Simple answers for complex problems: education and ICT in Finnish information society strategies

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Following the information and communication technology (ICT) revolution, governments around the world have formulated strategies to meet the challenges proposed by the ubiquitous globalization and information society discourse. Education has been the focai point of information society strategies for two reasons. First, strategies have touted the use of ICT in enhancing education. Second, education is seen as a way to move nations into the information age.

Finland, alongside other Nordic countries, has been soaring high in the international ranking lists measuring different aspects of information society development (see e.g. World Economic Fórum, 2005, 2006, 2007). Finland can be seen as a candidate for being a genuine information society. Furthermore, Finland's recent success in the PISA survey (the Organization for Economic Cooperation and Development [OECD]'s Programme for International Student Assessment) might suggest, if not causality, at least a correlation between information society development, education and the good PISA results.

In this article Finnish strategy papers from 1999 to 2004 are analysed from three perspectives: first, what are the premisses the strategies are based on, and how are these premisses defined? Moving on from premisses, the role of education in the information society and its implications for educational policy are then analysed. Finally, there is a consideration of how well the implementation plans derived from the premisses are justified. It is then argued that the action programme based on deficicntly defined premisses leads to ICT being seen as a simple answer to complex societal and educational problems. Further, political discourse is challenged by diverging interpretations of the information society. By providing a cross-section - from wide-ranging strategies to more specific information society strategies and their implementation - the internationally recurrent themes of the Finnish strategies are discussed as an example of a larger phenomenon in the field of educational policy that, although evolving, does not show any signs of fading away.

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ICT and education

Until the 1980s educational computing was seen as familiarizing children with technology as well as coaching them for their future jobs. According to Selwyn (2002), by the end of the decade governments, quickly followed by the ICT industry, had changed the rhetoric to presenting the computer as an inherently 'educational machine' to improve education. This was an effective marketing device to convince teachers and parents alike. Nowadays, after this narrative has been repeated for decades, very few even dare to question whether there is any truth behind it. Once the 'myth of the educational machine' had been established, both the ICT industry and politicians were quick to capitalize on it, for, just as it created a huge market for computers, it also gave credibility to the educational programmes of politicians running for office (e.g. Cuban, 2001: 13; Facer et al., 2001; Selwyn, 2002). Later, globalization and information society discourses were used to reinforce the sense of the necessity and urgency of implementing ICT into education. Coupled with the presumed linkage between ICT, the information society, globalization and with the 'risk of being Ieft behind' mantra, the globalization discourse has been used to market ICT in education and society as a whole (Clegg et al., 2003; Facer et al., 2001; Goodwin and Spittle, 2002; Selwyn, 2002, 2003).

The widespread consensus on globalization as an inevitable fact has granted it the status of a powerful premiss in any field of policy-making, even though at the same time it is represented as diminishing the sovereignty of the nation states (Brown, 1999; Golding, 2000; Goodwin and Spittle, 2002; Selwyn and Brown, 2000). Accordingly, Clegg et al. (2003: 40) note that globalization is too broad, vague and disputable a concept (see also Brown, 1999) to be used as a premiss for education policy:

> If we are to understand the impact of technologies on pedagogy we need to take account of these local conditions and the range of possible responses to particular pressures, rather than rely on over-deterministic accounts of global tendencies.

Further, although information society theorists, such as Manuel Castells, differentiate between ICT and information (Castells, 2000), in political discourse these two frequently merge with each other and with concepts of the information society and globalization. The transition to the information society is considered to be a profound change, on a par with the Industrial Revolution, affecting every aspect of human li Fe and society (cf. Garnham, 2000; Golding, 2000; Goodwin and Spittle, 2002), but its definitions in the discourse are limited to ambiguous references to knowledge being at the centre of the economy, knowledge as the new capital and as the most important factor in produetion. This has created a tangled web of premisses, albeit a widely accepted one, to which governments have responded by issuing information society strategies without distinguishing data from information, information from ICT, ICT from knowledge, or any of these from globalization and the information society.

Garnham (2000) argues that the information society is better understood as an ideology, not as a concept or a theory that illuminates the surrounding society and its change. Neglecting the similarity between the present and the earlier 'techno crazes', the information society and ICT revolution are heralded in public discourses as unprecedented societal changes and have thus been used to promote a vast number of initiatives and reforms, including ICT in education or digital television (e.g. Cuban, 2000: 14; Goodwin and Spittle, 2002; Selwyn and Gorard, 2003; Selwyn et al., 2001b; Servaes, 2002).

Promoting ICT and the information society narrative in education

Despite the considerable effort and resources put into educational computing, there is still a lack of evidence that it enhances educational standards (Cox and Abbot, 2004; Cox and Webb, 2004; Cuban, 2001; Selwyn, 2002). Far from being put off by this lack of evidence, politicians, the ICT industry and educational reformers have diverted attention to teachers, often seen as the major hindrance in implementing ICT in schools (Selwyn et al., 2001a). There's always a demand for 'just one more push' (Garnham, 2000:148) that is needed to finally realize the benefits of educational computing, while those who remain sceptical, or even unconvinced, are easily labelled as Luddites (Bryson and de Castell, 1998). As Cuban observes:

> Both administrators and teachers were criticized for failing to take advantage of powerful technologies that would, promoters claimed, greatly enhance both teaching and learning. Thus the cycle of high expectations, acquisition of new machines, and actual use of the technologies ended up with disappointment and recriminations among reformers. (2001: 139)

Thus, it has become crucial for the ICT industry and for the advocates of educational computing to 'sell' ICT, as well as the whole information society ideology, to teachers (Selwyn, 1999a, 2002; Selwyn et al., 2001a). Selwyn et al. (2001a) identified four, often conflicting, marketing strategies aimed at teachers: ICT as problematic or as a problem solver for teachers, and ICT as a futuristic or a traditional form of education. While the marketing strategies were contradictory, and often inconsistent with the information society narrative, the underlying, consistent theme in the advertising was that of disempowering teachers, which could well have implications on how teachers view their role in a classroom filled with computers.

According to Selwyn (2003), the discursive construction of 'the child computer user' has various functions, both in the commercial marketing of ICT and in the justification of educational policy. The most obvious function is to convince parents that, in order to prepare their children for the information age, they need to provide the tools (ICT) for them. Yet often 'the child computer user' serves as a role model for (non-computer-using) adults. Selwyn argues that:

> |T]he notion of the child computer user, is to a large degree, merely a means of persuasion and promotion on the part of the key commercial and political guiding interests of the information age. (2003: 374)

Given that, it's no surprise that the bulk of ICT advertising presents a techno-fricndly child effortlessly grasping the new technology, superseding adults in ICT skills and knowledge, while their astonished parents and teachers sit by. This discourse contrasts with a dystopian view of a child as a victimized, needy or even dangerous computer user. Following the determinism and the opportunity/threat feature of the whole information society discourse, this alarmist view is a cry for adult action (Selwyn, 2003). Still, when selling computers as educational machines or artefacts, one of the most powerful rhetorical devices has been the construction of the child as a future worker or competitor (Facer et al., 2001). Parents and teachers alike are obligated to give their children the ICT skills that are needed in the information society. However, even Castells, one of the most prominent information society theorists, considers the production of goods to be the most important source of economic growth (2000: 238) and, although he emphasizes the importance of information in the economy, he also remarks that 'it does not follow that most jobs are or will be in information processing' (2000: 226). This has been widely overlooked in educational discourses which always demand more and higher (ICT) skills for the workers/citizens of the information society (e.g. Cuban, 2001; Garnham, 2000; Selwyn et al., 2001b).

Following these deterministic discourses of globalization, the information society and the economic competitiveness of an individual, there has also been a redefining of 'the citizen' and 'the worker'. Although these redefinitions are more or less characterized by the demand for re-skilling people as a workforce, there has also been an emphasis on the needs and rights of the citizens. On closer scrutiny it becomes apparent that the citizen, too, is defined through economic and technological determinism, as the rights and needs of citizens are related to those of the consumer (Goodwin and Spittle, 2002). Similarly, on the societal level the public discourse about the information society has mainly trotted out Utopian views regarding economic growth, inclusive global virtual communities and more democratic, egalitarian societies, though the change has also been portrayed as a threat. Primarily concerning economic competitiveness, this threat has been used as a rhetorical device to further different initiatives, ranging from developing technological infrastructure to remoulding educational aims and institutions (Goodwin and Spittle, 2002; Selwyn and Brown, 2000), the most common refrain being: 'Threats can be avoided, and opportunities taken, but only if we act now' (Goodwin and Spittle, 2002: 234).

In addition, by trumpeting ICT as a 'technical fix par excellence', discourses have been saturated by the view that technology is the only way to keep education up to date and relevant, thus leading to better results in teaching and learning (Selwyn et al., 2001b). ICT is also heralded as a way to offer education 'any time, anywhere', thus fostering life-long learning and widening participation, despite the fact that there is little, if any, evidence to support this proposition

(Gorard et al., 2003). By bringing up educational and social issues such as the digital divide, life-long learning and widening participation in society, a policy originally driven by market determinism has been justified within the information society narrative by an educational and social agenda (Selwyn et al., 2001b).

It is the overall determinism recurring throughout the information society discourse, and the lack of alternatives given, that should be brought under a close scrutiny. Educationalists should not just stand back in the face of a political discourse that is driven by more economic than educational concerns; and, while the concepts of information society and globalization leave little to argue about, being as vaguely defined as they are, it should not follow that every initiative put forward under the umbrella of these premisses should be uncritically embraced.

Methodology: critical reading of information society strategies

Although discourse analysis per se is not utilized in this study, the analytical viewpoint draws from the traditions of both social constructionism and critical discourse analysis. Language and discourse is seen as a representation of reality, but also as a form of social practice to shape social reality. By gaining hegemony over competing discourses, a dominant discourse limits the premisses, discursive themes, vocabulary and conclusions of the discourse, thus contributing to the forming of the reality and meaning in society (e.g. Fairclough, 1992). Following the footsteps of Norman Fairclough, Goodwin and Spittle (2002: 229) note, on the dialectical relationship between discourse and social structure:

> [D] iscourse is shaped and constrained by social structure (i.e. by class, by norms and conventions, by systems of classifications and by institutions) as well as being socially constitutive. Discourse does not merely emanate from a free play of ideas in the minds of its participants, but is firmly rooted in, and oriented to, real material structures.

Having thus set an approach for the critical close reading of the data, the data was collected by going through a large number of governmental policy and strategy documents issued between 1995 and 2005. All documents analysed are available online in English, making it possible to verify or re-evaluate the validity of the analysis presented here.

Since the main theme of this study was education, it was natural to use strategics published by the Ministry of Education (MoE) in order to find the dominant themes and discourses concerning education. The MoE is probably the most influential institution in the education field in Finland, because it allocates funds to both public and private organizations as well as preparing legislation and policy strategies for the administration. Another guideline for choosing the documents was a paper filed for OECD's International Schooling for Tomorrow forum (see OECD, 2004), which lists, both long-term and short-term, key strategy papers of the MoE. The documents listed address the paramount strategic areas and goals of the MoE.

Out of the six documents chosen, three were wide-ranging, long-term strategies that set the premisses and values for planning of education in the MoE.

Ministry of Education Strategy 2015 (Ministry of Education, 2003)
Education and Research 1999-2004: Development Plan (Ministry of Education, 2000)
Education and Research 2003-2008: Development Plan (Ministry of the Education, 2004a)

These three strategies were complemented with a report written by one of Finland's leading researcher and philosophers of the information society, Pekka Himanen: *Valittava, kannustava ja luova Suomi. Katsaus tietoyhteiskuntamme syviin haasteisiin* [Challenges of the Global Information Society] (2004). The rationale for choosing this document was that it was widely discussed in the Finnish mainstream media, thus contributing substantially to the ongoing information society discourse.

Furthermore, to get to the focal point of the study, that is, education and technology, more specific strategy papers by the MoE were chosen for scrutiny. The MoE published its first development plan for education and research in 1995. Although studying the trajectories leading to the current discourse would be interesting (see Sclwyn, 2002), it was left out of the data, in order to get a more contemporary view on the subject. This decision was considered to be justified because of the rapid evolution of information technology. Instead, two more current strategy papers were chosen:

Education, Training and Research in the Information Society: National Strategy 2000-2004 (Ministry of Education, 1999)
Information Society Programme for Education, Training and Research 2004-2006 (Ministry of Education, 2004b)

Thus, the data covers the five-year period between 1999 and 2004, which presumably was also the heyday of information society planning all over the world due to the earlier advances in ICT.

Further data reduction took place in excluding the chapters and segments that discussed development plans for research institutes or universities, unless they were directly addressing teacher training or some research project on use of ICT in comprehensive schools.

Although some discursive themes (such as equality and the digital divide) were found based on the preceding research on the subject and on the annotations made during the initial reading of the documents, the main themes were drawn from the structure and emphases of the documents so as to ensure that no key policies were over-ridden or minor details overemphasized. Using headings, text structure and the text itself (finding definitions of the key elements in policies etc.) three dominant themes were identified as a framework

for the analysis: (1) globalization and the information society as premisses of the strategies, (2) education in the information society, (3) action programme based on the aforementioned. The data was then re-structured by collecting all references to each theme (1 -3) into the same text file for analysis and comparison. This was done to develop an overview of the themes and to find the most representative definitions and statements.

Documents were analysed employing the above-mentioned analytical framework starting from the more wide-ranging, long-term, strategy papers. This was done to build up a setting for more detailed scrutiny of the subject, as well as in order to identify and study the premisses of the whole discourse. After examining the premisses, analysis was focused on the more specific, short-term strategy papers dealing with education, technology and the information society.

Defining the Finnish information society: following the herd or leading the way?

The Finnish information society strategies now under scrutiny offer little that is new to the international discussion that was raging at the beginning of the millennium all over the world and to some extent still is. All four wide-ranging strategy papers present globalization as an unquestionable, external force that sets the premiss for both the information society and education. Linked with economic competitiveness and often strengthened with the urge to 'act now', this powerful rhetoric has gained unchallenged hegemony not only in Finland, but all over the world (Brown, 1999; Clegg et al., 2003; Selwyn and Brown, 2000).

> [T]he fluctuations of the world economy and the effects of competition in the world market are increasingly felt in Finland. The role of research, innovation, product development, and specialised world-class knowledge and know-how is growing as a component of global competitiveness. (Ministry of Education, 2003)[1]

> The process of European integration will bring Finland ever closer into the international economic and political community. *Globalisation has a significant impact on education and research.* (Ministry of Education, 2000, italics added)

The causality between globalization and education policy is explained by presenting globalization as a catalyst for social change that leads to the information society and thereby presupposes the education policy implemented. This argument is further strengthened in the documents with dubious notions of labour mobility (cf. Castells, 2000: 247-55) and competitiveness.

Three of the wide-ranging strategy papers repeat the popular, yet equally vague, information society discourse by stating that, in the information society, knowledge is at the centre of the economy and society:

> Knowledge and know-how form the basis of economic competitiveness and the welfare of society as a whole. Finland's success is based on high-standard education and research, innovative know-how and the utilisation of modern information and communications technology (ICT). (Ministry of Education, 2000)

Education and Research 2003-2008 (Ministry of Education, 2004a) makes an interesting exception. First, there is no distinct definition of the information society. It is presented as a self-explanatory fact. Second, it names labor and capital as the major production factors. This discrepancy is even more evident in the Finnish version, where word *'keskeinen* (which translates as 'essential') is used. Thus, it can be questioned whether this definition of the information society is consistent and coherent enough, and thus a valid premiss for education policy.

Strategies emphasize the instrumental value of knowledge and are dominated by economic and technological determinism. This reduces the information society to a mainly economic concept. However, some of the strategies provide shades of a more human approach. In his report Himanen (2004) underlines the need for creativity and interaction in every branch of society, and notes that it is not the technology by itself that is the essence of the information society, but the interactive work process. Although the novelty of the 'creativity rhetoric' is quickly wearing off, Himanen's definition of information society differs refreshingly from the aforementioned, since it does not imply that using ICT is the source and goal of the development, and it does not divide occupations into information-rich and -poor occupations, but claims that knowledge, innovation and creativity should be part of all work and occupations. Himanen's information society vision might be as vague and incoherent as the ones mentioned earlier, but at least it leaves other options for education than desperately trying to keep up with each 'technological revolution'.

Apart from referring to knowledge as the key factor in production and society, the Ministry of Education's more specific information society strategies leave the key concept, the information society, undefined. This ambiguity is also characteristic in discourses around the globe (Garnham, 2000; Goodwin and Spittle, 2002; Peters, 2001; Servaes, 2002) and it is never really explained, what this 'knowledge as the single most important production factor' -refrain means (Henten and Kristensen, 2000). The vagueness of the discourse is particularly obvious when strategies address the concepts of information and knowledge. The documents do not differentiate between data, information and knowledge. ICT is viewed repeatedly as capable of creating and mediating not only information, but also knowledge. Thus, it is not the knowledge, but the technology (ICT), that becomes the defining, and most important, factor in society.

> [The] Information Society Programme [is] geared to boost competitiveness and productivity and to promote social and regional equality and citizens' well-being and quality of life through effective utilisation of ICT in all sectors of society. (Ministry of Education, 2004b: 9)

Here, the effective utilization of ICT, not information or knowledge, is the key for social equality and citizens' well-being and quality of life. Furthermore, the technological determinism so apparent in the strategies is reinforced by valuing information only if it is in digital format, and by claiming that it is the technology that presupposes change in the organizations or institutions. In

brief, the information society becomes a society where citizens have better access to digital information and where ICT is used in all sectors of society.

It should be noted that instead of 'information society', the Finnish government has been using the term *'tietoyhteiskuntd* (which translates as 'knowledge-society') since 2000 in its strategies written in Finnish, while the term 'information society' is used in English translations. The emphasis on the new term, knowledge-society, is even clearer in the newest knowledge-society strategy for the years 2007-15. Whether the shift towards the term 'knowledge-society' indicates a shift in policy-making as well remains to be seen.

The role of education in Finnish information society strategies

One of the most pervasive themes in the information society discourse has been the ever growing 'competence requirements' of the emerging information age. Naturally, education plays the key role in facing this challenge.

> To meet the increasing knowledge and skills requirements of the information society, learning environments will be developed to improve the quality of learning. (Ministry of Education, 1999)

'The skills shortage is a myth' (Garnham, 2000: 148), but it will not pass without affecting education, although there's an ongoing debate over whether skills requirements are increasing and what kind of skills are needed in the future (Castells, 2000: 232-7; Garnham, 2000, Selwyn and Gorard, 2003). Still, the Ministry of Education's strategies deliver the increasing know-how and skills requirements as indisputable facts, thus conforming to the deterministic discourse of the information society and globalization. The implications for education are evident in the action plans; since ICT is seen as almost synonymous with knowledge, the skills and know-how needed in the information society are ICT skills. Yet, again, it is not knowledge but ICT that is the most important factor in society. Even the much demanded skills and know-how are reduced to ICT skills.

Equality is another recurrent theme throughout strategies, stressing the importance of 'Securing educational and cultural equality' (Ministry of Education, 2003: 7). In the information society strategies, the problem of social exclusion is simplified to the haves/have-nots dichotomy of digital divide discourse (Selwyn, 2004).

> In order to achieve the objectives of lifelong learning and an information society based on civic equality, an extensive programme has been launched to familiarise citizens with new ways of the information society, and to improve media literacy, and information and communication technology skills of citizens. (Ministry of Education, 1999)

Providing citizens with ICT skills and making ICT more accessible are seen as plausible ways to alleviate the complex problems of social exclusion and

equality. This approach does not take account of complicated social and economical factors such as socio-economic status, educational background, gender and age, which arguably have a bigger impact on the above-mentioned problems, as well as having an impact on how people use ICT (Selwyn and Gorard, 2003).

> [T]he continuing rhetorical appeal of the digital divide lies in its neat packaging of complex social issues in a form of social exclusion that governments can be seen to do something ahout, unlike more longstanding and fundamental 'non-digital' divides. (Selwyn, 2004: 357)

For example, libraries and civic organizations are regarded to 'play a key role' in providing learning opportunities for people outside education and employment. It is debatable whether internet access in a public library is really a relevant means to support life-long learning and participation in society. Further, access to technology does not automatically lead to 'meaningful use of ICT' in terms of education (Selwyn, 2004). Selwyn and Gorard (2003) express concern that this simplistic approach to social exclusion might overshadow more effective ways of promoting social inclusion and life-long learning.

Implementing ICT into education

Although the Ministry of Education's strategies contain notions of the information society being more than just a technological advancement, these nuances do not find their way to the implementation plans. The actions taken based on the aforementioned premisses are deeply rooted in the technological and economic determinism so prevalent in the information society discourse. Implementing ICT in education is not just familiarizing people with their future work tools, but also to serves a much more profound purpose in education.

> ICT is extensively used in support of teaching and learning and research. New technologies help to diversify learning methods and learning environments, hack up and guide learning processes and simulate real work environments or processes in a virtual environment. Good knowledge and skills help people to use … information networks and their contents appropriately. (Ministry of Education, 2004b: 13)

The Ministry of Education's strategics do not question technology's inherent power to enhance and change education (see also Selwyn, 2002), and the possible favourable outcomes of the extensive use of ICT are stated as a fact without further consideration. Yet, the strategies are shifting the emphasis from plain technology to the pedagogical implementation of ICT, which in the light of research seems to be the single most important factor in learning results (Cox and Abbot, 2004; Cox and Webb, 2004; Cuban, 2001: 133; Selwyn, 2002). Still, even this shift is outstandingly technologically deterministic, since ICT is seen as the cause and effect behind the new learning

methods. Such a technological determinism is not a new phenomenon, since it has been repeated on societal scale since the days of the telegraph, and in education the same dramatic changes have been attributed to radio and television (Cuban, 2001: 137; Golding, 2000).

Starting from a premiss of a 'technical fix' for education, it is then left for teacher to live up to it. The Ministry of Education's 2000-4 strategy (MoE, 1999) suggests that 'teachers collaborate with students in developing new pedagogical applications' and 'students will also actively produce and transmit digital material'. So, teachers and students are harnessed to realize the information society discourse by developing the applications and producing the favoured digital material (Garnham, 2000; Selwyn, 2002). When addressing teachers' and students' information society skills, these become synonymous with ICT skills. It is then believed that these skills naturally lead to the meaningful use of information networks and their contents. Whether there really is a demand for more information in schools is not discussed, because digital information is appreciated for the sake of it being digital, not because of its superior quality (Clegg et al., 2003; Hesketh and Selwyn, 1999). Cuban remarks:

> The thrill of retrieving hard-to-get information quickly is a long stretch from thoughtfully considering the information and turning it into knowledge or, in time, forging that knowledge into wisdom. (2001: 189)

Discussion

The Finnish information society strategies reverberate with the popular political discourse of our age that, in the light of previous research, is almost unanimously and universally accepted, but still surprisingly vague and incoherent. The premisses - globalization and the information society - are presented as inevitable, profound changes, yet their ambiguous definitions leave little to argue about. The role of education in the information society is to make sure that people have equal opportunities to achieve the competence requirements of tomorrow. ICT is seen as the answer to both equality (offering education anytime, anywhere) and to the need to re-skill people. In the strategies, ICT skills become synonymous with the competence requirements. Furthermore, the strategics make no distinction between knowledge, information and ICT. Peters (2001) reasons that, without these distinctions, it is somewhat useless to address teaching, learning, education or social inclusion in the information society. Hence it is no surprise that the implementation plans follow the deterministic discourses and present ICT as the prime motor behind change and progress in teaching, learning and education in general. All in all, it seems that the Finnish information society strategies offer ICT as a simple answer for complex educational and societal problems.

The information society is defined as a new social paradigm, characterized by the importance of knowledge, and thus given the historical gravitas of, for

example, the Industrial Revolution, although it is still highly disputable whether the information society really represents as profound a change as the latter (Garnham, 2000; Golding, 2000; Henten and Kristensen, 2000; Peters, 2001). A divergent reading of the phenomenon is to conceive it as an extension of the capitalist paradigm. Thus, it is not information that has become the essence of economy and society, but the economy that has become an even more integral part of forming and processing information. This analysis is supported by some evidence already available. The information society strategies, in addition to the overall market determinism that is so pervasive, address knowledge and education mainly as tools for economic competitiveness emphasizing the instrumental value of knowledge, while paying little attention to the possible 'educational aims' (Cuban, 2001: 10). Knowledge is constructed as a commodity that is produced, distributed, priced, and bought and sold on the market (Crow and Longford, 2000; Golding, 2000; Peters, 2001). Furthermore, the managerialist trend in education, which has gained strength since the 1980s, is already shaping the organization and operation of universities and schools (Clegg et al, 2003; Cuban, 2001: 10-11; Garnham, 2000).

It would be hard to deny the importance of knowledge in any given society in any given time (Bryson and de Castell, 1998), and the case for a knowledge-driven economy or society is 'still weak at best' (Peters, 2001). Hence it is yet impossible to say whether the change now occurring is quantitative, leading only to an extended capitalist paradigm, or whether it is a qualitative change leading to a completely new and different economic and social paradigm, that is the information society. Castells remarks:

> The prophetic hype and ideological manipulation characterizing most discourses on the information technology revolution should not mislead us into underestimating its truly fundamental significance. (2000: 29)

While comparing the ICT revolution and the Industrial Revolution, Castells (2000: 33, 85) reminds us of the time lag between technological innovation and its effect on productivity. It could be argued that the information society is still in formation, and eventually quantitative changes add up to a change that could be considered to be a qualitative change in the society to a new paradigm. Either way, the premiss of the information society should be carefully scrutinized and, if found valid, it should be met with a proactive approach that does not rely on overly deterministic discourses popular at the time. It is just as important not to cherish the Utopian hope of a societal or educational 'technical fix', as it is useless to regress to dystopian visions and Luddite attitudes (see e.g. Castells, 2000: 267-80 for a discussion of 'the jobless society').

If knowledge is de facto the key determinant for economic competitiveness, the popular discourse of schools collaborating with universities and the private sector is in stark contrast with the rest of the information society discourse. It is hard to imagine why the private sector would donate its assets, information and knowledge, as well as time and effort, to schools just because it is possible

through new technology. As Selwyn points out, the same reasoning applies to universities and other domains of expertise:

> [T]he popular concept.of the information superhighway offering access to external sources of expertise is tenuous as soon as one considers the number of schools who will be clamouring for such assistance. (1999b: 160)

The instrumental and economic approach to knowledge has its implications for education (Peters, 2001). The private sector is increasingly seen and welcomed as a producer and supplier of information and knowledge, and it has to be considered whether this privatization of information (Golding, 2000) affects the quality and equal availability of education, especially in adult and continuing education. If information becomes just another commodity that is produced by the private sector and consumed by citizens with unequal resources at their disposal, it is not guaranteed that the much hoped for inclusive society will follow. The profitability of the information sold does not necessarily guarantee its quality, and price-tags on education might divert citizens who are less likely to participate in continuing education anyway, away from it altogether.

The Finnish strategies, deliberately or not, portray ICT to be the essence of information society. It is disputable that the diffusion of ICT leads to a genuine information society and thereby transforms people into active, information-producing citizens. Even more worrying is the trend of presenting ICT as a 'technical fix' for society and education. First, this discourse does not take into consideration the agency of teachers or pupils (Selwyn, 1999c), on whom the information society narrative is imposed, but 'forces' them to use ICT whether they find it useful or not. The spirit of the discourse, its economic and technological determinism, leaves no space for a critical and rational approach to ICT or its educational use. Second, the halo of omnipotence often attributed to ICT lessens the chances of a successful implementation of ICT in education. Unrealistic expectations could lead to a big disappointment if teachers come to perceive ICT as just another 'faddish educational innovation of the moment' (Bryson and De Castell, 1998). Furthermore, if ICT is believed to be a panacea for all educational and societal ills, other more effective measures to ameliorate these ills might be overlooked. In addition, equating ICT (or ICT skills) with knowledge does not constitute a solid base for discussing concepts of teaching or learning. Educationalists should continue to emphasize the analytical distinction between information, knowledge and ICT in order to elaborate robust concepts for 'learning' and 'knowledge' (see Peters, 2001), while challenging popular discourses of the information age.

This study has highlighted the need for critical analysis of education policy strategies instead of conforming to populist discourses. It is crucial for a number of reasons. First, the suggested premisses for educational policy and planning are not self-evident, nor are the causalities that are claimed to follow on from them. Serious, informed critique is needed in order to assess the

social and educational consequences of the premisses and policies that are imposed on us (Peters, 2001). Only after we have specified valid premisses coherently, can we draw conclusions on what are the skills and knowledge required in tomorrow's society and how should we develop education accordingly. Also, the methods for educating and teaching people, children and adults alike, should rise from educational concerns and disregard discourses laden with technological and economic determinism.

Considering the myriad of features and possibilities ICT has to offer, it would be unreasonable to deny the potential of ICT in education. To fully unleash this potential, extravagant claims of 'technical fix' must be disregarded. Instead, the educational use of ICT must be developed based on scientific research, analysis and, finally, the results it yields. Further, the information society paradigm and globalization should be brought under discussion; they should neither be imposed as political orthodoxy or dismissed as a result of dystopian Luddite attitudes.

Note

1. The reports do not have page numbers; however, this quote can be found on the fourth page.

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