Technology Intensive and Sustainable Schools?

A Discourse Analysis of Statements regarding the Use of ICT in Education in Lund.

Degree of Master of Science (Two Years) in Human Ecology: Culture, Power and Sustainability 30 ECTS

CPS: International Master's Programme in Human Ecology
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Examination:	Master's thesis (two year)

Term:	Autumn Term 2015

Abstract

This thesis investigates the perceptions of people within the education sector in Lund Municipality regarding sustainability implications of the use of information and communications technology (ICT) in schools. It demonstrates how local perceptions are largely affected by powerful global neoliberal forces.

The study is based on a critical discourse analysis of policy documents and interviews with municipal employees. Technology is regarded as a social, cultural and political phenomenon. The theoretical framework of the study is based on the idea of technology fetishism and the five capitals model of sustainability. In the analysis of the empirical material, the CDA approach of N. Fairclough was adopted.

The analysis shows that there is a discursive struggle between hegemonic neoliberal economic and digital society discourses, and a critical discourse. In addition, a number of sub-discourses appear in the texts. According to the findings, headmasters are mostly positive about the possibility of creating technology intensive and sustainable schools. The study reveals that local actions are affected by technology fetishistic ideals and the destructive relationship to natural capital that exist in today's industrialised society. Although individual schools cannot change the world order, they can serve as role models in the creation of technology intensive and sustainable schools through the promotion of learning, citizenship and equality. In so doing, they can minimise the reduction of natural capital as a result of the use of ICT, and contribute to the maintenance and enhancement of natural, human and social capital.

Acknowledgements

First of all, I would like to thank my respondents for taking part in this study. Thank you all for sharing your thoughts and for so readily discussing the topic of this research.

I would also like to thank my supervisor, Vasna Ramasar, for great discussions and valuable criticism throughout the research process. Thanks also to Andreas Malm for good advice. I am very grateful to Jasmin Oldag, Anna Hermanson and Csilla Urbán for your encouragement.

Last but not least, a big thanks to my family and my partner, Julio Mills, for your support. To my grandparents and parents, thank you for stimulating my passion for learning at a very young age.

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1. Introduction

The spread of information and communications technology (ICT) is happening at an accelerating pace. This is a widespread phenomenon; however, the present study focuses specifically on the education sector. The decision to introduce or invest in ICT devices is always made by people; a decision that can have contradictory consequences for other people and ecosystems who have no choice in the matter (Hornborg 2001). Whilst ICT is spreading and having devastating effects on people's health and the environment during the production, use and disposal, i.e. life cycle, of devices,(Hornborg 2001; Kostakis, Roos & Bauwens 2015; Rattle 2010), it is becoming distinctively evident that urgent and drastic measures need to be taken to secure the continued well-being of the planet and its inhabitants (Griggs et al. 2014). Despite numerous socio-environmental challenges connected to ICT, it is also being argued that ICT can and should play a role in tackling these challenges, via connecting people, creating opportunities for greater collaboration (Tomlinson 2010).

There is growing investment in ICT in many different kinds of organisations. One such example is within public schools in Sweden. Through a critical discourse analysis of statements concerning both ICT use and sustainability made in policy documents and during interviews with municipal employees in Lund Municipality, this thesis seeks to gain an understanding of how local employees perceive the sustainability consequences of this trend. I argue that an integrated discussion on sustainability in relation to the use of ICT in schools is necessary in order to bring these two policy areas into better dialogue with one another.

I view sustainability as "the capacity for continuance into the long-term future" (Porritt 2007, 33). In this case, unless otherwise stated, it refers to the ability of Earth's natural processes to continue to support life on this planet. In section 3.1.2, I clarify how I view this concept.

When I use the term ICT in this analysis, I refer to computers and iPads as well as the software programs installed on them. Whenever I only refer to the physical products, I use the word devices. These are the technologies that, to the greatest extent, are being discussed in the policy documents and affect the daily activities at schools in the municipality.

I focus this study on schools since it is, in today's increasingly individualised society, arguably one of the last local, public institutions in Sweden where democratic discussions can take place on how to create radical social change (Facer 2011, 28).

1.1 Purpose

ICT is now affecting many aspects of school life. Consequently, it is important to examine potential dangers of using it for particular purposes. It is, however, for the same reason, also worthwhile investigating how ICT can be of benefit in a transition towards sustainability within schools.

Researchers are currently investigating how schools can contribute to the pursuit of sustainability, strictly speaking, how schools can become sustainable (Huckle 2009; Kalaitzidis 2013; Scott 2013). In particular, researchers are favouring integrated approaches to sustainability that suggest it should be a fundamental aspect reflected in all school activities (Kalaitzidis 2013; Scott 2013). Sustainability is here not just a part of the curriculum, but should also be considered in the daily practices. This could manifest, for example, in considering what and how much is consumed on the campus, or in developing relationships with the wider community (Kalaitzidis 2013). Some scholars also argue for the necessity to combine policies for sustainability with those of health promotion, since these areas are so closely interlinked (Simovska & Mannix-McNamara 2014). Despite these efforts to investigate how schools can contribute to human and ecological well-being, and despite the fact that ICT is becoming more common at schools, there are, to my knowledge, no studies that

discuss the drastic increase in the use of ICT in schools in relation to sustainability from a holistic perspective.

Although it has been argued that too much responsibility is placed on schools to tackle current social and environmental problems, which require much wider social action, schools can nonetheless make contributions to the development of more sustainable lifestyles as well as production and consumption patterns (Scott 2013). The results of this thesis are not confined to the education sector alone, but can also have ramifications that can be relevant to a wider field.

A discourse analytical approach enables an appreciation of how different relations of power are being reproduced and challenged within texts (Jørgensen & Phillips 2002). I argue that such an understanding is necessary to be able to critically examine current ideas on ICT and sustainability within the present capitalist system, and determine if and how existing power structures should be resisted in order to maximise the chances of creating change. This thesis is based on the theory of technology fetishism and on the five capitals model of sustainability, which will be explained in chapter three, along with other relevant concepts.

1.2 Objective and research questions

The objective of the study is to investigate how employees in Lund Municipality perceive the sustainability implications of the increasing trend of using ICT in schools. This aim will be fulfilled by answering the following questions:

How is the use of ICT in schools justified and interpreted by the European Union and by people within the education sector in Lund Municipality?

How is the concept of sustainability employed, explicitly or implicitly, by people within the education sector in Lund Municipality?

What are the perceptions of people within the education sector in Lund Municipality regarding the possibility of developing schools that are both technology intensive and sustainable simultaneously?

1.3 Sustainability aspects of ICT

ICT did not create the current capitalist world order, but has been and is still developing within this system, thus contributing to economic growth (Huckle 2012). This development has, in some cases, led to increased corporate profitability and dominance at the cost of human suffering and environmental degradation, particularly in the global South (Hornborg 2001).

ICT has direct, indirect and structural effects on the environment (Kostakis, Roos & Bauwens 2015). The life cycle of devices causes direct negative effects. During production, resources are depleted and greenhouse gases are emitted into the atmosphere. Some of the resources used to produce these devices are very scarce or hazardous, like lead, mercury and kadmium (Tomlinson 2010). One particular metallic ore, coltan, which develops into tantalum when refined, is used in many devices (Nest 2011). Most of this raw material is found in Africa, particularly in the Democratic Republic of Congo, a poverty stricken and war afflicted country (Nest 2011). Many people including children have accepted work in the mining industries in order to survive, despite extremely harsh working conditions (Nest 2011, 41). The setting up of mines and camps have led to deforestation, affected the local biodiversity and caused the endangerment of the lowland gorilla (Nest 2011; Tomlinson 2010).

Between 16 and 19 tons of material resources are being used and 5000 kWh of energy is required just to produce one single computer (Fuchs 2008, 122). Currently, the ICT sector is increasing its greenhouse gas emissions at a rate higher than any other (Souter 2012). Approximately 1850 kg of carbon dioxide, 2 kg of sulphur dioxide and 1 kg of nitrogen oxide is emitted during each computer's production

(Fuchs 2008). The production also generates 60 kg of solid waste (Fuchs 2008). Most of the raw materials necessary to produce the devices come from poor countries, often within industries that offer low wages and poor working conditions.

During the time devices are used, energy is consumed in the form of electricity. Every time a new device is produced, a large amount of electronic waste will be created. E-waste contains many chemicals and toxic substances that have already contaminated land, water, air and living organisms. A vast majority of electronic waste is dumped in poor countries, where there is little or no systems in place for either handling or disposal, resulting in health and safety breaches coupled with environmental degradation (Robinson 2009).

A global study by the United Nations suggests that 2014 was a record year for the creation of e-waste (Agence France-Presse 2015). This figure was estimated to almost 42 million tons (ibid.). Seven percent of this e-waste came from computers and mobile phones (ibid.). All Scandinavian countries, that claim to be leading within the field of sustainability, were amongst the ten biggest creators of e-waste per capita (ibid.). 22.3 kg was created per capita in Sweden, while this figure was only 1.7 kg in Africa (ibid.). Only one sixth of all the e-waste was properly recycled (ibid.).

The focus of corporate profitability drives design of ICT products to have limited durability, a practice known as planned obsolescence, contributing to a driving economy irrespective of the long or short term effects on health and environmental pollution (Tomlinson 2010).

The main positive indirect effect is that ICT can help to educate people about social and environmental issues as well as responsible consumer behaviour (Tomlinson 2010). There is also a negative indirect effect brought by the exposure of clever advertising that promotes increased consumption, giving rise to the spread of modern consumer culture (see Baudrillard 1998).

There are also structural effects that result from the present model of capitalism based on profit maximisation. The dominant view on ICT for sustainability is very much centered on the term "efficiency" (Rattle 2010, 89). By increasing the use of ICT, it is, according to this view, possible to dematerialise the economy and thus continue the pursuit of economic growth whilst protecting the environment through the reduced use of energy and natural resources (Rattle 2010). What is meant by a dematerialised economy is that physical objects, like printed books, are substituted by electronic versions (Rattle 2010, vii). The use of ICT may, however, increase instead of reduce resource consumption because of rebound effects, which occur when the saving of resources from the energy efficiency achieved through the use of ICT leads to an increase in the spending of other products and services (Rattle 2010). York (2006) has introduced the Paperless Office paradox, where he suggests that substituting paper books with electronic ones may not necessarily lead to the reduction of consumption of paper since more documents and pages may be saved on computers and then printed, hence increasing paper consumption.

Health impacts of the use of ICT have been recognised by a number of researchers (Dockrell, Earle & Galvin 2010; Garmy 2013; Sigman 2012). Children's computer use has been connected to sleeping problems and changed daily rhythms (Garmy 2013), potentially increased risk of diseases like stroke and diabetes due to a more sedentary behaviour (Sigman 2012), and problems with bad posture which could result in severe pain in the neck, shoulders and other parts of the body unless ergonomic instruction or interventions are carried out at schools (Dockrell, Earle & Galvin 2010). In addition, the more time children spend on their devices, the less time remains for outdoor activities, physical as well as social, which are argued to be essential for a sustainable future and well-being (Facer 2011).

This review demonstrates that a conscious and continuous reflection on the use of ICT is a necessity in order to transition to sustainability.

1.4 Structure of the thesis

The thesis consists of six chapters. In this first introductory chapter, I have briefly introduced the topic of the research, discussed the purpose and relevance of the study, outlined the research questions and presented some literature on sustainability aspects of ICT. In the next chapter, I present background information relevant for my later discussion, such as statistics and figures on the use of ICT in schools. Chapter three is an outline of concepts and theories that guided me in the analysis of my empirical material. In the fourth chapter, I describe the methodological framework used and explain how the study was realised. Chapter five is dedicated to the critical discourse analysis of policy documents and interview transcripts. In the sixth and final chapter, I conclude the thesis by providing ideas for how the use of ICT in schools in Lund Municipality can become more sustainable, as well as suggest a few possible questions that would be worthwhile investigating in further research.

2. Background Information

The data presented in this chapter consists of statistics on the use of ICT in schools in the EU and in Sweden, as well as sustainability oriented work and ICT use in schools in Lund Municipality. This data will complement the discourse analysis in supporting my later argumentation.

2.1 ICT in education in the EU and in Sweden

There are many actors that influence the development of policies related to ICT in schools (Selwyn 2013). Large corporations often advertise their ICT products by emphasising their potential for transforming education, while nation states have claimed that ICT will boost their economies and international organisations, such as the EU, are promoting development of ICT as a way to stimulate economic growth (Selwyn 2013).

Recently, an EU survey on ICT in schools was conducted, which focused on grade 4 and grade 8 pupils (European Commission 2013). In the EU, on average, the survey found that there were about 7.0 pupils per computer in 2012 in grade 4, while in Sweden this figure was approximately 4.0 (ibid.). For grade 8 pupils, the EU average was approximately 5.0 and for Sweden 2.0 (ibid.). In 2012 Swedish schools thus had access to significantly more equipment than schools in the EU. The trend has increased in recent years, which can be seen in the tables from European Commission (2013, 130), where figures from 2006 are presented. These figures will not be included here since the variables used were different, which does not allow for a fair comparison. Many teachers do not use computers a great deal during lessons (less than 25 % according to the interpretation of the survey). In grade 4, 71 % of all the teachers in the EU used computers for less than 25 % of lesson time (ibid., 57). In Sweden, that figure was 72 % (ibid.). In grade 8, the figure was 68 % for the EU and 60 % for Sweden (ibid.). It appeared to be more common for pupils to learn with the help of ICT outside school than to do so through ICT-based activities at school (ibid.), which shows that many young people are engaged in self-directed learning.

In Sweden, the average number of compulsory school pupils per computer was 3.1 in 2012 and 6.0 in 2008 (The Swedish National Agency for Education 2013, 43). Many computers are new; in almost 3/4 of all the schools, at least half of the computers were newer than 3 years in 2013 (ibid., 44), suggesting a frequency of consumption.

2.2 Lund Municipality

Lund Municipality is located in the south of Sweden and has a population of approximately 115,000 inhabitants (Lund Municipality 2015). The municipality claims to be leading in the work for sustainability and they have set a goal to reduce their CO2 emissions to half of the levels of 1990 by 2020 (Lund Municipality 2014). It is a certified Fairtrade city, which means that they work for sustainable consumption together with businesses and the non-profit sector.

In the local ICT strategy, it is stated that the long-term objective is to provide one ICT device per pupil in all the grades (Lund Municipality 2010, 4). This is a financial effort that the municipality and the individual schools are making together (ibid.). Pupils in grade 7-9 usually have one device each (ibid.), and in the lower grades it varies, though according to the headmasters of the schools for the lower grades that I visited, there were two pupils per computer in these schools (Respondents A; B; C).[1]

The benefits of the one-to-one concept argued by respondents were related to either practical dimensions since older pupils could have more stimulating individual assignments (Respondent D), or psychological dimensions, whereby pupils become more responsible due to the temporary ownership of the devices (Respondent E). The other headmasters all stated that they were currently satisfied with their number of devices per pupil (Respondents A; B; C).

2.3 Procurement, use and disposal of computers and iPads

The department for procurement at the municipality is responsible for setting environmental and ethical requirements. The municipality follows the basic environmental requirements formulated by the National Agency for Public Procurement, the former Competition Agency. This is a decision that has been taken by the municipal executive board (Respondent P). There are three levels of environmental requirements, basic, advanced and spearhead, related mainly to energy efficiency and noise level. The municipality currently sets basic requirements, since any additional would require the furthering of resources, however a matter for future endeavours (ibid.). The procurement official also said that "[a] problem with spearhead requirements is that many times the market or the supply becomes extremely small" (ibid.).[1] All the providers that want to bid for a contract have to fulfil the basic requirements, otherwise they are not considered (ibid.).

[1] I visited five schools and interviewed one headmaster at each school. They are here referred to as A, B, C, D and E. I also received an email with information from an employee at the IT department at the municipality, here referred to as I. Finally, I interviewed a procurement official at the municipality, here referred to as P.

It is difficult, however, to follow up on environmental consequences during the production of the devices, thus such requirements are harder to set (The National Agency for Public Procurement 2015).

Apart from the environmental requirements, there are various others related to, for example, functionality and technical aspects, which are also mandatory (Respondent P).

The ethical requirements concerning working conditions of people within the production chain are part of the commercial conditions, meaning that a provider is not selected if it cannot show that they are working with these issues (Respondent P). The requirements are followed up during the agreement period (ibid.). If the municipality has reason to believe that a provider does not fulfil any of these agreed-upon requirements, they can spot-check in the production chain to determine whether or not this is the case (ibid.). According to Respondent P, the process of following up requirements is, however, quite problematic:

> One can say that a computer has 1000 components and 500 factories, so it is rather challenging to set and especially to follow up CSR requirements. We cannot set requirements today on the providers that they should know everything because it is not possible. We cannot set requirements that we cannot follow up, and we cannot control that there is no one amongst these 500 factories that does not really follow ILO, for example, so our ambition is to work so that it becomes better for everyone involved in the chain of production of a PC. [2]

The municipality has follow-up meetings with the provider where they ask questions about their work with CSR and they include a question about their efforts to use less energy and resources and reduce waste and emissions (ibid.).

The one-to-one devices that the pupils have in grade 7-9 are used for the three years that they are in these grades, with subsequent 7th graders obtaining new ones (Respondents D; E). The devices that the younger pupils have, which are either computers or iPads, last between three and five years. One respondent said that iPads usually last longer (Respondent B). Another respondent mentioned that a

replacement schedule for new ones was non-existent; the devices are kept for as long as they are fully functional (Respondent A).

In two schools they have established routines of switching off their devices when they are not being used (Respondents A; B); however, in one case the headmaster could not validate this (Respondent C). In the upper grades the pupils use Apple MacBooks, which do not need to be switched off as they are put in standby mode when the lid is closed (Respondents D; E).

There are two ways in which old devices are handled at the schools. The schools that provide one device to each pupil have collectively contacted a reconditioning company that comes to the schools and takes the devices for renovation. Subsequently, pupils have the chance to purchase the computers having been given first refusal, before availability in the open market (Respondents D; E). The other schools send their computers back to the IT department at the municipality, who then takes care of the recycling; however, future discussions for reuse are currently undertaken (Respondent I). Post-handling procedures are not yet in place for the iPads, due to their recent introduction (Respondent I).

3. Theoretical Framework

This chapter presents concepts and theories that will be used to analyse the results of the study.

3.1 Fundamental concepts

In the following sub-sections, I describe the foundations of the research and introduce the concepts of sustainability, discourse, power, ideology, hegemony and technology.

3.1.1 Foundations of the research

This thesis is based on the assumption that the cause of contemporary environmental degradation and social inequality, is the way in which people have interacted with the environment because of dominant social structures in the Western world since the industrial revolution. This perspective is favoured by a number of scholars (Hornborg, McNeill & Martinez-Alier 2007; Plumwood 2002). The continuous pursuit of growth remained unquestioned for a long time without extensive awareness of the fact that human activity was causing environmental destruction and damage on Earth's life support systems. An awareness of the threat of continuous economic growth to the well-being of the planet and its inhabitants has now been acknowledged by many, but the aim of stimulating more production and consumption remains, nonetheless. This is happening largely through the exploitation of people and ecosystems, particularly in non-Western countries (Hornborg 2001).

The thesis relies on concepts developed within the fields of political ecology and ecological economics. Political ecology is a broad field characterised by the idea that the environment is politicised; meaning that power relations affect the environment (Hornborg, McNeill & Martinez-Alier 2007). I relate my discussion to the kind of political ecology which is based on world-systems theory, in which a fundamental assumption is that resources and environmental burdens are unevenly distributed in the world (Hornborg, McNeill & Martinez-Alier 2007). Ecological economics was developed as a reaction to the perceived problems with neoclassical economic thought. In ecological economics, the economy is viewed as a subordinated system dependent on the ecological system (Costanza et al. 1997). According to ecological economists, the overall goal of all economic activities should be long-term sustainability (Daly & Cobb 1989). Scholars within this field have argued that continued economic growth is ecologically unsustainable (Daly & Cobb 1989; Goodland 1991). To some extent, the thesis is also influenced by ideas from anthropology in the discussion on technology fetishism.

3.1.2 Sustainability

Sustainability is a contested concept, and the number of proposed definitions can often cause confusion (Porritt 2007). Nowadays, it has become a trend to put this term in front of other words, such as in the cases of "sustainable growth", "sustainable design", and "sustainable development".

Sustainability can broadly be defined as "the capacity for continuance into the long-term future" (Porritt 2007, 33). In this thesis, I use the term to refer to the capacity of Earth's longevity of resources and processes that support life in a continuous manner. Any human activity is, therefore, only sustainable if it is carried out within nature's limits. As a result, for a school to be sustainable, its activities has to serve this goal through operating within the limits set by Earth's life support systems and ensure that everyone within the organisation, including headmasters, teachers and pupils, develop the skills required to pursue this objective now and in the future. In line with Porritt (2007), I view sustainability not only as the ultimate goal, but as a continuous endeavour.

Claims regarding sustainability have been made by public and private actors alike (Porritt 2007). Many times, however, these claims of care for the environment are often just a marketing tool to increase sales (Huckle 2009).

I see sustainability as linked to social justice, an approach that has been taken by several writers (Dobson 1998; Hornborg 2013a; Plumwood 2002). The present capitalist system is threatening the well-being of humans and the biophysical environment alike (Hornborg 2013a).

It is important to note that sustainable development and sustainability are often used interchangeably, even though literature reveals important differences between the two, including the fact that sustainable development concerns human development, whilst sustainability is only related to the protection of Earth's life support systems (Porritt 2007). The most widely used definition of sustainable development is the one

presented in the Brundtland report: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987, 43). This is also the definition referred to by the municipality (Lund Municipality 2014).

This definition is based on the interdependency of economic, social and ecological dimensions, but also on an anthropocentric view as it focuses on meeting human needs (Griggs et al. 2014).

In the local environmental policy document, the term "sustainable development" is used, rather than sustainability, hence this term will be mentioned in the analysis of that particular text. For this reason, I briefly introduced this term; however, in my own discussion, I only use the term "sustainability" as my thesis is not concerned with development, but with ecological aspects of the use of ICT.

3.1.3 The concept of discourse

Discourse is a term with many definitions. Consequently, a clarification of how I relate to discourse is required to enable the reader to understand my later argumentation. A very simplistic definition offered by Jørgensen and Phillips is that it is "a particular way of talking about and understanding the world" (2002, 2). Discourse is continuously shaping and changing the social world (ibid.). I argue, however, that the definition just presented is very basic, hence further explanation is required.

In this thesis, the term is used to refer to actual language use, which can take the form of writing, speech or any other type of communication. I will discuss the term in a three-dimensional way, as explained by Fairclough (1992). Discourse will be seen as text, as a discursive practice and as a form of social practice. A more detailed description of these three dimensions of discourse will be provided in chapter four.

I also see discourse as closely linked to power. These concepts are often discussed together. There is no consensus amongst scholars concerning these issues, but in the next section, I will briefly present the way Fairclough relates these concepts to each other, as well as the concepts of ideology and hegemony.

3.1.4 Power, ideology and hegemony

Like discourse, the concepts of power, ideology and hegemony are used differently in many contexts. The clarifications of these concepts will help the reader to follow my argumentation in section 5.4.

I primarily draw on Foucault and Fairclough in my discussion on power. For Foucault, power is not a privilege that a particular individual or group possesses, but a productive force in society, existing within social institutions (Foucault 1980). There is always a connection between power and knowledge (ibid.). Power can only exist through knowledge and power in turn constructs truth, which changes over time (ibid.).

Fairclough discusses two ways in which power can be exercised: either through physical coercion or through manufacture of consent (Fairclough 1989). When people exercise power through manufacturing consent, they make others either accept present conditions or suggestions for change (Fairclough 1989). When Fairclough discusses this way of exercising power, he connects power with the concept of ideology. He defines ideology as "significations generated within power relations as a dimension of the exercise of power and struggle over power" (1992, 67). This implies that ideologies are seen as particular meaning constructions that play a role in producing, maintaining or changing relations of domination (Chouliaraki & Fairclough 1999, 26-27). Here Fairclough relates to Althusser (1971), who claims that meaning production affects social relations, but disagrees with Althusser's claim that we as humans do not have many ways to change prevailing conditions. Fairclough argues, "subjects are ideologically positioned, but they are also capable of acting creatively to

make their own connections between the diverse practices and ideologies to which they are exposed, and to restructure positioning practices and structures" (1992, 91). Another implication of Fairclough's discussion on power, which he understands as something that people can negotiate, is therefore that people can, to some extent, resist unjust social relations (Jørgensen & Phillips 2002, 91).

People can be exposed to several different ideologies that are competing against each other, which can cause uncertainty (Fairclough 1992). Because of this reality, the concept of hegemony becomes relevant, which Fairclough borrowed from Gramsci. This concept is important in this thesis as it enables me to demonstrate how an agreement has been reached related to certain assumptions regarding ICT in schools in Lund, including the need to consume a high number of devices. As I will show, this and other hegemonic assumptions are, however, currently being challenged. Hegemony is not only understood as dominance, but also as a form of negotiation between competing ideologies which results eventually in agreement, though this consensus is continuously challenged (Gramsci 1991). Those alternative meanings present within non-hegemonic ideologies can thus be used by people as resources to resist the dominant condition (Fairclough 1992).

Discourse plays a central role in constructing these power relations and discursive practices therefore contribute to people's ability to continue to fulfil their goals (Jørgensen & Phillips 2002, 63). If discourse, or language use, is a form of social practice, it is also "a mode of action, one form in which people may act upon the world and especially upon each other, as well as a mode of representation" (Fairclough 1992, 63).

3.1.5 Technology as a social, cultural and political phenomenon

In this thesis, technology is regarded as a social, cultural and political phenomenon. There are many thinkers who have contributed to the theoretical and philosophical discussion on technology and society (Castells 1996; Ellul 1964; Feenberg 2002; Foucault 1977; Habermas 1970; Heidegger 1977; Latour 1991; Marcuse 1964; Marx

1887). Many of these scholars pre-existed the spread of computer technology, yet they are still frequently cited today. In this thesis, I will mainly draw on the work of Marcuse (1964) and Feenberg (1999; 2002), as I believe that these scholars offer ideas that help me to elaborate on the problems and opportunities of technology use in schools from a sustainability perspective.

I subscribe to Marcuse's claim that modern technology is linked to power and domination. Technology is, for Marcuse, not neutral but part of political structures at a global level: "domination perpetuates and extends itself not only through technology but as technology, and the latter provides the great legitimation of the expanding political power, which absorbs all spheres of culture" (1964, 158). He argues that there is a dominant way of thinking and behaving that permeates our technological society. As he puts it: "technology has become an instrument of destructive politics" (1964, 227). It is difficult in this context, though not impossible, for other alternative ways of thinking and behaving to spread and develop (Marcuse 1964).

Feenberg, who is a contemporary critical theorist, relates a great deal to Marcuse in his texts on technology, but unlike Marcuse, he is more optimistic about the possibility to change existing power structures that shape current technological development. In this thesis, I use his ideas as a complement to those presented by Marcuse, since Feenberg is more solution orientated. He also questions mainstream theories on technology that suggest that it is just a neutral instrument (Feenberg 1999). In addition, he rejects technological determinism, meaning he does not see technology as an independent force that changes society (ibid.). Although he acknowledges that technology often largely serves the interests of the elites, he argues that people can transform technology so that it can contribute to ecological sustainability, justice and democracy (ibid.). Technology can take two forms. On the one hand, it can be related to the principle of "conservation of hierarchy", which suggests that "social hierarchy can generally be preserved or reproduced as new technology is introduced" (ibid., 76). On the other hand, it can be connected with the idea of "democratic rationalisation", according to which "new technology can also be

used to undermine existing social hierarchy or to force it to meet needs it has ignored" (ibid., 76).

Critics have pointed out that Feenberg's strong belief in the possibility of creating change through the democratisation of technology cannot fully be justified because of the fact that global market structures still prove to be extremely powerful, despite previous attempts to transform technology (Veak 2000). According to Veak, it is not so much technology that should be questioned, but our present capitalist system. I agree with Veak that it is the system at large that should be challenged as it is continuously causing further inequality and environmental degradation. My claim here is not that a democratisation of technology will solve all the problems with the present system. I do, however, argue that a questioning of current practices with regard to the use of technology and a reflection on alternative ways of use, can result in a greater level of awareness of existing problems and a higher incentive to act collectively to tackle them. The questioning of present Western perceptions of technology requires an understanding of the idea of technology fetishism, which I will introduce in the next section.

3.2 Theoretical framework

Now that I have defined key concepts, in the sub-sections that follow, I will introduce the idea of technology fetishism and the five capitals model of sustainability, which are the theories I used to analyse my empirical data. I argue that they complement each other constructively. An appreciation of technology fetishism can help obtain a greater awareness of current unsustainable relations people have to technology in today's industrialised society. The five capitals model is helpful in understanding why an organisation is not contributing sufficiently to sustainability, but it is also a tool to explain how technology intensive and sustainable schools could be created.

3.2.1 Technology fetishism

The belief that technology in itself has intrinsic powers to act on society, with either positive or negative consequences, can be described as technology fetishism (Feenberg 1999; Hornborg 2013a, 2013b). In this thesis, the focus is on the positive perspective of fetishism, that is, the belief in technology as capable of autonomously changing society for the better. Hornborg (2013b) claims that a large number of people within the industrialised society associate technological devices with marvellous qualities and potentials for prosperity.

Hornborg draws on Marx' conceptualisation of commodity fetishism (1887). For Marx, commodity fetishism exists in capitalist societies because commodities are viewed as having value in themselves, whilst the social relationships between people during the production of these commodities is ignored. The commodities thus appear to be independent of the labourers who created them; where their value is only based on practical application and labour exploitation becomes a meaningless concept.

Although Marx did not discuss technology fetishism, Hornborg draws on his ideas and relates them to current technological beliefs. People think of devices as being able to promote efficiency, without considering the ramifications that these physical objects have, resulting from the exploitation of labour and the unequal ecological exchange between countries, where the less privileged pay the heaviest price (Hornborg 2013a). As he argues, modern technology is "a strategy for capacitating an affluent minority of the world's population through an asymmetrical exchange – an expanding net appropriation – of resources from the rest of the world" (2013a, 35).

The fundamental question that Hornborg asks is how these unfair social relations and unequal ecological exchanges are obscured. To answer this question, he uses ideas from Latour, who claims that there is a general tendency in the Western part of the world to view nature and society as completely separate from each other (Latour 1993). This distinction between nature and society is, according to Latour, what has

led to the manipulation of nature to meet human needs (ibid.). This phenomenon is being referred to as objectivism, whereby objects are treated as if they were totally unrelated to social relations or meanings (ibid.).

An understanding of the interconnectedness of nature and society is therefore essential in order to appreciate how exploitative social relations are having a negative effect on the environment, which is clearly the case during the life cycle of ICT devices. This being said, it can be analytically useful to keep society and nature separated since they are based on different fundamental principles (Hornborg 2013b). It is crucial to recognise that some aspects of these technologies belong to nature, like the raw materials necessary to produce them, whilst others are products of society, such as the power relations involved when they are introduced and the social relations during their production (Hornborg 2013b). Hornborg states that "only by keeping Society and Nature analytically apart can we hope to progress in the demystification of that hybrid web in which we are all suspended" (Hornborg 2013b, 127). When these devices are seen simply as objects, they are no longer criticised from a political perspective. As Latour points out, technological efficiency "forever escapes the tyranny of social interest" (1993, 131). I argue that an increased awareness of both social and natural aspects of technology is essential in order to start a discussion on how people in the Western world relate to technology and how this is contributing to the maintenance of unsustainable practices of mass production and consumption. It is my belief that an awareness of what is causing present problems is required in order to reconcile sustainable relations to technology, averting social and environmental collapse.

3.2.2 The five capitals model of sustainability

In my analysis, I draw on the five capitals model of sustainability, explained in detail by Porritt (2007). Although the model was intended for businesses, it can also be extended to the analysis of sustainability within any range of organisations.

The term "capital" is normally used within economics to refer to financial assets that give a return. Nowadays, the term is, however, not only related to resources in the form of money. Porritt offers the following definition: "capital is a stock of anything that has the capacity to generate a flow of benefits which are valued by humans" (2007, 138). It can thus be used metaphorically to refer to different kinds of assets or resources that enable an organisation to function. In the model, five kinds of capital are explained: natural, human, social, manufactured and financial capital. These different types complement each other, meaning that an organisation needs to maintain the stocks of all of them in order to be sustainable (Porritt 2007).

The use of the term "natural capital" as well as other words like "ecosystem services" has been challenged by Hornborg, who argues that it is unproductive to try to gain an understanding of the relationship between humans and ecological processes through the application of terms that were developed within neoclassical economics to analyse economic issues (2010, 72). Like he rightly points out, ecosystems do not provide services that we can buy on the market and investments and costs are not relations between humans and nature, but only between humans. It has also been argued that the term "natural capital" is inappropriate as it presupposes that nature exists purely for our benefit, a general assumption that has shaped economic development during the past few centuries (Porritt 2007, 139). I agree that the term "capital" could potentially cause problems when trying to change existing unsustainable views concerning our relationship to the natural world. The term is, however, currently widely used in discussions on how organisations can become more sustainable (Cerratto-Pargman & Joshi 2015; Porritt 2007; Scott 2013). This, coupled with the familiarity of the term (Porritt 2007, 139), influenced my decision to apply it to this analysis. I will, however, complement my discussion on capital with ideas on how ways of perceiving our relationship with the natural world could potentially change through a deep reflection on how we relate to technology.

Natural capital constitutes all the natural processes and resources, both renewable and non-renewable, that enable any organisation to operate, and, perhaps more importantly, also is what sustains life on this planet (Porritt 2007). It is important to

note that we as humans are not destroying natural capital in itself, but only its quality. When it has been consumed, it is only its usefulness to us (humans) that is lost (ibid.). There are several ways to avoid the degradation of natural capital. Firstly, renewable resources, such as water or timber, must not be used faster than nature can replenish them. Secondly, waste products should be eliminated and not generated faster than nature can assimilate them. Thirdly, activities that contribute to climate change and loss of biodiversity need to be avoided; hence the dependency on fossil fuels needs to end even though reserves of this resource are still available (ibid.).

Human capital is the health, knowledge, skills and motivation of those involved in the organisation, in this case pupils, teachers, headmasters and other school staff. It also includes "joy, passion, empathy and spirituality" (Forum for the Future 2007, 2). Social capital relates to the gains procured because of relationships between people, for example, in the form of networks, partnerships and cooperation (Porritt 2007). Examples of such relationships, in this case, are those between everyone at the school and cooperation with the municipality, parents, other schools and the wider society. Social capital also includes norms, values and trust within the organisation (Porritt 2007). Manufactured capital is everything physical that the organisation owns, including ICT devices (Porritt 2007). Financial capital is the traditional form of capital, which has no value of its own, but rather it reflects the values of other forms of capital (Porritt 2007).

All forms of capital are closely interlinked. Social and manufactured capitals are ultimately derived from human and natural capitals. Social capital only exists because of human interaction and manufactured capital includes things that originate from nature. Natural capital, however, is the foundation of all other forms of capital as humans are not separable from nature (Porritt 2007, 141). Social capital can help individuals to develop their own personal well-being and skills. It is also essential in order to preserve natural capital, for instance, through cooperation between the schools and with the wider society, as well as well-defined shared norms and values at the school (Scott 2013).

A common distinction between different ways of viewing the concept of sustainability is that of weak versus strong. These two approaches are based on opposing ideas concerning the importance of different forms of capital (Costanza & Daly 1992).

Weak sustainability is characterised by the view that sustainability can be achieved as long as the overall capital of a society is not decreasing, meaning that those who adhere to this view see the natural and human-made capitals as interchangeable (Pearce & Atkinson 1993). Pearce and Atkinson (1993) have developed an indicator of weak sustainability based on this principle of substitutability between different capitals. According to that measurement, some of the industrialised countries like the Netherlands and Japan, were classified as sustainable (Pearce & Atkinson 1993).

Those who argue for strong sustainability suggest that natural capital, on which all life on Earth depends, cannot be substituted by any other form of capital (Ekins et al. 2003). Whilst weak sustainability is centred on the idea that any form of gain is desirable, strong sustainability is based on the assumption that activities that, for instance, can lead to financial profit but that cause environmental degradation are not sustainable (ibid.).

Whenever I use the term sustainability in the remainder of this thesis, I refer to the strong form that I just introduced. I argue that the natural processes that we as humans and other species need for our survival and well-being, cannot be substituted by any form of capital that we have produced. Lund Municipality has also expressed a concern about the fact that our life support systems are currently threatened (2014, 4), suggesting that immediate measures need to be taken to enhance natural capital, while increases in other kinds of capital will not help.

Scott (2013) has used a capital approach to discuss measuring of the extent to which a school is sustainable. He includes the same forms of capital described in Porritt (2007), except for financial capital. Scott poses the question: "How can we know how effectively the development of the sustainable school is progressing?" (2013, 202). For example, investments in educational activities to increase the knowledge of the pupils (human capital), which leads to the reduction of natural capital, should be avoided as much as possible (Scott 2013). All forms of capital are seen as complementary and necessary to address in order to create a sustainable school; in fact, he argues that best possible results can be achieved if they are combined.

Cerratto-Pargman and Joshi (2015) have reflected on the ways technology, which is a manufactured capital, can be used to enhance other forms of capital. They argue that it can be used to learn about the natural world and to create shared values, by, for example, connecting with others who are already living sustainably (ibid.). This enhanced understanding of nature's limits can help people realise that computing also has to be carried out within limits (ibid.).

4. Methodology

In this chapter, I provide a description of data collection and analysis strategies used in this study. I begin with a presentation of the methodological framework and the philosophical position on which the study is based. This is followed by a description of how subjects for the study were chosen and how the data was collected and analysed. The chapter ends with a few sections that concern specific research ethical considerations, my role as a researcher and limitations and delimitations of the research.

4.1 Philosophy and framework

Here I discuss ontological and epistemological assumptions that the study is based upon, as well as introduce the theoretical foundations of critical discourse analysis (CDA).

4.1.1 Ontological and epistemological foundations

The study is based on a critical realist ontology. Bhaskar developed critical realism as a reaction to both positivism and social constructivism (see Bhaskar 1975; 1978). According to this approach, there exists a reality independent of our knowledge about it, but this reality changes over time (Brante 2001). Although I subscribe to the social constructionist ideas that humans are cultural and historical beings and that knowledge is socially constructed, which are not rejected within critical realism, I argue that it is necessary to acknowledge that there is a reality that is not constructed by humans, though it is open to interpretation. As pointed out by Pring, "the acceptance of a reality independent of the researcher does not contradict the possibility of many interpretations of that reality" (2000, 116).

In my view, critical realism is a suitable approach for research on human ecological issues that require interdisciplinary investigation. As has been argued by Soper (1995, 155-160), humans construct the meaning we give to the environment based on the cultural and historical context in which we live. However, Soper goes on to assert that this assumption should be combined with the natural science understanding of nature as something real outside of human construction, an understanding that implies humans are part of nature (ibid.). I argue, therefore, that the environmental effects of the use of ICT are occurring irrespective of anyone's interpretations, but the ideas of municipal employees on how to combine ICT use and sustainability, are socially constructed.

4.1.2 CDA

CDA is an approach to discourse analysis that focuses on how language use affects power relations in society (Jørgensen & Phillips 2002, 63). Like other types of discourse analysis, CDA aims at identifying assumptions that are represented as common sense or naturalised (Jørgensen & Phillips 2002, 5). I draw mostly on the work of Fairclough (1989; 1992; 2001), who has developed his own version of CDA. There are many other scholars who have also contributed to the field of CDA, but Fairclough's model is regarded as the most theoretically and methodologically developed version (Jørgensen & Phillips 2002, 60).

CDA is based on the assumption that the production and consumption of texts, which are called discursive practices, have an influence on social and cultural change (Fairclough 1992). Discourse is seen as one form of social practice that contributes to creating the social world (Fairclough 1992), but discourse is also shaped by, for example, institutional structures in society and other non-discursive practices (Fairclough 1992). This means "discourse is a form of social practice which both constitutes the social world and is constituted by other social practice" (Jørgensen & Phillips 2002, 61). The term "discourse" is related to text, talk and other forms of communication, which is a point where CDA differs from, for example, Laclau and Mouffe's discourse theory (see Laclau & Mouffe 1985), in which everything in society is thought of as a discursive construction. In CDA, concrete textual analysis is carried out, meaning that features including vocabulary and grammar are analysed in relation to discursive and social practices (Jørgensen & Phillips 2002, 62).[2] Another important aspect of CDA is that it is a critical research method focused on promoting social change by revealing unequal power relations (Jørgensen & Phillips 2002).

According to Selwyn (2015), CDA is an appropriate method to analyse the struggles and conflicts involved in the process of digitalising education. He claims that CDA

[2] In the analysis of the grammar, I particularly focus on modality and transitivity. Modality is related to "the speaker's degree of affinity with or affiliation to her or his statement" (Jørgensen and Phillips 2002, 83), such as certainty or necessity. Transitivity deals with "how events and processes are connected (or not connected) with subjects and objects" (ibid.).

can usefully be applied when investigating "how certain meanings and understandings of digital education come to dominate over others" (2015, 227). By applying CDA to this research, I want to demonstrate how the discourses found in the texts I analyse contribute to the maintenance of unequal power relations between different groups of people. Furthermore, I chose CDA because it offers a clear theoretical description of the link between discourse and the concepts of power, ideology and hegemony.

It can be difficult to distinguish between discursive and non-discursive practices, and prove that a dialectical relationship between them exists. This is a common criticism of CDA (Jørgensen & Phillips 2002, 89). In this thesis, I make an analytical distinction between them since it is only the social practices that I explain through the help of social theory, but I still acknowledge the empirical inseparability of discursive and non-discursive practices.

4.2 Selection of subjects for the study

I decided to do a local study since it became clear during an initial encounter with relevant policies that decisions regarding what equipment should be purchased and how it should be used are taken at a local level. Since I possess an understanding of how responsibilities are shared between authorities in Sweden, I chose to focus my research on a Swedish municipality. Among these, Lund was selected. One of the reasons was because it claims to be one of the Swedish leaders in striving towards sustainability (Lund Municipality 2014). Further, Lund has already made large investments in ICT in the education sector endeavouring a long-term commitment to provide one ICT device to every child in compulsory schools (Lund Municipality 2010).[3] Lund was a convenient choice as I resided there during the research period and could therefore conduct face-to-face interviews.

[3] Pupils are in compulsory school from grade 1 to grade 9. They start grade 1 the year they turn 7 and finish grade 9 the year they turn 16.

Although Lund Municipality has a strategy for ICT in education that I analysed, many decisions about the use of ICT are made by school headmasters. For this reason, I decided to interview headmasters about the visions and practices at five schools within the municipality. I selected two schools for children between the ages of 12 and 15, two for children between 6 and 12 and one for children between 6 and 9.[4] This selection was made in order to be able to analyse the topic from a range of grade-school perspectives.

4.3 Collection of data

In this section I describe the data collection process. The section is divided into three sub-sections: written documents, interviews and quantitative data.

4.3.1 Written documents

I included the analysis of policy documents in my empirical material since the language used in such publications can give the researcher insight into the rhetoric of institutions that play a central role in determining the conditions for the schools (May 2011, 190). The policy documents that I analysed were accessed through the Lund Municipality and the European Union websites. Since Sweden does not have an explicit strategy for ICT in education, I did not include any national documents in the analysis. It is, however, stated in the national curriculum for most of the school subjects that ICT should be used (LGR 11). The documents from Lund Municipality that I analysed are the local strategy for ICT in education (see Lund Municipality 2010) and the programme for ecological sustainability (see Lund Municipality 2014). The document at the EU level that I analysed, called Key Competences for Lifelong Learning, concerns justifications for the use of ICT in schools (see European Commission 2007). The interviewees did not mention any additional policy documents. This confirms that the ones I selected likely had the greatest influence on the work and activities of the schools.

[4] Children at the age of 6 attend non-compulsory preschool and share the same building as those in compulsory.

4.3.2 Interviews

The purpose of the interviews was to obtain information that could not be directly found in the policy documents, such as perceptions of the possibility of creating technology intensive and sustainable schools. Interviews are an effective way of enhancing material for discourse analysis partly because they enable the researcher to ask about matters that the documents do not cover, but also because it gives the researcher a chance to learn about how written documents are interpreted by people who are affected by them (Fairclough 1992, 227). The interviews were also a necessary supplement to the policy documents since these did not describe any practices or visions of individual schools.

To identify willing participants, an email was sent out to the headmasters of all schools within the municipality that stated on their websites that they either had an environmental certificate or were working actively for sustainability. Two of these eleven headmasters showed interest in participating. Since this number was not considered high enough to enable a broad and multi-perspective analysis, an email was later sent to all the headmasters at public compulsory schools in Lund, resulting in five participating schools, which I considered to be sufficient as it enabled me to include a variety of perspectives in the analysis.

Apart from the school headmasters, I also interviewed a procurement official from the municipality to better understand how environmental and ethical requirements are set. As was shown in section 1.3, the production of ICT devices can greatly affect people and the environment, meaning that the choices the municipality makes during ICT procurement will have an effect on their sustainability credentials. The procurement official was contacted via email and then interviewed in person. Some basic information regarding the disposal of the devices was also obtained via an email conversation with an employee at the IT department.

The interviews were mostly semi-structured with open-ended questions. This interview style was the most suitable as it enables respondents to discuss the topic freely and gives the researcher the possibility of asking follow-up questions (May (2011, 135). These advantages make semi-structured interviews particularly useful when studying an unexplored topic (Esaiasson et al. 2012, 253). I also included some structured questions to the headmasters to obtain quantitative data (see the next sub-section).

The interview guides were prepared after an initial review of policy documents. I continuously consulted my overarching research questions to make sure that I directed the interviews with answering them in mind, which is a strategy suggested by Bryman (2011, 419) enhancing the validity of the research. The interview guides can be found in Appendix I.

All interviews with the headmasters and the procurement official took place at their respective offices. The interviews were recorded using a mobile phone application. They lasted between 30 and 60 minutes. I transcribed all interviews manually. When transcribing the interviews, I paid attention to pauses, silences and interruptions to satisfy the analysis method. Fairclough (1992, 229) states that the choice of transcription system should be based on the goal of the research and the research questions. Since greater focus in this project is on the discursive and social practices than on the textual features, this method was considered sufficient in this case. Relevant parts of the interviews were then translated into English. The translated quotes are referenced with superscripted numbers within square brackets in the text. The original Swedish quotes can be found in Appendix II.

4.3.3 Quantitative data

In addition to the policy documents and interviews that I analysed according to CDA, some quantitative data was introduced from various sources,[5] presented in chapter two. It is my belief that a discussion on sustainability becomes richer and more complete if it involves a mix of qualitative and quantitative data. This view is shared by a number of scholars, including May (2011) and Moran (2010). This presupposes an integration of natural and social science perspectives in the discussion and is also consistent with my critical realist approach.

To locate statistics from the EU, I first visited their website and found a publication from 2013, after which I contacted the European Commission in order to ensure that the data was the most recent.

4.4 Analysis

I first read through the policy documents and interview transcripts several times to become well acquainted with the material. Eventually I noticed emerging patterns in the texts. The material was categorised to facilitate the selection of specific sections for the analysis. The aim of the selection of samples was to maximise the clarity of insight into how discourse contributes towards the municipality's and schools' practices. Here I followed Fairclough's recommendation by looking specifically for so called "moments of crisis" in the material, which he defines as:

> Moments in the discourse where there is evidence that things are going wrong: a misunderstanding which requires participants to 'repair' a communicative problem, for example through asking for or offering repetitions, or through one participant correcting another; exceptional disfluencies (hesitations, repetitions) in the production of a text; silences; sudden shifts of style (Fairclough 1992, 230).

These moments of crisis helped me to identify assumptions that are seen as taken for granted or naturalised but that would have otherwise gone unnoticed.

[5] This data was obtained from a combination of interview respondents, local and national authority websites and an EU report.

In the analysis of the material, I used Fairclough's three-dimensional model in which the text, discursive practices and social practices are seen as interrelated (Fairclough 1992). Fairclough argues that language plays a more important role nowadays in shaping the social world than it has done previously. He points out that "the idea of new capitalism as a ‘knowledge-driven’ socio-economic order implies that it is also ‘discourse-driven’" (Fairclough 2001, 6). There are many words that are being used today, such as "globalisation", "employability" and "productivity", which are thought of as being part of a new kind of vocabulary that has and continues to contribute to the formation of the present world order (Fairclough 2001). Fairclough provides clear guidelines for how to cover these three dimensions by suggesting a set of questions to focus on in the analysis (Fairclough 1992, 232-238). I draw heavily on these guidelines in my analysis.

Fairclough calls the three steps of the analysis description, interpretation and explanation (Jørgensen & Phillips 2002, 69). The aim of the description is to describe linguistic features of the text, particularly its vocabulary, grammar and structure (ibid.). The interpretation deals with questions of how the text has been produced and consumed (ibid.). Here the concept of intertextuality is central, which is defined as "the condition whereby all communicative events draw on earlier events" (ibid., 73), communicative event being "an instance of language use" (ibid.: 67). The concept of interdiscursivity, which is seen as a form of intertextuality whereby different discourses combine (ibid., 73) was also applied in data analysis. Finally, explanation, the step that focuses on non-discursive social practices, aims at explaining the institutional, structural and social determinants that influence the text and the discursive practices (ibid., 69). In the explanation, I use the concept of “order of discourse” meaning all discourses that are used within a social institution or field (ibid.). An aim of the analysis should be to determine how discursive practices are maintaining or changing the existing order of discourse and how this will affect the wider social structures (ibid.).

As will be seen in the analysis, discourses (overarching meta-discourses and sub-discourses among them), often overlap and lack clear boundaries between them.

This complex discursive structure is inevitable due to the variety of stakeholders involved that work together but have different interests and priorities.

4.5 Research ethics

During the research process, I followed the research ethics recommendations of the Swedish Research Council (2002). In the first email I sent out, I informed the respondents about the purpose of the study. Furthermore, I stated that interview participation was voluntary, with the option to withdraw at any time without any justification. I recorded the interviews with the respondents' consent and assured headmasters that they and their respective schools would be placed under full anonymity. I have assigned each interview respondent an alphabetical pseudonym that will be used throughout the thesis to maintain confidentiality.

4.6 My role as a researcher

My preconceived understanding of the field most likely had an impact on the way I formulated the interview questions and also on what follow up questions I asked during the interviews. The language of the interviews and local policy documents is Swedish, which meant that I had to translate everything into English for the purpose of writing this thesis. In Sweden, English is commonly taught from the age of seven, resulting in a very high level of proficiency by the time of adolescence. Most Swedish students who reach Master's level could, therefore, be considered as bilingual. This level of competence makes mistakes less likely to happen.

According to Fairclough, the discourse analyst is always part of the process of producing discourse (1992). I continuously reflected on how being native to the culture of the producers of the texts, could have influenced the analysis. Jørgensen and Phillips (2002, 21) bring up the problem that could arise if the discourse analyst and the producers of the texts share assumptions that are represented as naturalised in the material, meaning that the discourse analyst may fail to identify such assumptions unless critical reflection is made. I tried, however, to look at the material

from a critical, human ecological perspective and make sure that my claims are consistent with my theoretical framework.

4.7 Limitations and delimitations

Doing a study of compulsory and non-compulsory schools would have necessitated a greater number of interviews. Due to the time limit imposed by the Master's schedule, I decided that it would be more appropriate to conduct a qualitative study, where I could do better justice. This resulted in my decision to randomly choose one of the two categories, of which compulsory was my choice.

I only visited 5 compulsory schools out of 39 in the municipality. The schools were chosen to make sure that all grades were included; however, due to possible variances in other schools' sustainability policies, the results may not be extended to represent all schools.

The language barrier may have been a limitation. The EU document was available in both English and Swedish but in order to avoid translation errors, I decided to use the existing English version directly. As a result, this may have caused some inconsistency in the analysis, but I do not consider it a major issue in this case, since the textual analysis is rather basic in Fairclough's model.

I contacted an environmental strategist at the municipality as well as a school director to increase the depth of the analysis by including a greater variety of perspectives, but neither of them agreed to be interviewed, as they did not feel confident that they would be able to answer the questions in a satisfactory way.

5. The Power of People through ICT: Discourses on ICT in Education in Lund

In this chapter, I analyse the policy documents and interviews according to CDA. The chapter is divided into four sections. The first three correspond with the research questions. In these sections, the main focus is on the description of the linguistic features of the texts and on the interpretation of the discursive practices. Each of them starts with a short introduction to the text and is followed by my analysis. The final section deals with the social practices that are shaping and being shaped by the linguistic and discursive practices.

5.1 Justifications of the use of ICT in schools

The use of ICT in schools is presented in the EU and local policy documents as a necessary and inevitable consequence of the fact that the rest of society is becoming more and more digitalised. In the coming two sub-sections, I will describe this and other justifications of the use of ICT in schools. Note that all the interview quotes found in this chapter are my translations.

5.1.1 EU policy discourse

Here I analyse the EU policy document "Key Competences for Lifelong Learning - a European Reference Framework" from 2007. It was created by the European Commission and is an annex of a recommendation of the European Parliament and the Council. The present analysis focuses on the preface by Ján Figel[6] as well as sections "Background and aims", and "Digital competence". The intended audience is stated as being "policy-makers, education providers, employers, and learners themselves" (p.3), hence headmasters are one group to which this document is directed. A total of eight key competences are described, one of which is digital competence. These are argued to be essential in order to increase the growth of Europe's economy and competitiveness.

[6] Former member of the European Commission responsible for Education, Training, Culture and Youth

The vocabulary is in line with Fairclough's examples of words that are having implications for the development of present day capitalism: "globalisation", "employability", "competitiveness" and "productivity". The producers of this document heavily draw on a neoliberal economic discourse, which appears throughout the text, but particularly in the preface.

Another central term is "digital competence", defined as involving:

> The confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet (p.7).

The identity of a digitally competent individual is created through this text by, for example, mentioning what skills and personal attributes individuals *should* develop. The digital society discourse is clearly visible.

I identified three additional discourses: a learning discourse (e.g. "building on diverse individual competences" (p.3)), a citizenship discourse (e.g. "active citizenship" (p.3)) and an equality discourse (e.g. "the differing needs of learners should be met by ensuring equality and access" (p.3)). The equality discourse is related to the idea that everyone should be given the opportunity to take part in the "knowledge economy" (p.1).

Several explicit obligational modalities can be found, which emphasise authority. One such example is in the sentence "Individuals should have skills to use tools to produce, present and understand complex information" (p.7). No words like "maybe" "probably" or "potentially" are being used. I also noticed a kind of transitivity in the text where the agent is non-existent. There are nouns that are processes, like "globalisation", or "the digital revolution" meaning there is no specific person or institution mentioned that could be seen as responsible for what is happening. The producers of the text thus regarded the phenomenon as something natural, not

requiring any further explanation. In the process, they simply state that people's skills must change to accommodate.

In the preface, Figel uses the pronoun "we" in certain places, particularly when stressing the need for people to develop these specific competences. He also uses the pronoun "I". Whilst the preface was written in a way that it is clear that one person is addressing all EU citizens, the other sections were written in a highly impersonal manner where pronouns like "I" or "we" are not used. The word "individuals" is here used instead when referring to European people. The use of the pronoun "we" in the preface suggests that there exists a desire to reach out to everyone in order to bring about change in the proposed direction.

The document states that "[w]e need to develop our skills and competences throughout our lives, not only for our personal fulfilment and our ability to actively engage with the society in which we live, but for our ability to be successful in a constantly changing world of work" (p.1). The stress is here put on the latter part of the sentence, emphasising the necessity of having these skills in order to manage in a changing working environment. This subject continues into the following sentence, thus strengthening this statement. This shows that the neoliberal economic discourse is in a dominant position, while other discourses, which are connected to this discourse, are in subordination.

The shaping of individuals to fit the capitalistic order is the primary objective of this communicative event, which is not only clear from the actual text but also from how it has been produced. There is a high level of intertextuality (see definition in section 4.4), since the text draws on the previously published recommendation of the European Parliament and the Council, which in turn cites other EU publications, including the Lisbon strategy (European Council 2006, 1). In addition, as mentioned earlier, the similar vocabulary between these policy documents also supports this claim. The Lisbon European Council in 2000 agreed that the EU should "become the most competitive and dynamic knowledge-based economy in the world capable of

sustainable economic growth with more and better jobs and social cohesion" (European Union 2000, 2).

To sum up, ICT in schools is represented as both necessary and desirable, contributing to solving problems of inequality and being the pathway to human prosperity. The producers of this text use direct language and express certainty in this sentiment. The dominant neoliberal economic and digital society discourses are mixed with other discourses that I have identified as learning, citizenship and equality discourses, hence demonstrating a high level of interdiscursivity.

5.1.2 Discourses of Lund Municipality and of the five schools

The local ICT strategy for schools in Lund was adopted in 2010 by the heads of the school departments and the Director of Education (Lund Municipality 2010, 2). The present analysis focuses on the part of the text where the use of ICT is being justified. The analysis of the headmasters' answers to the question of why they think their schools need to invest in ICT, will also be presented here.

All the respondents stated that they continuously use and refer to the local ICT strategy. The close relation between the discourse of the municipality and of the headmasters could also be asserted through the scrutiny of the different texts, which revealed clear similarities between them, both in terms of vocabulary and grammar. The ICT strategy relates to the Key Competences document from the EU (Lund Municipality 2010, 2), and so do the interview respondents. The respondents mention this document as a main source they refer to when they justify the increasing trend of using ICT in schools, such as in this statement: "we often refer to them that we have to work in this way" (Respondent D).[3]

The vocabulary used at the local level differs from the one found in the EU document. It does not contain any of Fairclough's examples of words that are influencing present

capitalist development. The vocabulary in the local policy document does, however, indicate a positive fundamental view of the use of technology, suggesting that it can bring about qualities such as "creativity" (p.2) and "innovation" (p.2). It is stated that the schools in Lund should provide "a world-class education" (p.2). This coupled with the statement that they should be "at the forefront" (p.2) of the development of the use of ICT shows that they use a vocabulary that relates to an existing competition. The use of this kind of vocabulary implies that local perceptions are affected by pressure from outside of the municipality to support continued maintenance of the present model of capitalism.

The digital society discourse is central, but other connected discourses are also present. ICT in schools is seen as necessary in order to enable pupils to have "the digital competence that correspond with the individual's needs and conditions" (p.3, my translation). The justification is primarily based on the argument that schools need to help pupils to learn to use ICT responsibly since digital technology is something they already use outside school (p.3). Words like "must" and "need to" are used to stress necessity and urgency. This urgency is, however, discussed in mostly positive ways by the respondents, such as in the following statement: "The fact that they have one computer each has meant that there has been like a giant step into the digital world" (Respondent E).[4] ICT is argued to stimulate effective learning, enhance cooperation with the wider society and be a help to pupils with special needs. Thus, they draw on three key discourses of learning, citizenship and equality.

One respondent connected the use of ICT with preparing pupils for their adult life since the tasks become more challenging than during the days of paper and pencil and stated that "[i]t leads to a greater variation for the pupils and in that way I actually think that they will be significantly more prepared when they come out in adult life" (Respondent D).[5] This sentiment relates to both the local policy document and the EU documents in the sense that it suggests pupils require more challenging tasks to be able to work and interact in a modern environment as adults.

At the same time, I noticed an expressed conviction that they do not regard ICT as being able to solve anything by itself. In the document it is stated that "IT in itself cannot improve the pupils' learning" (p.3, my translation), but it depends on the teachers' interest and competence in the use of the devices. One headmaster said "[w]e try to see it as a tool like many others. We do not see ICT as something that saves our education or the world" (Respondent B),[6] and continued on to suggest that the use of ICT is situation-dependent. The modality used was one of certainty.

To conclude, the language in the local texts has similarities with the EU text, especially concerning the use of modalities of necessity and certainty. The main difference is that the local vocabulary is more concentrated around learning, sharing and cooperation than "globalisation" or "competitiveness". All the discourses identified in the EU text can also be found here, with the difference that the neoliberal economic discourse is not as clearly visible.

5.2 Sustainability

The local environmental policy, LundaEko II, was adopted in 2014 by the city council (Lund Municipality 2014). The document is based on the national environmental goals, but these are adapted to suit local conditions. The national goals are in turn connected with EU directives. The basic principle that guides all national environmental policy is that we should "hand over to the next generation a society in which the major environmental problems in Sweden have been solved, without increasing environmental and health problems outside Sweden's borders" (Environmental Objectives Portal 2012). LundaEko II primarily focuses on ecological sustainability, but also considers social and economic aspects. The document is not only intended for the local authorities, but also for all who live and work in the municipality; hence schools refer to the document in their work with sustainability.

In LundaEko II, two illustrations of sustainable development are introduced. The first illustration is based on the idea that the ecological, social and economic dimensions

are equal and largely independent of each other. On the contrary, in the second one the three dimensions are placed in a dependent position of one another, where the ecological dimension is the driver and the one on which the other two rely. It is not directly stated which one of these perspectives the municipality adheres to, but it is implied that there is an awareness of the special status of the ecological dimension. The document reads that "[t]he ecological dimension includes, amongst other things, clean water, a stable climate, productive soil and woodland and fish in the sea and are life supporting for humanity. Numerous global studies show that these life support functions are threatened in a disturbing way" (p.4, my translation).

5.2.1 Policy discourses of sustainability at Lund Municipality and the five schools

A critical discourse has been identified, with a language that suggests global responsibility. It is stated that the municipality should make sure that "the development outside of the borders of the municipality and of Sweden becomes sustainable" (p.9, my translation). The global perspective is particularly referred to in the section on sustainable consumption, which reveals an expressed concern about how their consumption in Lund is having consequences for people and ecosystems in other parts of the world. In addition, they show an awareness of the fact that consumption has an effect on climate change (p.12). Respondent P also reflects on the effects of decisions taken in Lund on ecosystems elsewhere:

> Say that your computer requires such and such an amount of electricity and then you find a computer that requires much less electricity and think: Oh brilliant! But in order for it to pay itself back in the cycle it takes 60 years, so where is it that you have saved? Here in Lund we save on the electricity, but a great deal of natural resources was required for you to save electricity. What is sustainable? [7]

It is stated that consuming less is one strategy to tackle these issues, but more attention is, however, given to other measures to reduce the negative effects of consumption, including setting environmental and social requirements and choosing certified products, as well as reusing products and selecting those that are likely to last longer in order to reduce waste. The function of consumption to sustain the economy is also brought up by the procurement official: "Then we also have a

sustainable economy. After all, we do not want to stop buying, because then our economy will come to a halt. Then the reuse of computers is perhaps more important" (Respondent P).[8] This shows that the neoliberal economic discourse is still central.

Words like "cooperation" and "dialogue" are used, indicating that these attributes are regarded as essential to achieve sustainability. There should be cooperation within the municipality and dialogue with external organisations and with local inhabitants. Here a citizenship discourse is visible. Although the responsibility for maintaining this dialogue is put on the municipality, there is an expressed expectation that "everyone who lives and works in the municipality" (p.10, my translation), should participate in these efforts.

There is some degree of intertextuality as the document is influenced by other texts, including the Brundtland definition of sustainable development from 1987 (see section 3.1.2), as well as the national environmental goals set by the government.

The fact that Lund Municipality wants to take sustainability issues seriously was also confirmed by one of the respondents: "they are important issues in Lund and so are they for pre-schools and schools" (Respondent A).[9] The language the headmasters used indicates that sustainability is a term with different meanings. It is sometimes referred to in relation to "sustainable learning", but was also interpreted as being connected to environmental issues. When the topic of sustainability was introduced during one interview, a respondent asked, "is it the sustainable learning you are thinking about or is it a sustainable environment you are thinking about?" (Respondent D).[10] It is clear that learning is seen as the main priority and that the school's primary way of contributing to a sustainable future is by providing support and resources necessary for sustainable learning. This is expressed with certainty: "it is the school's main objective" (Respondent C).[11] Here the concept of equality is central. It is related to equality through the principle that everyone should have the same opportunity to take part in society and be good citizens (Respondent C).

The respondents also believe that their schools can contribute to sustainability by consciously reflecting on their daily practices and reducing their environmental impact. As one respondent pointed out, this can include considerations during care of their building, cleaning, renovations, reuse, and in paper use etc. (Respondent D). Pupil influence is seen as a central aspect towards sustainability.

As I have shown in this section, the language used is rather diffuse in certain respects due to an expressed confusion concerning sustainability, potentially emerging from a variation of definitions such as those used by businesses and organisations. The neoliberal economic discourse is clearly present, for example in places where the language explicitly shows an expressed assumption that it is necessary to continue to consume in order to sustain the economy. At the same time, a critical discourse is also present, through phrases like "consuming less". It is argued that schools can contribute to sustainability by adopting an integrated approach and not see it just as an environmental issue. The learning, citizenship and equality discourses can all be found in these texts.

5.3 Opportunities and problems in creating technology intensive and sustainable schools expressed or implied by the headmasters

As a whole, the language used by respondents was assertive in their reflections on the possibility of creating schools that are both technology intensive and sustainable. They all used vocabulary that shows conviction that these two goals can be achieved simultaneously, such as in the following statement: "I do not see any conflict here but rather I see it just as one of all the challenges that we have to deal with in our modern society and I think we are on the right track" (Respondent D).[12] The challenges that exist were generally described by respondents as unavoidable. As will be shown in this section, there are, however, a few examples of expressions of concern over current developments, but even in these cases the language shows a state of determination and readiness to act for sustainability.

The digital society discourse is powerful. One respondent expressed a fear of schools potentially being inadequate as teaching institutions because of fast evolving technology that does not allow the teachers to keep up with the students who come into contact with these devices outside of school (Respondent E). This sentiment implies that unless the school makes efforts to invest in ICT, the continued existence of the school as a central place for learning may come into question.

The prominent position of the digital society discourse is also demonstrated through statements related to the necessity of using ICT despite the fact that there is an expressed uncertainty regarding the environmental impacts. One respondent discussed the uncertainty of the consequences that their use of ICT has for the environment during the life cycle of the devices, but then stated "after all, it is a responsibility that we as humans have if we want to use so many electronic products, but (pause) I believe that we just have to learn to do this. If we hadn't had them, we would have had something else that destroyed the environment" (Respondent D).[13]

Some respondents are also uncertain about the environmental effects of the reduced dependency on paper as a result of the use of ICT. A few respondents believe that reduced paper consumption via increased digitalisation will mean positive effects for the environment (Respondents B; E), but Respondent E expressed hesitation:

> In the long term, I believe that it will mean something for the use of paper and quite substantially when we have these digital tools that children and young people are already so accustomed to, when also we as adults in the older generation adapt to that. It takes a bit more time. But then I also think about, when it comes to problems and such, (pause) before, when one had educational materials, like ordinary textbooks, there was a period of 3-4 years that one had to replace the textbooks; they were being ripped so much and then one had a number of books and they were renewed continuously, but our digital tools also have to be renewed and they are, in essence, finished after 3 years, not totally but they are pretty much out. [14]

The same respondent reflected on whether it would be cheaper to recycle paper or to deal with all the electronic waste, which is something that has not been discussed at the school.

A critical discourse is however also present and it is challenging the digital society discourse. The words "conscious" and "balance" are used a great deal by the respondents and they can be connected to this critical discourse.

A major challenge, according to the respondents, is to make conscious decisions, expressed, for example, in the following statement by Respondent A:

> I think that one has to make smart choices, one has to think carefully; what do we need? Yes, like I said before, that you do not like, have to buy the whole concept when new things appear, but rather that one really thinks that, we are a school, we should teach children about things that exist and they should get tools and then we like, need to have a mix of it and then one cannot have all of one thing or two. [15]

This interviewee mentioned several challenges: companies that want to sell all kinds of products to the school, competition with private schools who often invest a great deal in new ICT products and parents who think that the school should have the latest and most advanced technology. One problem according to this respondent is that technology can be seen as excluding all other forms of learning activities: "And this is not the case, I think and we do not think so, who work here, but it is a part of a greater whole" (Respondent A).[16]

Another interviewee also reflected on the importance of conscious thinking and the challenge of seeing ICT as the saviour: "A challenge could be that one thinks that technology saves this, and thinks that, I have a whole world in front of me in this screen and can travel anywhere" (Respondent B).[17] There is no agent here, no one in particular the respondent is referring to. The respondent is merely expressing a general feeling that these kinds of views on technology may exist. Afterwards, the respondent continued by saying with conviction that they need to create a balance, as it is just as important for pupils to be outside and actually experience things in real environments, with their own senses.

Respondent B argues that a balance needs to be achieved between time spent with the devices and time spent exercising, being outside and having face-to-face conversations, demonstrating a critical view and an awareness of the potential effects of constant ICT use on the health of pupils. Ergonomic interventions are seen as necessary but not sufficient to make sure that their health is maintained. This shows that the respondent is thinking critically about the negative impacts of the "digital society".

Then the respondent changes direction: "at the same time, it is extremely important; our pupils are going to enter a digitally intense world when they leave us so they need to be prepared in every way, that's our obligation, I would think" (Respondent B).[18] The last statement relates back to the digital society discourse and yet again demonstrates its dominance.

The learning discourse appears in the respondents' answers, which is obvious since schools are teaching institutions. According to the respondents, ICT devices can function as tools that can help pupils to develop the skill-set that may be required to contribute to sustainability. ICT is even believed to directly help to make pupils think and act more sustainably, especially in the upper grades, as stated by Respondent D:

> As a result of them having the computers, they become more aware of the surrounding society. I think that, if one compares to 7-8 years ago, the pupils were much more in their little pupil-bubble, they worked with their textbooks, they worked with exactly what we worked with in the classroom and what the teachers provided and then it was very much dependent on what the teachers actually chose to tell, that became the pupils' reality. Now they take in anything all the time and that challenges the teacher also that they do that but I think it is positive because it makes them more aware of what is happening in society and with our environment. [19]

Respondent A also brought up the learning aspect of the use of ICT, but suggested, in the same comment, that it could also have the opposite effect:

> There you can get a lot of information (pause), about it, if you, like want to know more about how one could think, so definitely could it be a part of it. It can also be the other way around, that it becomes some kind of throw-away, like, that; we are constantly being fed with new digital tools and then

> there is ‘oh well, it's just six months old but it's totally out of date, that one we don't need anymore, now we need to buy a new one’. There is that notion as well but this is how it is in society in general, I think, with everything, it's not just ICT. To some extent is the world; or Sweden I should talk about or the Western world; that we are a bit in some; you should have many things and it should be; and that's not very sustainable, the very latest. [20]

Here there is a level of uncertainty. The modality is subjective and thus reflecting the thoughts of the respondent. There is a clear moment of crisis here, where there is first a silence during the reflection on how ICT could help, and then a sudden shift in focus, where the respondent is concerned about the potential problem of ICT. This demonstrates the tensions between different sustainability solutions and suggests that any effort for sustainability needs to be carefully assessed to avoid repercussions.

The equality discourse is also visible. One respondent connected the challenge of creating technology intensive and sustainable schools with the problem of equality between the schools. According to this respondent, some schools are able to afford to purchase the devices whilst others are not, which can cause inequality in society when some pupils have more opportunities than others (Respondent C).

The respondents use a language that suggests that they see their role as headmasters is important in the process of making conscious choices. They believe they have a special responsibility to continuously learn about current trends and events. This can be exemplified in the following statements: "I can always put focus on it; I can choose to elucidate certain things and say that this is the road we will take" (Respondent C).[21] "One has to; not stop the development, but make smart choices and offer smart alternatives so that the teachers do not drown" (Respondent A).[22] Their language use thus shows that they believe they have a certain amount of power and influence to ensure that ICT is used in a wise, sound and sustainable manner.

Although the role of the headmaster is seen as central for the creation of technology intensive and sustainable schools, the involvement of the pupils is also regarded as essential in order to achieve this goal. Here the citizenship discourse is again visible, since letting the pupils be involved, is argued to prepare them to become responsible citizens. When discussing the process of determining what equipment to buy, one respondent said that "there children will have to be like barometers" (Respondent A).[23] The same respondent also mentioned that the pupils are involved in routines of both making sure that the machines are being switched off and that they do not remain connected to their chargers when they are fully charged (Respondent A). The respondent connects this system with school prefects who enforce discipline that existed in former times, thus implying a kind of legitimacy of the practice. This strong emphasis on involving pupils in these efforts promotes a sense of responsibility.

As has been demonstrated, there are several moments of crisis here. The moments of crisis indicate that there are two discourses that are struggling against each other: the digital society discourse and a critical discourse through phrases like "consciousness" and "balance". On the one hand, the necessity and also the desirability of the digitalisation of schools are clearly communicated. On the other hand, serious concerns are expressed with regard to the constant purchasing and use of ICT devices. The role of the headmasters is highlighted, as is pupil influence through learning, citizenship and equality.

5.4 Social practices: a society based on technology fetishism and continued economic growth

The previous sections focused on the linguistic features of the text and the discursive practices. Here I elaborate on the findings by explaining the non-discursive social practices, with the help of the theoretical framework presented in chapter three. This discussion is based on the third dimension in Fairclough's three dimensional model. The concept of "order of discourse" that I introduced in chapter four, will guide the discussion. As noted, an order of discourse is all the discourses within a social domain or field, which in this case is ICT in compulsory school education in Lund

Municipality. Discourses of sustainability are both reproducing and transforming the order of discourse.

5.4.1 Summary of the discourses

With regards to the language used in justifications of the use of ICT, the EU document and the local strategy and interview transcripts are very similar, except that the hegemonic neoliberal economic discourse is more clearly visible in the EU document. The vocabulary used in the EU document includes substantially more words related to present day capitalism than do the local document and the interview transcripts. The digital society discourse is found both at the local and the EU level. The neoliberal economic discourse exists, however, in local texts on sustainability. A critical discourse on sustainability is present as well. Learning, citizenship and equality discourses are also found. In the statements on how to create technology intensive and sustainable schools, the digital society discourse is combined with a critical discourse; rather than decreasing the use of ICT, the respondents claim that they should strive to use it in a conscious and balanced way. The learning, citizenship and equality discourses are beginning to converge with this critical discourse.

The neoliberal economic and the digital society discourses are dominant and very much related to one another. The learning, citizenship and equality discourses are sub-discourses that offer additional perspectives on the topic. They are present in texts together with the dominant discourses, but these same sub-discourses can also contribute to the development of the critical discourse.

As I have shown, the neoliberal economic discourse is recognised through a very distinctive vocabulary and through modalities of certainty within statements related to the need of consumption. This discourse is contributing to the continuance of a system in which wealth in financial terms is regarded as the prime objective. Since this objective is currently only achieved through the degradation of natural capital, it

can be argued that it is not compatible with the pursuit of sustainability (Daly & Cobb 1989), i.e. the maintenance and enhancement of all the capitals presented in in sub-section 3.2.2.

Nowadays this neoliberal economic discourse is having implications for the practices in many organisations, including Swedish schools (Chouliaraki & Fairclough 1999, 133). Schools are focusing on teaching skills believed to be essential for the "global knowledge economy" (Facer 2011, 88), an economy driven, to a considerable extent, by the belief in technological innovation and the possibility of carrying out activities at a global scale, across all distances. Many times, however, the distances that raw material and devices travel and the time that it takes for people to produce the devices, are social relations that are largely ignored (Chouliaraki & Fairclough, 80). There are, therefore, clear links between the neoliberal and the digital society discourses.

The digital society discourse has been developing during the past few decades with the spread of ICT devices (Chouliaraki & Fairclough 1999). Phrases suggesting that ICT has changed how people live and work, can be connected to technology fetishism in the sense that it relates to the argument that the devices possess intrinsic powers to change society. Likewise, statements related to the urgent need of purchasing more devices simply because children are using them outside school, are also linked to the theory of technology fetishism. It is in the interest of local authorities, nations and international organisations to support the spread of ICT in education (Selwyn 2013). The texts are, therefore, to a large extent reproducing the order of discourse of ICT in compulsory school education in Lund Municipality. In sub-sections 5.4.2 and 5.4.3, I take a closer look at the social practices shaping and shaped by these two discourses.

The critical discourse identified shows, however, that the language found in the interview transcripts, is beginning to transform the order of discourse of ICT in education in Lund Municipality. This transformation process is challenging due to the

prominent position of the hegemonic discourses just described. It is, nonetheless, argued by the respondents that the schools can work for the maintenance and enhancement of all the different kinds of capital through making conscious decisions and emphasising the importance of a balance during the use of ICT. Although it is a great struggle, it is still my belief that this critical discourse can have positive implications for the work towards sustainability. Language can be spread and when best practices are shared, more and more people hear the language of those who carry out certain practices. In the case of the neoliberal economic discourse, language played a role in its development and incorporation into various organisations (Chouliaraki & Fairclough 1999, 4). The fact that people have previously adopted strategies to reach their goals, suggests that there is a possibility that this could happen again. In sub-section 5.4.4, I elaborate on the development towards such a critical approach to ICT in education.

5.4.2 Perceptions of the use of ICT in schools

The municipality and the schools are affected by the hegemonic neoliberal economic discourse where ideologies of the importance of growing production and consumption are maintained. We live in an age of consumerism, where both the relations of power and the distribution of resources are uneven (Hornborg 2001; Plumwood 2002). Teaching institutions are getting caught in the cycle of commercialism whereby ICT companies continuously engage in planned obsolescence. Schools are therefore becoming part of the wheel that drives the world economy.

One primary justification of the use of ICT is, as we have seen, that it can help pupils to learn the skills required to take part in the digital economy and contribute to further economic growth, through more production and consumption. Another justification found in the documents and stated by the respondents, is that the rest of society is already extremely digitalised. These justifications exist as a result of a taken for granted assumption that ICT plays an important role in economic growth, which is difficult to challenge. The digital world is driven by an extreme belief in the power of

technology to solve problems. Devices are developed by profit-making companies and praised by international organisations and governments to serve their economic and political interests (Selwyn 2013). They are introduced with tremendous hope of stimulating human prosperity, but in the process, decision-makers are often neglecting the fact that other, far greater problems are caused by this development (Bowers 2000).

The respondents stated that they see ICT devices simply as tools and that it is the users, in this case the headmasters, teachers and pupils, who determine their impact on school activities. The discourse analysis shows, however, that these technologies are not at all neutral tools, even though they may be perceived in this way. They are very much dependent on complex social and political processes. As mentioned earlier in this chapter, the Key Competences text draws on other EU texts, which discuss how to increase Europe's growth and competitiveness as a region (European Commission 2007). The investment in ICT in education is believed to lead to the development of skills required for the working environment, which in turn leads to more consumption and more growth, putting further pressure on the biophysical environment. At the local level, there is a clear acceptance and recognition of the importance of digitalising schools to reflect the development in the rest of society (Lund Municipality 2010, 2), demonstrating the reproduction of existing relations of power.

The digital society discourse originates from a society based upon technology fetishism. This may not be understood immediately from the direct statements of the respondents. These as well as the municipal policy document on ICT suggest that ICT is not seen as being able to save the world or education. According to the respondents, the devices are only tools that can help in the pursuit of these goals if they are used in a conscious and reflexive way.

The influence of fetishistic ideas on perceptions and decisions at the local level does, however, become evident when examining the language used when the respondents

talk about their relations with the wider society. The decision to invest in ICT has been taken independently of the consequences this may have for people and ecosystems in other parts of the world, which is indicative of a perceived divorce between society and nature. Respondents revealed the problem related to competition between schools regarding investment of ICT, with one respondent bringing up the issue of parents involvement encouraging ICT homogeneity throughout the educational system. These parents are clearly fetishizing technology, thinking that the latest will bring about big improvements in education and experiences that can benefit their children.

Technology fetishism can also be noticed in the language in the EU text, which connects technology with change. It states not only that it has already changed how people live, work and interact, but particularly that it will save education by bringing about efficiency, equality and success. The severe environmental and health effects caused by ICT development as well as the uneven distribution of these effects in the world demonstrate, however, that ICT products are embedded in social relations. Mass consumption with devastating environmental consequences and global inequality are continuing, with ICT being one of the contributors (Kostakis, Roos & Bauwens 2015).

5.4.3 Natural capital in relation to neoliberal capitalism

The spread of ICT devices in schools is part of a system of continuous exploitation of natural capital, often degrading this capital in parts of the world that do not benefit from human-made capital produced. This implies a clear gap between ICT and sustainability policies. The local document on ICT simply encourages consumption of a large number of devices, while the document on sustainability heralds the necessity of reducing consumption and ensuring that development in Lund does not affect ecosystems and people in other countries negatively.

The promotion of ICT in education is part of the neoliberal economic system. This very system is what is causing the environmental problems that are being described in the policy requiring immediate attention. The present model of capitalism is being maintained through the constant transformation of natural capital into capital produced by humans (Daly 1973). This system is upheld through consistent beliefs that nature is something that we can use and exploit in order for us to fulfil seemingly endless desires of ever increasing perceived prosperity and material wealth (Plumwood 2002). Although it is now widely recognised that the natural world has limits and that there is no infinite amount of natural capital (Meadows, Randers & Meadows 2004), the pursuit of higher levels of production and consumption is continuing.

This system is maintained as a result of unequal power relations. Power is here present through manufacture of consent (see sub-section 3.1.4). The fact that the neoliberal economic discourse is in a hegemonic position can be asserted in the texts that I analysed. The documents on ICT in education, particularly the EU document, are connected to this on-going pursuit of economic growth. Furthermore, in LundaEko II, "consuming less" is only briefly mentioned as a strategy for sustainability, while the biggest part of the text is dedicated to describing how to make consumption more environmentally friendly.

It became clear from the interviews with the headmasters that the school staff is not fully aware of what consequences the use of ICT has for the protection of natural capital. Not even the municipality can have full control over how it affects natural capital, which can be seen as a major problem for the creation of schools that are technology intensive and sustainable. As was stated in the background (see section 2.3), it is difficult to follow up environmental consequences of the production of a device, since so many companies are involved. Even the company that the municipality has direct contact with, may not always be operating in a just and ecologically sustainable manner. This means that the municipality is a consumer with little control over the providers.

Many computers and iPads, like the ones that are used for the one-to-one schemes, are replaced after three years. After three years, devices are, however, normally still fully functional, nevertheless replaced. This is happening for two main reasons. On the consumer side, it is the desire of parents and pupils to always have the latest, a sign of technology fetishism. On the supplier side, it is the need to make more money to keep the world economy rolling and increasing profitability.

As mentioned in section 2.1, Sweden as well as the EU in general are better at providing access to the devices than actually using them during lessons, demonstrating that hasty consumption of new devices may be taking place. At the local level, the consumption of new devices is rapidly increasing, contributing further to resource depletion and climate change (Rattle 2010). All of this shows that the possibilities for schools to become technology intensive and sustainable, depend a great deal on both the practices at the municipality and on the wider society. The fact that schools are part of a larger system, makes this a big obstacle. To use the words of Scott, a school is "an island in a sea of business as usual" (2013, 203), which is the case for the schools in this study.

5.4.4 The development of a critical approach to the use of ICT in schools

The language used by the respondents is already playing an important role in the process of critically assessing the use of ICT with the five capitals in mind, and it is my belief that this could have an even greater impact in the future. In this sub-section, I therefore want to show how focusing on the maintenance of these capitals, to some extent, can contribute to finding ways to transform and democratise the use of technology.

Most young people today use and enjoy ICT outside of school and I do not argue here that the use of ICT in schools should be discouraged. Rather, I argue that it

must be critically assessed based on an awareness of problems related to fetishistic ideals, and in relation to the five capitals model of sustainability.

It is clear from the interviews that the headmasters acknowledge both opportunities and problems with the use of ICT, suggesting it can lead to both the enhancement and decline of different forms of capital. This implies that a critical reflection is essential on how manufactured capital affects other capitals both positively and negatively, principles of which schools have already set in motion.

As I will demonstrate in this sub-section, the schools have power to make their use of ICT more sustainable and thus achieve social change. The development of human capital, such as skills and knowledge of individuals, is seen as the primary objective of the schools. Since digital technology is used daily by children outside of school, the school may only be able to partially achieve their objective of being a place where human capital can be maintained without access to ICT. If everyone at the surveyed schools can learn about connections between ICT use and sustainability, this could strengthen human as well as natural capital. However, learning through ICT cannot be seen as the only form of learning, since, as one respondent argued, learning about the world also requires being outside and experiencing it with one's own senses.

As described in sub-section 3.2.2, human capital also includes the health and well-being of individuals, importance of which the respondents recognised. Discussions are taking place at most schools regarding how ICT use could negatively affect pupils' health and constitutes an on-going learning process.

ICT is argued to have the potential to greatly enhance social capital since it enables communication and cooperation by, for example, reaching out to the local community and sharing ideas and practices with schools anywhere in the world. It can help everyone at the school gain a deeper understanding about conditions elsewhere in

the world, including how communities struggle as a result of climate change, or how people live within nature's limits. Through an increased understanding of how the life cycle of ICT devices affects people and ecosystems, schools can develop shared values, such as the aim for reduced consumption. In this way, a sense of global citizenship can evolve. The headmasters also stressed the importance of encouraging physical relationships through play and cooperation, an aspect regarded vital in order to maintain social capital.

As has been described throughout this thesis, the production, use and disposal of ICT devices are causing the decline of natural capital. This is where cooperation is crucial, thereby minimising negative environmental effects. Issues discussed by the procurement official, include lack of resources to set higher environmental requirements and lack of awareness within schools about the environmental effects of the use of ICT. A strong willingness to work to make the use of ICT more sustainable was, nonetheless, clearly expressed.

Several respondents expressed that they aim to use the devices for as long as possible, which means that fewer devices are being purchased, thus reducing the negative environmental impact of devices. The fact that reuse of computers is currently implemented is a positive step towards sustainability, thus reducing the need to produce new devices that would require a great deal of energy and resources. Since a new computer cannot be produced from recycled materials alone, recycling should be the last option and only carried out when the computers cannot possibly be used any longer. It is also worth noting that an increased use of computers equates to a reduction of old fashioned paper filing systems, a matter which is presented being discussed within many of the surveyed schools. Although the respondents stated that reduced paper consumption is their goal, it is clear that more knowledge on this matter needs to be acquired to avoid the problem related to the paperless office paradox discussed in section 1.3. The continuous spread of knowledge concerning this issue is only possible by involving the schools and teaching pupils about the relation between sustainability and ICT. Griggs et al. (2014) confirm the necessity of involving different sectors when working for sustainability.

The long term goal formulated in the local ICT strategy is that all pupils irrespective of age should have access to their own device, although some respondents stated that they were currently satisfied with the present system of sharing devices for the lower grades. These disparities confirm the need of cooperation to reach more informed decisions regarding consumption. At the same time, the respondents suggested that learning through ICT could actually strengthen a sense of responsibility and help pupils become ecologically conscious citizens thinking and acting sustainably. In that sense, the use of ICT could lead to enhanced human, social and natural capital simultaneously.

Needless to say, financial capital is required to purchase the products. As one respondent pointed out, inequality arises if not all schools are able to give their pupils the same opportunities. For this reason, I argue that it may be necessary to focus on equality rather than quantity, to make sure that all pupils within a given area are provided with the same amount of devices and the same opportunities to learn about the environment through ICT.

As can be seen, the ideologies of continued mass consumption prevail; which are upheld via unequal power relations, thus resulting in their hegemony. My conclusion is, nonetheless, that headmasters, teachers and pupils at the schools, as well as other municipal employees, have power to resist such ideologies and alternate discourses through their critical reflection on the use of ICT, which can be achieved through the promotion of learning, citizenship and equality.

In policy documents on ICT in education, ICT is argued to help achieve more effective learning. Furthermore, having skills in ICT is argued to be essential to become good citizens. Finally, it is also stated that the promotion of ICT in education can bring about equality by making education more accessible. These same concepts of learning, citizenship and equality can however, also be applied when

taking a critical approach to the use of ICT in schools. This can be done through learning about the positive and negative aspects of ICT use for the health of the planet and its inhabitants, through developing a sense of global citizenship and through the realisation of the necessity to focus on equality rather than quantity when purchasing new products.

6. Conclusion

In the introductory chapter, I stated that the overall objective of the thesis was to investigate how employees within the education sector in Lund Municipality, perceive the sustainability implications of the increasing trend of using ICT in schools. To do this, I focused on three sub-questions.

First, I asked how the use of ICT in schools is justified and interpreted by the European Union and people within the education sector in Lund Municipality. The discourse analysis showed that the language used by the European Union had a considerable impact on perceptions at the local level. The use of ICT is justified primarily by relating to the necessity of preparing pupils for this digital age. These digitalisation efforts are, as we have seen, partly responsible for a broad mission to create further growth and competitiveness. The use of ICT in schools is interpreted as something unavoidable, but mainly as a positive development.

Then, I asked how the concept of sustainability is employed, explicitly or implicitly, by people within the education sector in Lund Municipality. The view of the municipality on sustainability is characterised by the belief in continuing human development whilst protecting the environment. The ecological dimension of sustainability is seen as foundational for well-being. It was perceived by the respondents that schools can contribute to sustainability mainly through learning, but also through daily practices.

Finally, I asked people within the education sector in Lund Municipality about their perceptions regarding the possibility of creating schools that are both technology intensive and sustainable simultaneously. As the results show, the language used indicates the unanimous argument that achieving these two objectives simultaneously is possible, necessary and desirable. Whilst ICT development is part of our present consumer culture and world economy which, as I have shown, are not sustainable, ICT is currently used daily by young people, demonstrating the need to make efforts to transform and democratise the use of technology in schools.

This thesis has contributed to a deeper understanding of how discourse both enables and constrains local actions to make the use of ICT more sustainable. As has been made clear in this thesis, the creation of technology intensive and sustainable schools can only be accomplished through a high level of collaboration within the community. One suggestion for moving forward is for schools to develop a strong cooperation with environmental strategists within the municipality in order to ensure that holistic awareness around the sustainability consequences of ICT use increases at the schools. Other suggestions to consider are to prepare for stricter environmental requirements and incorporate the use of ICT in municipal policy documents on sustainability.

As we have seen, the main goal of education within the EU seems to be to support the "global knowledge economy" and the use of ICT is therefore expected to contribute to this goal. In this thesis, I have argued, however, that investments in human-made capitals has so far happened largely as a result of fetishistic ideals related to technology and a continuous degradation of natural capital. The enhancement of natural capital now and in the future, in Lund and throughout the world, can only be achieved if all municipal employees within the education sector create opportunities for pupils to reflect on how their use of ICT affects the biophysical environment. As Bowers (2000) points out, this also requires an understanding of how ICT is embedded in a Western-initiated culture of consumption and overexploitation of resources that affects societies and ecosystems in other parts

of the world. If pupils develop this knowledge, they will later have power and be able to create their own ideologies concerning ICT and sustainability.

Enabling today's pupils to be involved in discussions concerning technology and sustainability, will increase the likelihood of them acting responsibly in relation to social and environmental well-being when they become parents. I have demonstrated that learning, citizenship and equality discourses appearing in texts together with neoliberal economic and digital society discourses, can just as well be used to develop a critical discourse of ICT in education connected to the pursuit of well-being of the planet and its inhabitants.

The juncture of sustainability and ICT use in schools is an underexplored field, and a great deal of research needs to be conducted to better understand how technology intensive and sustainable schools can be created and maintained. An interesting question to investigate would be how this can be achieved through critical thinking and pupil influence. It is also important to carry out studies in many different locations and types of schools to gain a better appreciation of how the use of technology is perceived in relation to sustainability in diverse educational contexts. In some non-Western societies and also in some communities within the Western world, the perceptions of consumption and resource use may be different from those found within Lund Municipality. Research studies on this topic in other educational contexts, such as a private school in Sweden or a public school in a village in Asia, could give valuable insights for the pursuit of global sustainability.

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8. Appendices

Appendix I: Interview guides

Here I present the interview guides used during the interviews with the procurement official and with the five headmasters.

Interview questions for the procurement official

1) What does the procurement process look like?
2) What environmental requirements do you set during procurement of computers and iPads?
3) What ethical requirements do you set during procurement of computers and iPads?
4) What are the effects of your work as a result of the application of the environmental and ethical requirements?
5) What problems can arise when discussing with the providers the fulfilment of the requirements?
6) What do you think are the biggest obstacles with carrying out a sustainable procurement?

Interview questions for the headmasters

Introductory questions

These are not intended to answer the research questions. These general questions are mild in nature and designed to allow the respondent to gain traction into the interview.

1) How long have you been working as a headmaster at this school?
2) How many pupils are attending this school?
3) How many teachers are working at this school?

Main semi-structured interview questions

1) How do you work with ICT in the school?
2) How do you think that the use of ICT affects the work of the school?
3) How are you currently working with sustainability issues at this school?
4) What do you think characterises a sustainable school?
5) What are your thoughts concerning opportunities and problems of using ICT in your school from:
    i. an environmental perspective?
    ii. a health perspective?
    iii. a social perspective?
6) How is your work with ICT affected by policies at different levels?
7) Do you think that the use of ICT can help pupils to think and act more sustainably? If so, in what way? If no, why not?
8) Do you think that it is possible to develop a school that is both technology intensive and sustainable? If yes, how do you think this could be achieved?
9) What do you think are the obstacles with creating technology intensive and sustainable schools?

Structured questions regarding the use of ICT in the schools

1) How many pupils per computer/iPad are there in this school?
2) Do you have plans to increase the number of devices in the future? If yes, what is your motivation for this? If no, why not?
3) How often do you replace devices?
4) What do you do with old devices, where do they go?
5) Do you have routines in place to make sure that the machines are being switched off when they are not in use?

Appendix II: Original quotes

What follows is a list of the original Swedish quotes. A number is placed before each quote, which corresponds to the same number found in the text in superscripted form. This enables the reader to identify the English translations that relates to that particular Swedish quote.

[1] "Ett problem med spjutspetskrav är att många gånger blir marknaden/utbudet oerhört liten om vi går upp på spjutspetskrav."

[2] "Man kan säga att en PC har 1000 komponenter och 500 fabriker, så det är ganska utmanande att ställa och framför allt följa upp CSR-krav. Vi kan inte sätta krav idag på leverantören att de ska veta allt det här för det går inte. Vi får inte ställa krav som inte vi kan kontrollera och vi kan inte kontrollera att det inte är någon av de 500 fabrikerna som inte riktigt följer te x ILO, så vår målsättning är att jobba framåt mot att det ska bli bättre för alla inblandade i kedjan av framtagandet av en PC."

[3] "Dem hänvisar vi ofta till att vi måste jobba på detta sättet."

[4] "Det att de har en dator var har ju gjort att det har blivit liksom ett jättekliv in i den digitala världen."

[5] "Det blir en större variation för eleverna och på det sättet så tror jag faktiskt att de kommer vara betydligt mer förberedda när de kommer ut i vuxenlivet."

[6] "vi försöker se det som ett redskap som många andra. Vi ser inte IKT som någonting som frälser vår undervisning eller världen."

[7] "Säg att din dator drar si och så mycket ström och så hittar du en dator som drar mycket mindre ström och tänker: gud vad bra! Men för att den ska kunna betala tillbaka sig i kretsloppet tar det 60 år, så var är det du har sparat någonstans? Här i Lunds kommun sparar vi på strömmen men det gick åt rätt mycket naturresurser i resten av världen för att du skulle spara ström. Vad är hållbart?"

[8] "Sen har vi också en hållbar ekonomi, vi vill ju inte sluta handla, för då stannar ju vår ekonomi. Då kanske det är återanvändning av datorer som är viktigare."

[9] "Det är viktiga frågor i Lund och det är det för förskolor och skolor också."

[10] "är det det hållbara lärandet du tänker på eller är det hållbar miljö du tänker på?"

[11] "det är skolans huvuduppdrag."

[12] "Jag ser ingen konflikt i det utan jag ser det bara som en av alla de utmaningarna vi har att lösa i vårt moderna samhälle och jag tycker att vi är på god väg."

[13] "Det är ju ett ansvar som vi människor har om vi vill använda så mycket elektroniska produkter, men (paus) jag tror att vi måste bara lära oss och göra detta, hade vi inte haft dem så hade vi haft någonting annat som förstörde miljön."

[14] "På sikt tror jag att det kommer att betyda något för pappersanvändandet och rätt rejält när vi har de här verktygen som ju barn och ungdomar har rätt mycket liksom i sin kropp nästan, när också vi vuxna i den äldre generationen anpassar oss till det. Det tar lite längre tid. Men sen tänker jag på när det gäller problem och så så, (paus), när man tidigare hade läromedel, vanliga liksom läroböcker, så var det ju en perioditet utav 3-4 år som man var tvungen till att byta ut läromedlet, de slets så mycket och då hade man X antal böcker och de kontinuerligt och så förnyades, men våra digitala verktyg måste ju också förnyas och de är ju i princip slut efter tre år, inte helt och fullt men de är rätt så ute."

[15] "Jag tror att man måste göra smarta val och att man måste tänka efter, vad behöver vi, ja som jag sa innan att man inte liksom måste köpa hela konceptet när det kommer nya saker utan att man verkligen tänker att, vi är en skola, vi ska lära barn saker som finns och de ska få verktyg och att; då måste vi liksom ha ett smörgåsbord av det, och då kan man inte ha allt liksom av en sak eller två."

[16] "Så är det inte, tycker jag och det tycker inte vi som jobbar här utan det är en del av en större helhet."

[17] "En utmaning kan ju bli då att man tänker att tekniken frälser just det och tänker att jag har en hel värld framför mig i den här skärmen och kan ta mig hur långt som helst."

[18] "Samtidigt är det ju otroligt viktigt att; våra elever ska ju ut i en digital tät värld när de lämnar oss så de måste vara förberedda på alla sätt och vis, det är vår skyldighet kan jag tycka"

[19] "Jag tycker att, om man jämför för 7-8 år sedan, så var eleverna mycket mer i sin lilla elevbubbla, de jobbade med sina läroböcker, de jobbade med precis det som vi

jobbade med i klassrummet och det som läraren levererade och då blev det mycket beroende på vad läraren faktiskt valde att säga, så blev elevernas verklighet. Nu så tar de in allt möjligt hela tiden och det utmanar läraren också att de gör det men jag tror det är positivt för det gör att eleverna är medvetna om vad som händer i samhället och vad som händer med vår miljö."

[20] "Där kan du få mycket information (paus), om det, om du liksom vill veta mer om hur man kan tänka, så absolut kan det vara en del av det. Det kan också vara tvärtom, att det blir någon slags slit och släng, liksom att vi hela tiden matas med nya digitala verktyg och så är den "äh den är bara sex månader men den är helt ute, den behöver vi inte mer, nu måste vi köpa en ny", det finns ju liksom det begreppet också men så är det ju lite i samhällsbilden tänker jag, med allt, det är inte bara IKT, litegrann är värld... eller Sverige får jag väl prata om eller västvärlden, att vi är lite i någon; man ska ha mycket saker och det ska vara, och det är inte särskilt hållbart, det allra senaste."

[21] "Jag kan ju lägga fokus på det såklart, jag kan ju välja att belysa vissa saker och säga att denna vägen ska vi gå."

[22] "man måste; inte bromsa utvecklingen men göra smarta val, och erbjuda smarta alternativ så att man; så att inte pedagogerna drunknar."

[23] "Där får ju barnen också vara liksom barometrar."