there are many more highly educated respondents in the group of totally engaged as compared to the group of disengaged (5 % university educated people in the group of disengaged and 30 % university educated people in the group of totally engaged). Comparing the means between the two groups it was discovered that only the level of education differed significantly (sig.=0.003). However there might be an interaction between age and education since the youngest are still attending primary and secondary school and those with a higher education are among the older age groups.

Table 5: Age, gender and education for 12-31 year olds that answered no, not at all and yes, totally on the question - Do you feel that you are a part of the new information society?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Man</td>
<td>34</td>
<td>56</td>
<td>116</td>
<td>61</td>
</tr>
<tr>
<td>Women</td>
<td>27</td>
<td>44</td>
<td>73</td>
<td>39</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>100</td>
<td>189</td>
<td>100</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-16</td>
<td>20</td>
<td>33</td>
<td>46</td>
<td>24</td>
</tr>
<tr>
<td>17-19</td>
<td>16</td>
<td>26</td>
<td>45</td>
<td>24</td>
</tr>
<tr>
<td>20-25</td>
<td>14</td>
<td>23</td>
<td>45</td>
<td>24</td>
</tr>
<tr>
<td>26-31</td>
<td>11</td>
<td>18</td>
<td>53</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>100</td>
<td>189</td>
<td>100</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary/Secondary</td>
<td>38</td>
<td>62</td>
<td>88</td>
<td>47</td>
</tr>
<tr>
<td>High-school</td>
<td>18</td>
<td>30</td>
<td>44</td>
<td>23</td>
</tr>
<tr>
<td>University</td>
<td>5</td>
<td>8</td>
<td>56</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>100</td>
<td>188</td>
<td>100</td>
</tr>
</tbody>
</table>

According to previous studies (Livingstone, Bober, et al., 2005) it has been shown that demographic factors, as well as internet expertise and confidence in using the internet can explain the variation in level and form of participation. Hence, it is assumed that these factors might also have an effect on the perceived feeling of participation. Table 5 shows how the variables in the model correlate.
### Table 6: Correlations among variables in the model

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>Age</th>
<th>Education</th>
<th>Relation with technology</th>
<th>Instrumental skills (Comp)</th>
<th>Instrumental skills (Int.)</th>
<th>Information skill</th>
<th>Strategic skills</th>
<th>Self efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.053</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>0.084*</td>
<td>0.739**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relation with technology</td>
<td>-0.353**</td>
<td>-0.015</td>
<td>0.017</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental skills (Comp)</td>
<td>-0.387**</td>
<td>-0.301**</td>
<td>0.227**</td>
<td>0.430**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental skills (Int.)</td>
<td>-0.142**</td>
<td>-0.249**</td>
<td>0.205**</td>
<td>0.272**</td>
<td>0.588**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information skill</td>
<td>-0.068*</td>
<td>-0.147**</td>
<td>0.122**</td>
<td>0.202**</td>
<td>0.311**</td>
<td>0.365**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic skills</td>
<td>-0.203**</td>
<td>-0.091*</td>
<td>0.096*</td>
<td>0.308**</td>
<td>0.312**</td>
<td>0.251**</td>
<td>0.194**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Self efficacy</td>
<td>-0.163**</td>
<td>-0.047*</td>
<td>0.092*</td>
<td>0.352**</td>
<td>0.456**</td>
<td>0.393**</td>
<td>0.247**</td>
<td>0.269**</td>
<td>1.00</td>
</tr>
<tr>
<td>Participation in information society</td>
<td>-0.056</td>
<td>0.158**</td>
<td>0.204**</td>
<td>0.281**</td>
<td>0.350**</td>
<td>0.261**</td>
<td>0.275**</td>
<td>0.188**</td>
<td>0.267**</td>
</tr>
</tbody>
</table>

Note: **Relationships are significant at the p=0.01 level, *relationships are significant at the p= 0.05 level.

As suggested in hypotheses 1 the digital skills - instrumental computer skills (r=.35; p≤.01), internet skills (r=.261; p≤.01), information skill (r=.275; p≤.01) and strategic skills (r=.188; p≤.01) are positively correlated with the feeling of participation. Five of the six hypotheses are supported when the binary correlations are investigated. Hypotheses 5 is not supported (r=-.056; p>.05) meaning that the differences between men and women in relation to the feeling of participation are only minimal. The relationships are not highly correlated and some of them might not be significant when included together in a model. In order to explore the differences and to attempt to discover which variables best explain the variance in the perceived feeling of participation, the variables were consequently included in a model. To reduce the complexity some of the variables were revised by combining categories. For example the relationship with technology (RwT) ended up with two values, 0 and 1 where 0 represents a low interest in trying new technology and 1 represents a relatively high or high interest in trying out new technology. In a similar way the self-efficacy, instrumental computer and internet skills, information skill and strategic skills were reduced to two values.

By using the -2 log-likelihood to compare two models it was possible to reduce factors from the original model and ensure that the new model retained a good quality (the r² value was the same for the original and the final model). By reducing gender, age, relationship with technology and instrumental internet skills which were not significant for the perceived feeling of participation, the final model could explain 22 percent of the variance in the dependent variable.

The category high-school is not significant for the explanation of variance in participation in the information society. However, the highest level of education (university) has a strong statistical effect on participation (Exp(B)=2.658). Self-efficacy and the information skill are also shown to be important for the explanation in the variance of the perceived feeling of participation. People rating their competence in using
computers as fairly or very competent (corresponding to self-efficacy(1)) are almost 2.6 times more likely to rate their feeling of participation higher when comparing to the people in the reference category. People who find it relatively easy to search and discover information online are almost 4 times more likely to rate their feeling of participation as higher in comparison to those in the reference category. This is somewhat surprising since according to hypothesis 1 the strategic skills, which are at the highest level of skills, should have the strongest effect on the perceived feeling of participation. Thus, hypothesis 1 could not be supported.

The value for internet users within the age range of 12-31 with a high level of education, high level of self-efficacy and high levels of information, strategic and instrumental computer skills to feel more engaged in the information society is approximately 15 which is much higher in comparison to the value of 0.13 for those with a low education, low interest in trying out new technology, low self-efficacy, low instrumental, information and strategic skills. The probability for a highly perceived feeling of participation is 0.94 if the person has a high level of skills, high self efficacy and high level of education.

Table 7: Binary logistic regression - Predicting the variation in perceived feeling of information society by the factors: Education, Self-efficacy, Instrumental computer skills, Information skill and Strategic skills

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education(High school)</td>
<td>-.230</td>
<td>.257</td>
<td>10.788</td>
<td>2</td>
<td>.005</td>
<td>.794</td>
</tr>
<tr>
<td>Education(University)</td>
<td>.978</td>
<td>.358</td>
<td>.801</td>
<td>1</td>
<td>.371</td>
<td>2.658</td>
</tr>
<tr>
<td>Self-efficacy(1)</td>
<td>.941</td>
<td>.320</td>
<td>8.650</td>
<td>1</td>
<td>.003</td>
<td>2.563</td>
</tr>
<tr>
<td>Instrumental_computer(1)</td>
<td>.936</td>
<td>.248</td>
<td>14.233</td>
<td>1</td>
<td>.000</td>
<td>2.549</td>
</tr>
<tr>
<td>Information_skill(1)</td>
<td>1.344</td>
<td>.429</td>
<td>9.825</td>
<td>1</td>
<td>.002</td>
<td>3.835</td>
</tr>
<tr>
<td>Strategic_skills(1)</td>
<td>.552</td>
<td>.245</td>
<td>5.064</td>
<td>1</td>
<td>.024</td>
<td>1.737</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.035</td>
<td>.501</td>
<td>16.507</td>
<td>1</td>
<td>.000</td>
<td>.131</td>
</tr>
</tbody>
</table>

Discussion and concluding remarks

The approach in this chapter was to recognize what is said to be important regarding the feeling of being a part of the information society by linking the digital skills, self-efficacy in using computers and attitude towards using new technology (relationship with technology) in order to explore whether they can explain the variance in the perceived feeling of participation in the information society. It was found that the variables education, self-efficacy, instrumental computer skills, information skill and strategic skills are significant for providing an explanation regarding the variance in the perceived feeling of participation in information society. The results imply that the information skill has the strongest relationship with perceived feeling of participation in the information society, which is surprising considering that the strategic skills should have the strongest effect since being at the highest skill level (Van Dijk & Hacker, 2003). Surprisingly age and
gender could not explain the variation in the perceived feeling of participation among 12-31 year olds. In other studies (Livingstone, Bober, et al., 2005) it was found that age best predicts the variation in participation online among young people. However, when it comes to gender there appears to be a gender difference among those who answered “Yes, totally” on the question regarding being a part of the information society. High level of education (university) proved to be important in relation to explaining the variance in perceived feeling of participation.

The results show that the feeling of participation does not have a direct relationship with age but since those who are the most highly educated who are more likely to feel a higher degree of participation there is of course an indirect relationship with age because those with a university education are among the oldest age group in this sample (26-31 years). This means that it is not necessarily the young who perceive a high feeling of participation, something that is often assumed because they have been born in the presence of the internet and are very active online (Prensky, 2001; Tapscott, 1998). The results also indicate that young people primarily ascribe the skill of searching and finding information online to participation in the information society. This skill is practiced within higher levels of education which could explain the higher proportions of university educated people who have a perceived feeling as the participation increases. According to the importance of the information skill it can be argued that technical expertise is not considered to be so important since the variable ‘relation with technology’ did not have any significance in the model and nor did the instrumental internet skills. As previously stated, the strategic skills did not have as strong an effect as was expected which additionally indicates the importance of the information skill when it comes to a feeling of participation in the information society. Self-efficacy is, as expected, very important for a feeling of participation which also implies that the feeling of participation is important for actual participation.

The limitation of this study is firstly with regards to its deductive way of constructing the variables which were tested in the model. The questions regarding the digital skills are not exhaustively representing what the different skills are all about. They are to be seen more as indicators of the different skills rather than the actual skills. Another problematic issue is the broad dependent variable regarding the feeling of participation. One issue is that the concept ‘information society’ might direct the respondents association to the importance of information. However, the introduction to the question is referring back to the questions asked at an earlier stage in the interview which mainly focus on the internet behaviour. The term participation is not predefined, which leaves the respondent to interpret the concept on their own. This issue might be problematic; however in this study the aim was to explore what young people define by the term on their own.

In several aspects this study shows the importance of exploring young people’s own subjective feelings regarding participation in order to learn more about what participation means to them. This chapter indicates that the skills and attitudes considered as being important for participation actually were not rated as the most important among the young people themselves. It also shows that must pay attention and make efforts to increase the level regarding a feeling of participation among many young people. Clearly, there are young people who think that they are not a part of the information society but the feeling of participation increases with the level of education which means that the structural differences cannot be ignored. By placing the focus on the young people’s perspectives we
can learn more about what they think is important for participation and meet their requirements in an acceptable manner. In addition, the risk of making assumptions built on stereotypical images about young people’s online world will decrease. In this chapter the feeling of participation was linked to digital skills and other factors related to competences in using computers and the internet.

Further studies are required in relation to internet behaviour, what young people actually engage in and to explore what kind of internet activities merit the feeling of participation among young people.
REFERENCES


Paper III
Actual and Perceived Online Participation among Young people in Sweden

Sheila Zimic & Rolf Dalin
Mid Sweden University

Introduction

Many studies have shown that there is a high adoption with regards to the Internet by young people (Findahl & Zimic, 2008; Lenhart, 2005; Sonia Livingstone & Haddon, 2009). In Sweden more than half of five year olds are using the internet and there are almost no non-users among teenagers and young adults (Findahl & Zimic, 2008). Young people’s engagement with the online world has augmented the image of participating young people, even though questions have rarely been asked in relation to what they really participate in and if that kind of participation is what is expected from them in order to be able to participate in the information society (S. M. Livingstone, 2009). Another issue that is often ignored in relation to young people involves the social factors in the digital age and the young are generally referred to as the ‘Net generation’ (Tapscott, 1998) or the ‘Digital Natives’ (Prensky, 2001). The concept of Net generation and digital natives sets young people apart from older generations by arguing that the young ones are fluent and competent in using the Information and Communication Technologies (ICTs). Because of young people’s high internet usage and the established image of digital natives, the risk of a digital divide among young people has not, until recently, been generally discussed (S. Bennett, Maton, & Kervin, 2008; Facer & Furlong, 2001; S. Livingstone & Helsper, 2007; Selwyn, 2009). Several researchers have found that the online behaviour differs among young boys and girls of different age groups and with different social backgrounds (Hargittai & Hinnant, 2008; Lee, 2008; Sonia Livingstone, Bober, & Helsper, 2005). Skills were found to be very important for young people in relation to the online opportunities to participate (S. Livingstone & Helsper, 2007).

In a previous study (Zimic, forthcoming), digital skills, self-efficacy and attitudes towards new technology were compared across levels of the perceived feeling of participation in information society. The aim was to learn more about what participation means to young people. The study indicated that the skills and attitudes considered as being the most important for participation were actually not rated as the most important among the young people themselves. Instead of strategic skills, which are considered to be at the highest skill level, information literacy had the strongest relationship with the perceived feeling of participation (Zimic, forthcoming).

Following the tradition of previous work of questioning the images of digital natives (S. Bennett, et al., 2008; Facer & Furlong, 2001; S. Livingstone & Helsper, 2007; Selwyn, 2009), this chapter aims at questioning the concept of digital participation in relation to young people’s own feeling of participation in information society. Thus, the relation between internet activities and the perceived feeling of participation is analyzed in an attempt to answer the research question - Which internet activities merit the perceived feeling of participation in information society among 12-31 year olds in Sweden?

Finding out how the internet usage differs between young people who feel more or less engaged with the information society, can provide a better understanding regarding the
reasons relating to the varied level of perceived participation. In this way the rather stereotypical images of young people’s online participation can be nuanced.

**What is participation online?**

Participation is in many ways considered to be a democratic issue, meaning that it is a human right to be able to express opinions and actively involved in the society. In relation to children and young people this issue is stated in article 12 of the Convention on the Rights of the Child: “State Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child.” (UNICEF, 1989)

Carpentier (2007) states that the definition of participation struggles between the minimalist and the maximalist variations of democracy and politics, where the minimalist approach is limited to the elections of political representatives who organize their decision-making and the maximalist approach considers both representation and participation in the sphere of political decision-making, but also in other societal spheres such as the economy, culture and media. Therefore participation is practiced partially in the way it is perceived, but the practice also structures the definition of participation (Carpentier, 2007). In relation to participation on the internet, the concept e-participation is often used. The concept was initially strongly associated with voting online, but actually it refers to electronic solutions in all the democratic processes (Rose, Grönlund, & Viborg, 2007). However, e-participation is still often associated with taking part in civic and political activities (Sonia Livingstone, et al., 2005; Montgomery, 2008; Turnšek, 2007), which is not the typical participation among young people (Loader, 2007). Extending the concept ‘participation’ by including activities such as communicating, peer-to-peer connection, seeking information, interactivity, webpage/content creation as well as visiting civic/political websites, Livingstone, Bober and Helsper (Sonia Livingstone, et al., 2005) showed that young people are participating in various ways online.

In accordance with Carpentier (2007), Bennett et. al. (2009) touch the issue of the political-ideological struggle of defining participation in relation to being a good citizen. They suggest that there are two types of citizenship - dutiful citizen and actualizing citizen. These two citizenships have distinct meanings for different age groups in many democracies. Older citizens tend to feel more obliged to participate in elections and government-centered activities while the young citizens tend to favor more personally expressive or self-actualizing politics. These forms of expression occasionally occur in elections, but they, more often, emerge in direct action networks organized around specific issues such as global warming. The opportunity of web 2.0 experiences favors the type of actualizing citizenship, while the other dutiful citizenship is more traditional and considers participation in elections and engagement in party politics (L. W. Bennett, et al., 2009). It appears as if the opportunities associated with social networking sites and other types of web 2.0 based technologies which support the actualizing citizenship are regarded as the way young people are participating in the civic and political activities. This would advocate that many young people are actualizing citizens rather than dutiful citizens giving support to the image of young people being disengaged with traditional mainstream party politics (L. W. Bennett, et al., 2009).

Yet another image labels young people as progressive, even rebellious, assuming that it is a “natural” part of being young, which according to Lindgren (2009) is a common misconception about young generations. The expectations regarding youngsters’ participation in the information society builds upon stereotypes both in relation to the image of youth and to the image of technology. The image of technology reflects technology deterministic views,
meaning that the generational differences are seen to be produced by technology, rather than as being a result of social, historical and cultural factors (Buckingham & Willett, 2006).

How is the young people’s participation online best approached? First of all, the internet as media, in comparison to other media such as TV, is often considered to be more ‘active’ and to be encouraging participation (Carpentier, 2007). Olsson (2006) studied the media use of politically active Swedish youth, and he found that they are critically aware and calculating in relation to the traditional media use as well as the digital media use. They were also aware of what is considered ‘low status’ media consumption and ‘high status’ media consumption. The question is whether there is a common awareness among young people in relation to participation online. This leads to the question namely, what kind of internet media consumption or internet activities indicate a low or high degree of participation online?

This question will be addressed in the chapter by using the concept ‘participatory culture’ (Jenkins, 2009) in order to explore the extent to which the internet activities expected for participation merit the feeling of participation. As stated previously, by extending the concept of participation it was found that young people do take part in a range of online opportunities and gain new experiences in relation to participating. However, not all young people are engaged and they do not engage in the same way (Sonia Livingstone, et al., 2005). Rheingold (2008) suggests that the young bloggers, video producers and social networking users certainly cannot be called passive media consumers. He points out the importance of making the online opportunities interesting for young people because they engage in activities that they can relate to and find meaningful for their lives. In addition, he implies that adults should improve their listening in relation to young people. There is a requirement for an audience and the belief that one’s opinions are being heard (Rheingold, 2008). The importance of believing that one’s opinions will be heard is one of the points defining the participatory culture (Jenkins, 2009).

The participatory culture is with:

1. relatively low barriers to artistic expression and civic engagement,
2. strong support for creating and sharing creations with others,
3. some type of informal mentorship whereby what is known by the most experienced is passed along to novices,
4. members who believe that their contributions matter, and
5. members who feel some degree of social connection with one another (at least, they care what other people think about what they have created). (Jenkins, 2009, pp. 5-6).

According to a study conducted by Pew Internet & American Life Project (Lenhart, 2005) more than a half of all American teens – and 57 percent of teens who use the internet – could be considered as media creators. However, Jenkins et. al. (Jenkins, 2009) state that the number of American young people who are embracing the new participatory culture has been underestimated since the Pew study did not consider new forms of expression. In a more recent study by Pew (Smith, 2009) it has been shown that those who take part in civic life online are similar to those who participate offline; well-educated and with high socioeconomic status. However, the social media appears to be of considerable importance for civic engagement since many of those who are engaged use email, instant messaging, blogs etc. for civic and political purposes (Smith, 2009). Montgomery has investigated the “youth civic web” – platforms built for young people in order to invite them to participate. She concludes that the interactive media is helping to provide young people with some of the essential skills for civic and political engagement by: learning about the critical issues of the day; inserting their own voices into the public discourse; and actively participating in a range of political issues (Montgomery, 2008).
Simultaneously, critical voices exist who are defining the internet as the creative and participating media (Carpentier, 2007; Haggren, 2008). Haggren, Larsson, Nordwall and Widing (2008) suggest that old structures of audience versus media creators have not disappeared. Rather, the power-structures are categorized into complex digital structures making it more difficult to notice them. It is not the media per se but internet users who decide whether or not they are going to participate (Haggren, 2008). Carpentier (2007) also implies that the participatory potential of media technologies remains dependent on the way they are used which means that, in practice, web 2.0 technologies can be used in top-down non-participatory ways (Carpentier, 2007).

By exploring the relation between internet activities related to participatory culture and the perceived feeling of participation we can better understand what importance these activities have for the subjective feeling of participation in the information society among the young.

Mode of procedure
This study is based on data collected from an annual Swedish national survey about the internet usage of Swedish people, which is a part of the international World Internet Project (www.worldinternetproject.net). The survey was conducted between February and May 2009. A random sample of 2,353 people from all around Sweden within the age range of 12 and above, answered a wide range of questions about their internet usage. Initially the survey was conducted as a panel study and the inevitable “drop offs” were compensated for by stratified random sample by age. Two different surveys were conducted, one involving respondents of 16 and above and one with young people from 12 (born in 1997) to 16 years (born in 1993). The main reasons for conducting two different surveys was that people younger than 16 required parental permission to participate but, additionally, to obtain a larger sample of the young people in order to be able to perform statistical analyses when the youngest groups are studied separately. Table 1 shows the distribution within the sample of the age groups 12-31 years. 12-16 and 17-19 years are weighted by 0.5 in order to match the proportions of the Swedish population.

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-16</td>
<td>286</td>
<td>33</td>
</tr>
<tr>
<td>17-19</td>
<td>231</td>
<td>27</td>
</tr>
<tr>
<td>20-25</td>
<td>173</td>
<td>20</td>
</tr>
<tr>
<td>26-31</td>
<td>168</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>858</td>
<td>100</td>
</tr>
</tbody>
</table>

The questions regarding participatory culture were selected from the survey to determine whether they matched some of the five points regarding participatory culture mentioned previously (Jenkins, 2009). An overview of the questions can be found in table 2.
Table 2. Questions related to the concept ‘participatory culture’

<table>
<thead>
<tr>
<th>Variable</th>
<th>Question</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing a blog</td>
<td>Do you write a blog?</td>
<td>0=No; 1=Yes</td>
</tr>
<tr>
<td>Community member</td>
<td>Are you a member of a community online?</td>
<td>0=No; 1=Yes</td>
</tr>
<tr>
<td>Price comparisons</td>
<td>How often, if ever, do you use the services for price comparisons in order to compare prices for a service or a product?</td>
<td>0= Never and Occasionally; 1= Monthly, Weekly, Daily</td>
</tr>
<tr>
<td>Uploading video clips</td>
<td>How often, if ever, do you upload video clips online on web pages such as YouTube?</td>
<td>0= Never and Occasionally; 1= Monthly, Weekly, Daily</td>
</tr>
<tr>
<td>Uploading photos</td>
<td>How often, if ever, do you upload photos? For instance on a blog, webpage or community?</td>
<td>0= Never and Occasionally; 1= Monthly, Weekly, Daily</td>
</tr>
<tr>
<td>File sharing</td>
<td>Do you ever use services for file sharing such as BitTorrent, Kazaa, DC++ or the Pirate bay?</td>
<td>0= Never and Occasionally; 1= Monthly, Weekly, Daily</td>
</tr>
<tr>
<td>Political information</td>
<td>How often, if ever, do you use the internet to search for political information?</td>
<td>0= Never and Occasionally; 1= Monthly, Weekly, Daily</td>
</tr>
<tr>
<td>Information about society</td>
<td>How often, if ever, do you use the internet to search information about the society?</td>
<td>0= Never and Occasionally; 1= Monthly, Weekly, Daily</td>
</tr>
<tr>
<td>Governmental information</td>
<td>How often, if ever, do you use the internet to search for official information from the government or municipalities?</td>
<td>0= Never and Occasionally; 1= Monthly, Weekly, Daily</td>
</tr>
</tbody>
</table>

It is possible for all of Jenkins five items defining participatory culture in relation to blogs and communities to be supported. Blogs and communities are allowing people to express their creativity and they could be related to civic engagement. The purpose of communities and blogs is to share content with others, receive comments and discuss specific issues with other people. This matches the description of participatory culture in points 1 (low barriers to artistic expression and civic engagement), 2 (creating and sharing), 4 (believe the contributions matter) and 5 (social connection). Point number three regarding informal mentorship could also be supported, however, in this case it is not defined as being the primary reason for blogs and communities. The informal mentorship is more visible when using services for price comparisons or file sharing, where it is possible to read other people’s comments regarding a product. File sharing, posting video clips and photos are mostly supported by the requirements of creating and sharing but also in believing that the creations matter to others. The information regarding politics, society and governmental information are not primarily defined by the concept of participatory culture but they are considered to be very important for participation at large. All of the questions were dichotomised in order to be able to compare the results but also to reduce the complexity in the regression model. The question regarding price comparisons was also used in a previous study to measure the strategic skills in using computers and internet. In this case it is used only as an internet activity.

The dependent variable with regards to the perceived feeling of participation was analyzed by asking the question: You have now answered a range of questions about different media and you have probably heard or read about surfing the internet, using email and information
technology. Do you feel part of this new information society? The answers are: No, not at all, Yes, but only a little, Yes, to a large extent, Yes, completely. The question is not an attempt to measure actual participation in the information society but it is an indicator of people’s subjective feeling which we believe to be useful information in order to explore what participation really is about. In the regression analyses the answers were dichotomised into low and high degree of perceived participation in information society. Low degree of participation is categorised by “No, not at all” and “Yes, but only a little” and the high degree of participation is categorised by the answers “Yes, to a large extent” and “Yes, completely”.

Findings on young Swedes online participation

In order to obtain an overview of what young internet users do online across a range of internet activities, their use or non-use of these activities were analysed for the age groups - 12-16, 17-19, 20-25, 26-31 years.

Some differences between age groups were found, as could be expected. The youngest group (12-16 years) was shown to be significantly different in comparison with the older age groups and for that reason the internet activities are presented separately for 12-16 year olds and the 17-31 year olds. The young ones (12-16 year olds) use the internet mostly for communication and entertainment oriented opportunities, while the older age group (17-31 year olds) have a broader use of internet. Communication related activities are: using email, instant messaging and online communities. There is an almost equal usage of these among the 12-16 year olds and 17-31 year olds. The entertainment activities used to an equal extent by the two age groups involve watching videos (70%), listening to music (85%) and uploading video clips (10%). All the other internet activities are used more by the older age group. The only activity the youngest group scores considerably higher on is playing games online (78% vs. 52%). Those between 17 and 31 years do not primarily use the internet for communication and entertainment but, additionally, to obtain information about different aspects, such as the information about society, comparing prices and looking at maps to discover information about road directions. These findings conclude that the internet activities related to participatory culture are unable to explain the variance in perceived feeling of participation similarly among the two age groups. Approximately 26 percent of 17-31 year olds feel a low degree of participation while this is felt by 45 percent of the 12-16 year olds.
In the next step the dichotomies of perceived feeling of participation were analyzed within each of the two age groups. For 12-16 year olds there was no clear pattern for specific activities among those perceiving their participation as high. File sharing, making voice calls and comparing prices were the three activities which were considerably higher among those perceiving a high degree of participation in the information society. However, the rates were very low and did not differ significantly between the dichotomies of perceived feeling of participation. On the contrary, for the older age group in this sample, a clearer pattern was found. In figure 2 it can be seen that those perceiving a high degree of participation consistently score higher on all the internet activities included in this analyses. Some of the activities do indeed stand out, such as, uploading photos; searching information about society as well as information from the government and municipalities; file sharing; writing blogs; searching for political information and comparing prices. These differ by 11 to 24 percentage points between those perceiving a low degree of participation and those perceiving a high degree of participation.
Some of the activities mentioned are defined by the concept ‘participatory culture’ used in this study in order to analyze the perceived feeling of participation. It is information concerning society, politics and governmental information, uploading videos and photography, and finally, file-sharing. In the regression analysis, all of the activities defined as being related to participatory culture were included together with the social factor gender. Table 3 presents the final model, which was felt to best explain the variance in the perceived feeling of participation. The internet activities that merit the feeling of participation in the information society among 17-31 year olds are writing blogs and searching for information about society. Gender could not explain the variance in the perceived feeling of participation. This means that under the control of gender, the internet activities shown in table 3 could explain the variance in perceived feeling of participation. However, this does not mean that the rates between boys and girls engaging in writing blogs and searching information about society are equal. It means that both girls and boys who feel a high degree of participation tend to engage in these three activities to a higher extent than girls and boys feeling a low degree of participation.
Table 3. Regression analyses – Gender, writing a blog and information about society on the perceived feeling of participation in information society

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>.213</td>
<td>.244</td>
<td>.760</td>
<td>1</td>
<td>.383</td>
<td>1.237</td>
</tr>
<tr>
<td>Writing a blog</td>
<td>1.203</td>
<td>.496</td>
<td>5.890</td>
<td>1</td>
<td>.015</td>
<td>3.329</td>
</tr>
<tr>
<td>Information about society</td>
<td>.935</td>
<td>.280</td>
<td>11.104</td>
<td>1</td>
<td>.001</td>
<td>2.546</td>
</tr>
<tr>
<td>Constant</td>
<td>.603</td>
<td>.189</td>
<td>10.180</td>
<td>1</td>
<td>.001</td>
<td>1.827</td>
</tr>
</tbody>
</table>

**Discussion**

The results suggest that the young people perceiving a low degree of participation in information society do not have as broad internet usage as those perceiving a high degree of participation. This was also the case with the youngest age group in the sample (12-16 year olds) who primarily use the internet for communication and entertainment oriented activities. In accordance with previous studies (Hargittai & Hinnant, 2008; S. Livingstone & Helsper, 2007) internet usage diverges between younger and older adolescents.

Those perceiving their participation as low do not have low rates throughout all the internet activities. They use email and they search for practical information such as time tables almost as much as those perceiving their participation as high. However, in relation to searching for information from the government, municipalities or civic and political information and activities such as comparing prices and sharing files, the rates are much lower for those perceiving their participation as low in comparison to those perceiving their participation as high. In the regression analyses it was found that information about society and writing blogs could explain the variance in the perceived feeling of participation. This indicates that some of the activities labelled as ‘participatory culture’ (Jenkins, 2009) do set users apart in relation to the perceived feeling of participation.

It is interesting that political, governmental and society information appear to be important for young people in order to feel part of the information society, which is a traditional, or according to Carpentier (2007), a minimalistic approach of defining participation. In this study the results indicate that both the political or society oriented activities and web 2.0 supported activities such as writing blogs appear to be important for young people in order to feel part of the information society. It is interesting that the youngest do not have a common definition regarding what participation is and they have a rather limited internet use, thus it is important to be critical about what we expect from young people in relation to participation in the information society. It was surprising that gender is not significant for the feeling of participation. According to Livingstone, Bober and Helsper (2005) girls and boys tend to engage in different types of internet activities. However, in this study it was found that blogs and searching for information about society were important both for young women and men in order to feel a high degree of participation.

**Limitations**

The construction of variables regarding the activities related to participatory culture were performed in a deductive manner and do not totally cover the concept of participatory culture. The question regarding price comparisons also measures a type of strategic skill when using the internet, but in this chapter the question is used only to explore the specific internet activity of comparing prices. A more problematic issue is the question regarding participation in the information society. It is a broad question, and does not specifically say what is meant
by “being a part of the information society”. However, the aim was not to measure the actual participation but to obtain an idea about how young people define participation in the information society. There is reason to believe that the youngest age group did not understand this question or rather they could not define participation on their own. There were no consistent patterns in internet usage among those perceiving their participation as high as compared to those perceiving it as low.

Using the concept “information society” could also be problematic since it might mean that people automatically think of using information as being crucial in becoming a part of the information society. This is however almost unavoidable regardless of what concept is being used. The concept ‘digital society’ might have had the effect of making people believe the more technically advanced internet activities are the most important for participation. The information society is also a commonly used term to describe the society we live in today and for that reason it is used in this study. As stated previously, the present study is an exploratory examination of what participation in the information society could mean to young people by examining which internet activities merit the feeling of participation.

**Implications and concluding remarks**

This study follows the tradition of other studies implying the importance of questioning the image of digital natives (S. Bennett, et al., 2008; Facer & Furlong, 2001; Selwyn, 2009). In this study it is done by exploring the concept of digital participation by analysing the relationship between internet activities (labelled by ‘participatory culture’) and the perceived feeling of participation in information society. The image of digital natives presumes that young people are competent in their use of ICTs, thus they are assumed to be participating in various ways in the digital world. However, in what way they are participating and what is really meant by digital participation are questions that still need further exploration (S. M. Livingstone, 2009).

The attempt with this study is to explore which internet activities merit the feeling of participation among young Swedes. By linking the internet activities to the perceived feeling of participation we can better understand what young people themselves think it is important to engage in, in order to feel part of the information society. Thus it is felt that the risk of ascribing young people certain characteristics in relation to internet use has been minimized.

The findings pose that broad use of the internet and the activities considered important for participation at large, such as engaging in civic issues by finding information about society, is important for young people in order to feel part of the information society. Using the internet does not automatically mean participating in the information society hence the assistance required in order to engage in the activities that do merit the feeling of participation has to be provided. There is some support for using the definition of internet activities related to ‘participatory culture’ (Jenkins, 2009) since the activity of writing blogs merits the feeling of participation.

The research question is answered in relation to the definition of participation within this study, namely participatory culture and civic engagement. Writing a blog and searching information about the society are two of the activities that merit young people’s own feeling of participation. Since it is unclear how digital participation should be defined, young people’s own feeling of participation provides important information regarding what participation might mean to young people. Future research should turn the attention to exploring further what is really meant by digital participation, how young people are expected to participate and also how young people themselves define digital participation. Finally, when approaching young people (younger than 16 years) it is not possible to ask the direct question concerning participation since there is a risk that they might not be able to relate to it.
References


