How Political Ambitions Replace Teacher Involvement: Some Critical Perspectives on the Introduction of ICT in Norwegian Schools

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English abstract

This article draws attention to the basic reflections related to new technologies as they are presented in key policy documents in Norway. One of the primary aims is to throw light on some of the dilemmas associated with the pedagogical use of technological innovations. This applies not least to the substantial discrepancy between expectations and results that has also been shown internationally. The most important conclusion in the article is that the investment in new technologies seems to have been founded on misleading premises. The documents analysed are characterized by one-sided pupil and learning perspectives in which teachers and pedagogical craftsmanship have been sidelined. Pedagogical reflections have come to be replaced by diffuse political visions that have left the field almost wide open to the technological enthusiast. Computers have increasingly been perceived as a contribution to efficiency and simplification. The industrial society's view of technology has thus been perpetuated. The prevailing descriptions have failed to assimilate the changed role of technology in our society. New technological solutions can help to simplify both teaching and learning but at the same time they lead to increased complexity. The latter point is not mentioned in the planning documents. The difficult, challenging and often contradictory factors are afforded no place. As a result, the plans have shortcomings and are incapable of meeting the challenges of the new school day.

Keywords: ICT, reform implementation, political rhetoric, pedagogical craftsmanship, technology tools, industrial technology views.

Introduction

Since the 1980s, there has been substantial investment throughout the western world in the
implementation of new technology in education. Politicians and educational administrators have
voiced unanimous belief in the pedagogical benefits (Ludvigsen 2000), and they have enjoyed strong
support from prestigious supranational institutions such as the OECD (OECD 2010).
Concurrently, several evaluations have documented a significant discrepancy between expectations
and results. It has been pointed out that the introduction and use of digital technologies represents
"a struggle or discrepancy between focus and ambition expressed on policy level and the actual
practices in the schools" (Olofsson et al. 2011). Computers have been integrated in pedagogical
activities to a far lesser extent than anticipated. The most common reaction to these disappointing
reports has been demands for more funding for buying computers, more training and more pilot
projects. There have also been quite a few ironical comments on teachers being in technological
denial and failing to realize what is best for them. Teachers have been "blamed for the failure of
technology to fulfil its promise" (Convery 2009: 25). In the long run this is far from acceptable. It
implies a serious underestimation of teachers and is evidence of an inability or unwillingness to look
critically at the work done so far. It is striking how historical perspectives have been ignored in the
dominating descriptions of new technology in schools (McDougall and Jones 2006).

Alternative and critical views have, however, always been represented in research and debate on
technological innovations in education. Critical comments have been raised regarding the often
rather confusing concepts, myths and rhetoric surrounding computer technology (Nelson 1974;
Aarseth 1997; Olson 2000). It has been argued that the importance of technology has been
overestimated at the expense of teacher practice (Cuban 1986 and 2001; Miller and Olson 1994),
and that the emphasis on, and traditional views of, technology have made more extensive pedagogical
discussion difficult (Selwyn 2000; Burbules 2003). Reflections of this nature have been part of the
general inspiration for my analysis. However, my intention is not to repeat or extend the familiar
arguments. I am interested primarily in examining and reflecting upon how new technology is
introduced and described in curricula and governmental papers. In other words, this involves an
exploration of how prevailing ICT rhetoric has been constructed in the planning documents for
schools. My analysis is based on studies of the key texts in a Norwegian context.[1] This gives a point
of departure for understanding the implementation of technology in schools different from the
conventional approaches.

The discrepancy between expectations and results

Visionary ideas of what new technology can contribute, and the setting of ambitious objectives, have
characterized the introduction of computers into schools. The main objectives as expressed in the
current action plan from the Ministry of Education and Research, *Programme for Digital
Competence*, are no exception. It is stated here that "digital competence" is to have a key role in
education at all levels. ICT functions as "a catalyst for change", and "the pedagogical use of ICT
encourages learning outcomes" (GP 2004: 19). We discern the contours of a school permeated by
ICT at all levels and in all contexts. The vision also explicitly expresses the idea of a "digital school"
in which digital skills and digital competence have exclusively positive impacts on the school day of
both pupils and teachers (ITU 2005).

A key dilemma emerges in that these great ambitions and investments in technology have been
regularly accompanied by reviews and reports concluding that the results significantly fail to match

expectations. This is made clear in comprehensive longitudinal, quantitative surveys of the use of ICT in Norwegian schools carried out by The National Network for IT-Research and Competence in Education ("Forsknings- og kompetansenettverk for IT i utdanning", ITU). Confidence in technology continues to grow and both students and teachers are seen to be using computers to an ever-increasing degree. This development is striking but slow, and computers remain integrated in pedagogical activities to relatively little extent. A serious discrepancy is shown to exist between the authorities' objectives and everyday practice in schools, documented through various surveys (Kløvstad and Kristiansen 2004; Erstad et al. 2005; Arnseth et al. 2007; Hatlevik et al. 2009). This impression is further reinforced by studies focusing on the implementation of the *Programme for Digital Competence* (Silseth and Erstad 2007).

Similar findings have been reported previously: for example in a review of a number of projects linked to the Ministry's Action Plan for IT in Norwegian Education 1996–99 (Erstad 1998). A questionnaire survey in the first White Paper to the Norwegian Parliament on computer technology in schools, points to similar results (GP 1994).

Studies of how meaning is constructed

My studies of documents might be regarded as a discourse-analytic approach. Discourse analysis in general refers to studies of language in use and how meaning is created, and it is important to reveal patterns of meaning-making (Wetherell et al. 2001). At its root lies the view that meaning is something constructed through language. This contains the recognition that words and concepts are not fixed dimensions. Meaning cannot be perceived as something stable and permanent behind the verbal expression. Our perceptions of the world are a result of linguistic constructions or consequences of certain perspectives. To conquer the key concepts of society and "claiming them as their own" (Koselleck 2004: 156), is therefore an important aim of political and professional dispute.

Studies of meaning construction are part of the shift towards language that has gradually taken place in science from the 1970s and which has been described as the "language", "linguistic" or "rhetorical turn" (Rorty 1967; Meyer and Ågotnes 1994). In the Norwegian context, the lack of a comprehensive and constructive debate on the language orientation has been a fundamental problem (Røssaak 1998). A particular strength of a language-oriented approach based on discourse analysis is that it helps to switch attention from individual players and any speculation about their intentions and agendas and to focus instead on common features associated with the construction of meaning. Such a meaning-making approach differs from current confrontations and discussions and also gives a new basis for understanding them. The notion of meaning construction is close to what we may call rhetorical constructions. This is in line with general conceptions of rhetoric today. Rhetoric has experienced a renaissance in recent years, parallel to which it has come to be associated with communication and the use of symbols in a wider sense (Kjeldsen 2004).

Various discourse analysts have provided important input to my analyses of curricula and governmental papers. On a more general level this refers to Michel Foucault and his search for basic patterns of meaning construction in what he calls "discursive formations" (Foucault 1972).One important aspect of Foucault's work is how he consistently queries the use of language and concepts by referring to the conditions under which these were established. One of his main aims is to question contemporary "truths" or "discursive truisms" through reference to history.

Norman Fairclough's ideas and concepts of recontextualization have, I believe, contributed to a new understanding of the computer's entrance into education. The reason for saying this is that computer technology was not originally developed for pedagogical purposes. The introduction of computers into schools implies their transferability to new contexts. The schools are therefore compelled to relate to an external discourse about technology. For Fairclough it is then a critical question of whether recontextualization entails the colonization of this external discourse into new areas or if it happens through an active process of adaptation whereby the new is seen in relation to the established (Chouliaraki and Fairclough 1999). To the extent that the introduction of new technology into the education system can be seen as a form of colonization, the question also arises as to whether hegemonic forms of meaning construction are being developed. Ernesto Laclau and Chantal Mouffe interestingly make hegemony a major point in their presentation of discourse theory (Laclau and Mouffe 2001). They point out that hegemony involves creating unambiguity out of ambiguity. It is interesting to study the apparent unanimity in the discussion of new technology in education in this light.

Reinhart Koselleck attributes key concepts with having critical importance for the construction of meaning, but also the establishment and development of societies. He states that "without common concepts there is no society" (Koselleck 2004: 76). This provides a new approach for studying the development of key concepts associated with the pedagogical use of new technology. An interesting point to note in regard to Koselleck is his demonstration of how expectation and experience influence the use of concepts and meaning construction in different historical contexts. According to Koselleck it is natural in periods of rapid change for new concepts to be imbued with expectation and to some extent become "catchwords" (op.cit.: 253). We see this clearly in discussions of new technology in schools today. A key question is then whether expectations assume the dominant role and if the link to experience disappears. The following six documents comprise the basic material for my analyses:

- The National Curriculum for Primary and Lower Secondary Education 1987 ("Mønsterplanen for grunnskolen: M87") (NC 1987)
- The National Curriculum for the 10-year Compulsory School 1997 ("Læreplanverket for den 10-årige grunnskolen") (NC 1997)
- The National Curriculum for Knowledge Promotion in Primary and Secondary Education and Training 2006 ("Læreplanverket til kunnskapsløftet") (NC 2006)
- White Paper No. 39 (1983–84) Computer Technology in Schools ("Stortingsmelding nr. 39 (1983–84): Datateknologi i skolen") (GP 1984)
- White Paper No. 24 (1993–94) On Information Technology in Education ("Stortingsmelding nr. 24 (1993–94): Om informasjonsteknologi i utdanningen") (GP 1994)
- Programme for Digital Competence 2004–2008 ("Program for digital kompetanse 2004–2008") (GP 2004)

This list includes (in the order above) the three most recent national curricula (NC) and three governmental papers (GP). Among the latter are the first and latest White Paper on computer technology in schools and the current ministerial four-year action plan. The two white papers were issued prior to the curricula in the 1980s and 1990s. As a partly corresponding parallel to the most recent curriculum, I have selected the latest action plan from the Ministry.[2]

Pedagogical craftsmanship sidelined

A notable feature of the planning documents introducing computers into schools in the 1980s is that they allow considerable room for pedagogical craftsmanship. This feature changes radically in the subsequent decade, when political ambitions and vague notions of the revolutionary impact of technology replace pedagogical considerations. In many ways, the type of rhetoric that still dominates the field today was established here. A key point is nevertheless that the situation was different in the 1980s and it is surprising that this difference has attracted so little attention in retrospect.

In the first White Paper on "computer technology in schools" we find a broad-based discussion of the possibilities and limitations of computer technology (GP 1984). The report contains nuanced pedagogical evaluations of different programmes and solutions available, including the drill and practice software from the 1960s and 1970s. The critical objections to the behaviourist-influenced "teaching technology" are clearly expressed, although it is also pointed out that in some situations drills can fulfil an important function. We find a corresponding critical attitude towards the interactive systems heavily marketed in the 1980s, both possibilities and limitations being highlighted. The decisive criterion in the 1984 White Paper is what concrete contribution computers can actually make in pedagogical contexts. Computer technology is thereby made the concern of all teachers and subjects. A basic premise is that the development and application of the new technology is to be teacher-led. In other words, the pedagogical use of computers, like all other measures in the classroom, belongs to the teacher's domain.

There are therefore grounds for asserting that in this White Paper a balance is achieved between expectations and experience. Enthusiasm about the new possibilities is clearly present but the major challenges are also examined in detail. The report emphasizes that pedagogical development is a painstaking and demanding process that necessarily takes time. The variety of new technological possibilities does not make this process any easier, and the challenges are exacerbated by pressure from the outside world to effect comprehensive and rapid changes. The report argues, however, that changes must take place on the school's terms. Schools are warned about the dangers of yielding to external pressure from either parents or suppliers of computer equipment. There is emphasis on the critical importance of working towards solutions that will help to realize subject-related and pedagogical objectives.

In the 1990s we see an altogether different approach. Consideration of pedagogical challenges in the classroom is now almost non-existent. In what is currently the latest White Paper on "information technology in education" the main emphasis is on what contribution schools can make with respect to the overall objectives for technological development in society (GP 1994). These kinds of arguments are continued, reinforced and renewed at the turn of the century and dominate in the current ministerial action plan on digital competence (GP 2004). The action plan is full of slogans about the necessity of digital skills and digital competence. We glimpse a vision of "the digital school" as discussed in other key documents (ITU 2005). In this vision both teachers and students are fully familiar with the latest technological innovations and technology is used to the fullest possible extent at all levels and in all contexts. There is a correspondence here with the notion of an "e-Norway" in which the digitally competent "e-citizen" finds all his needs for information and administration satisfied over the Internet and the fully digitalized, 24-hour available, public services (MD 2005).

There is, naturally, no problem in projecting such visions. New concepts based on expectations are, according to Koselleck (2004), an important part of major societal changes. The difficulty is that the key concepts in the planning documents from the 1990s onwards remain elements in visions that are not formed or discussed in a way that enables a constructive approach to them. They are anchored in vague political ideas of desired social development, not in experience or didactical considerations.

Teachers from key actors to recipients of ready-made solutions

Since the planning documents of the 1980s allow generous room for pedagogical craftsmanship, teachers are naturally afforded a dominant position. There is a clear shift in the subsequent decade, however. Now the teacher is no longer so visible. We see that occurrence of the term "teacher" in the documents is greatly reduced (Haugsbakk 2008). Teachers are also allocated a clearly diminished role in relation to new technology. While teachers are presented in the 1980s' White Paper as key actors defining the premises for the development of new technology, they appear in the White Paper of ten years later as recipients of ready-made solutions. This is also evident in the Programme for Digital Competence. In the national curricula we can see a parallel development whereby teachers once viewed as leaders generally come to be seen as members of a working partnership on a par with their pupils.

In the 1984 White Paper teachers are clearly seen as active participants and discussion partners in the ongoing development work. Technological development in schools is described as relatively open and carrying a considerable degree of uncertainty. The report highlights "a lack of necessary knowledge", the fact that "many areas require pilot projects or further clarification", and that "some questions must be further discussed with teachers and local and regional authorities" (GP 1984: 7). Teachers are presented as key actors and partners for school leaders:

> *Leaders and teachers must work together to ascertain the qualities of teaching today, how computerized aids can improve the situation and what steps the school must take to ensure that the new aids have the desired effect (GP 1984: 12).*

It is described as important to allow teachers extensive room to experiment. The "teacher must be able to formulate objectives for the teaching, diagnose the problems of individual pupils, evaluate computer software and adapt computer lessons to actual needs" (GP 1984: 42). All teachers must play an active role. It is of critical importance for the school's development that teachers have "a well-grounded basis for evaluating the school's relation to new technology" (GP 1984: 47). It is also anticipated that teachers will have a role to play as "software developers" (GP 1984: 38).

Analysis of the 1994 White Paper reveals a clear change. The great majority of teachers are no longer regarded as relevant partners with respect to technological development in the school. They are transformed into recipients of external, ready-made technological solutions. They are now also expected to work in relation to pre-defined objectives. Where teachers enter into the descriptions, this is largely in connection with the need for "education" or "continuing education" in one form or another. Much of it concerns the need for teachers to have access to equipment, software and databases. A new feature is that any discussion of teachers has much less relevance for teachers in general. The focus is more clearly on the technology enthusiasts in the teaching ranks. These enthusiasts give rise in the text to a number of positive images of the teacher. The White Paper describes teachers in "technological superpowers" who lead the way in development together with

"technologists" and "salesmen", "interested" teachers who actively use global electronic networks and "dedicated and enthusiastic teachers" who have long been the trademark of new technology in schools (GP 1994).

This trend is reinforced in the Programme for Digital Competence. Teachers are here referred to in the first instance in connection with the need for more hardware and better competence. Teachers' digital competence is given great emphasis as "a wholly necessary condition for ICT to be used in education" (GP 2004). The use of technology in schools is transformed into an arena for politicians, school administrators and technologists. Teachers are afforded no opportunity to influence how the new technology is to be used.

The teacher's role in relation to new technology is made explicit to only a limited extent in the national curricula, but the marked shift in the governmental papers can be said to correspond to a discernible change in which teachers, previously presented as leaders, are now generally depicted as partners to the pupils. The teacher's leading position is emphasized in the National Curriculum of 1987. A long list of specific and detailed tasks suggests limitations on teacher freedom but the teacher's leading role is made clear. The curriculum allows for "co-determination and co-responsibility in learning and work processes", but this is linked to "constructive forms of leadership in the classroom" (NC 1987: 50).

In the National Curriculum of 1997 the teacher is less visible in the text: the term occurs only half as frequently as in the Curriculum of 1987 (Haugsbakk 2008). More importantly, the descriptions are more ambiguous and the teacher is less referred to as carrying responsibility and being a leader. Section 2 of the Curriculum, "The Bridge" ("Broen"), brings out strongly the idea of cooperation between teacher and pupil, and in the Subject Curricula the teacher is consistently referred to as a partner. Teacher and pupil in partnership will form the content of the curricular subjects, develop evaluation criteria and evaluate the general framework and facilitation. In the first section, the Core Curriculum, there is a different type of description of the teacher, but what is special about it is that well over half the occurrences of the word "teacher" are concentrated in two small paragraphs (NC 1997: 30–33). Here, "good teachers" are described as authorities by virtue of their knowledge and representatives of the culture heritage. At the same time, however, they are expected to uphold the pupil's point of view by being open to pupils' needs. Little is said about the teacher as leader. The description given is of a general nature and with little nuance. It also accounts for only a small part of the curriculum and appears little more than a random point.

It can be argued that the National Curriculum for Knowledge Promotion conveys a different impression of the teacher than the Curriculum of 1997. It contains the same formulations about the teacher in the Core Curriculum, but in section 2, "The Quality Framework", the teacher's role as leader is given greater emphasis. It is stipulated that the school shall "play its part in ensuring that teachers and instructors are seen as clear leaders and role models for children and young people" (NC 2006). Telhaug (2007) is among those who have emphasized this but in general the new elements are given little weight in the curricular text.

New technology from teaching aid to learning tool

How then are the different technological devices presented? The differences are interesting. Computer technology is introduced as a "teaching aid" in both the National Curriculum of 1987 and in the first White Paper in the 1980s. In the most recent documents, "digital technology" is

referred to consistently as a "tool" for "learning". This can be seen in association with a more general shift away from a focus on "teaching" to one on "learning" (Biesta 2004). A critical question is: is this an expression of a natural corrective in relation to conventional teaching methods, bringing closer and necessary attention to pupils' learning processes and learning outcomes? Or is it to be understood as confirmation that teachers and pedagogical craftsmanship are being sidelined? It is this latter interpretation that the document analyses suggest.

When computer technology is described as a "teaching aid" in the 1980s, this is in line with how new media and technological solutions are consistently referred to in the two curricula prior to the National Curriculum of 1987, the National Curricula of 1939 and 1974. This implicitly sends signals about teacher control. Confirmation of this is found in the planning documents from the 1980s, where substantial scope is allowed for the exercise of pedagogical craftsmanship and teachers are described as defining the premises for technological development in the school. New technology is made part of the teacher's teaching repertoire.

When technological devices are regarded principally as "learning tools", this opens the way for pupil-centred perspectives and a diminishment of the pedagogical considerations that are part of the teacher's domain. In my studies of what can be characterized as dominant marketing rhetoric in connection with new technology, I have also found confirmation of a clear tendency towards a focus on learning that replaces teaching perspectives (Haugsbakk 2000). These are ideas initially promoted by suppliers and marketers of computer technology from the mid-1980s but we see them being gradually adopted by school administrators, politicians and technology enthusiasts among teachers and researchers. As a result, teaching and learning come almost to be viewed as polar opposites and their relation becomes a question of either-or. Corresponding tendencies appear to apply in the planning documents for schools and give a one-sided and inadequate approach to new technology. Of the documents I have analysed, the Programme for Digital Competence lends itself most typically to an illustration of this trend. "Learning tool" assumes the role of a key concept in parallel with the sidelining of pedagogical craftsmanship and the reduction of the teacher's role. On the other hand, the conceptual change might be seen as an influence of new learning theories (Biesta 2004). Within a sociocultural framework "tools" for learning play an important and specific part (Säljö 2001). To some extent this indicates an ambiguity related to the concept. However, the analysed document bears few marks of a Vygotskian approach to "tools".

It is also worth noting that no attempt is made to examine the concept "learning tool" or subject it to any kind of evaluation. With this in mind it is remarkable that it has such a dominant place in the Programme for Digital Competence. The concept's position is affirmed through its being used to present a basic assumption for the action plan: "ICT is a learning tool for reinforcing the quality of education, creating good learning strategies and strengthening learning outcomes" (GP 2004: 15). "Learning tool" is associated with high expectations in respect of quality and learning results but the term is not explored any further. This is highly problematic. The very term "learning tool" gives the impression that it is possible to connect planned, external actions directly to pupils' inner learning processes. Learning is disconnected from didactical considerations and external help. The problematic aspect is further heightened by the fact that the tool concept has clear historical references to mechanical and craft industries and hence an instrumental function. In this way, "learning tool" triggers associations of learning as something tangible and learning outcomes as something measurable. This impression is bolstered by the remaining argumentation in the action plan. We read here among other things that ICT influences learning outcomes and that an aim is to develop "tools which will be capable of measuring and analysing quantitative and qualitative

trends in ICT and learning" (GP 2004: 7). It is thus taken for granted that the new technology has a positive effect on learning and that these results can be measured. No questions are raised about the role of technology.

The basic pedagogical challenge is apparently smoothed over through the use of the compound term "learning tool". At the heart of this lie concepts representing disparate and basically irreconcilable perspectives, and these are linked with no explanation or discussion. Each element of the concept in itself can be seen as generally positive and the combination may hence seem "natural". "Learning tool" can be regarded as a rhetorical coupling in which an attempt is made to resolve inherent opposition through language.

The school as part of a national technological vision

The descriptions of the school's place in the wider societal context are also interesting and provide new insight into how the pedagogical use of technology has originated. The differences are striking. The 1984 White Paper contains comprehensive descriptions of general technological trends in society at large and adds that it is important to be familiar with them. At the same time, the report emphasizes that the use of new technology in schools must be based on pedagogical considerations. The growing emphasis on technological development in general therefore has limited direct consequences for the school, with the exception of vocational education. There are also few references to other planning documents on new technology. In contrast to this, both the 1994 White Paper and the action plan from 2004 stand out in that they are explicitly anchored in overarching plans for technological development in society. This harmonizes with the tendency towards the sidelining of pedagogical craftsmanship in the 1990s. The main argument turns to what contribution the school can make towards technological development in the societal context.

The White Paper from the 1980s is distinguished by appearing to be more independent, with no clearly dominant external references. In so far as these are mentioned, they are critically evaluated. An example of this is an account of the development of the national telephone service, "Televerket", in which it is emphasized how important it is for an "effective and socially responsible implementation of new tele and computer technology that the teaching about the use of this technology should be substantially increased" (GP 1984: 5). This latter point is referred to in the White Paper as an argument for giving priority to vocational education in the form of "industrial and craft subjects". In this area the report recognizes that computer technology must be implemented relatively quickly because it has direct implications for our country as an industrial nation. It also makes clear, however, that the use of technology on a more general basis must be evaluated on the school's own terms. There is need, the report says, for a long period of pilot projects on a small scale. It is thus emphasized that relevance cannot be decided in advance but will depend on the specific educational context. External pressure to implement computer technology in schools on a wide scale is mentioned several times. The report raises doubts, however, about the most bombastic claims for the technology and emphasizes that our knowledge and experience are limited:

> *It is possible at the present time that we exaggerate the importance of the new information technology (there are a number of examples showing that new technology has not proved particularly important for the school), but it is also conceivable that we do not understand its possibilities in different areas (GP 1984: 47).*

The contrast between this and the White Paper from 1994 is striking. In the latter it is made clear that the document has been compiled as "part of the Ministry's contribution to national action plans

for IT" (GP 1994: 9). There is an expressed wish to integrate the sector plans for trade and industry, public administration and education. Trond Buland has shown how these overarching national plans in themselves were an expression of politicians' wishes to steer IT development in society as a whole. Corresponding movements were taking place in other western countries. This was justified in the first instance on grounds of the new global competitive situation in which new technology had assumed a key role in growth and development and in that context the school was allotted an important function (Buland 1996).

The Programme for Digital Competence is anchored both in the government's action plan for "IT policy" (NHD 2002) and in the government's plan for a "holistic innovation policy" (NHD 2003). In the former, it is emphasized that both these planning documents "underline the importance of ICT-related competence as a driver for economic growth in Norway" (GP 2004: 8). Reference is also made to European and American studies showing that the wider development of digital competence is critical for economic, social and cultural development. Hence the Programme for Digital Competence can almost be regarded as part of a large-scale common plan for the introduction and application of new technology in society. National and educational needs coincide in a common interest in the use of computer technology: "With a view to the general innovational challenges the nation is facing and the education sector's need for change, it is necessary to continue and step up the work of implementing ICT" (GP 2004: 11).

Diffuse catchwords and general arguments

While the school is being transformed into part of a national technological vision, much space and attention are devoted to positively loaded concepts of indeterminate content. In the 1990s "efficiency" is the most popular concept or catchword. After the turn of the century "quality" and "innovation" are the positive attributes most commonly found in descriptions of new technology in education. In contrast, the argumentation and concepts from the 1980s seem much more definite and nuanced.

The diffuse concepts of acclaim can be seen as belonging to a kind of universal concept categories, and they show clearly how the argumentation is taking on a more general character. The same concepts are employed in almost the same way and to the same extent regardless of which area of society they are being used in relation to. They stem from outside the school and are not linked in the main to didactical considerations. They are not very evident in the national curricula but are prominent in the other planning documents for the school sector. The employment of such universal categories is based on an assumption that there is a kind of consensus as to their meaning. The concepts are neither explained nor discussed. They are presented as having general applicability and being independent of any perspective or frame of reference. In consequence, it is not seen as a relevant issue that what appears as increased efficiency and simplification from one point of view may be seen as extra work and increased complexity from another. There is also no suggestion that quality can manifest itself in different ways and that specific innovations do not necessarily imply universal benefit. These types of concept categories are therefore seen as universal, positive and uncontroversial, with clear connotations of progress, development and growth.

"Efficiency" and related terms appear frequently in the White Paper from 1994, and belong to a list of consistently positive characteristics. The link between the new technology and "efficiency" is made at a higher level when the report affirms that "information technology presents itself as one of society's most important tools for increasing efficiency" (GP 1994: 28). The concept is also applied

in the same way to school activities. We see this in the assumption that the "pedagogically-based use of IT" will "contribute to a higher degree of personal creativity, productivity and efficiency, for both teachers and pupils" (GP 1994: 28–29). It is further affirmed that "pupils and students can be helped to be more efficient in their work by means of IT" (GP 1994: 36), and that the use of IT in many areas will "help in developing forms of teaching and learning that will have a motivational effect on studies and make for greater efficiency" (GP 1994: 42). The context and terminology vary, but no opening is given for reservation or explanatory detail. IT is referred to as an effective aid in the context of teaching, research and education in general.

In many ways the quality concept appears to serve a corresponding function in the Programme for Digital Competence to that of "efficiency" in the White Paper from 1994. In the action plan the phrase "closer attention to quality" appears as a common denominator for a range of challenges facing Norwegian education (GP 2004: 10). It is linked explicitly in this instance to the Quality Reform of higher education ("Kvalitetsreformen for høyere utdanning") in 2003. It is emphasized that the Programme for Digital Competence must be integrated in the general improvement of quality in the education sector. A close link is established between quality and the use of ICT. In one of the plan's main objectives there is a statement to the effect that ICT shall be an integral means in "the improvement of quality in Norwegian education" (GP 2004: 7). Quality and ICT are mentioned in the same breath: "The programme is an investment in the qualitatively beneficial and increased use of ICT in learning activities" (GP 2004: 10). No opportunity is allowed for evaluation or doubt. This shows clearly how "quality" is transformed into a universal, indisputable category free of any concrete context. The Programme for Digital Competence is also the document where the concepts "innovation" and the related "creativity" are most evident. The most important references are to commercial development, including the government's plan for a holistic innovation policy (NHD 2003: 5). Innovation is confirmed as an overarching national strategy. There is mention of a "holistic innovation policy" which "involves" education policy (GP 2004: 13).

The argumentation is kept on the general level and seems to be based on an assumption of the all-embracing relevance of technology. Emphasis is put on technological development in society in general, which is assumed almost without reservation to have a great positive impact on education. A logical conclusion is that because technology will come to affect us all, it is therefore also relevant to all the school's activities. The foreword to the White Paper from 1994 expresses general fascination with the new technology, in flowery, almost poetic terms. It is a listing of positive arguments in relatively short and concise sentences, with a good deal of repetition. In slogan-like phrases, the foreword heralds the new possibilities information technology affords for "learning". We read how "learning" with the help of the new technology can be adapted to the individual pupil. IT enables pupils to follow their own "learning pace", their own "learning style" and achieve "deeper learning in new ways". An unbridled enthusiasm for technology and a belief in progress are clearly displayed: "Each year provides magical examples not only of things unachievable the year before but also achieved by many more this year. The development of information technology is therefore fantastic to observe" (GP 1994: 3–4).

In a context like this didactic reflection is superfluous. The use of technology requires no argument beyond its critical importance for all sectors of society. We are witnessing a "computer boom" and we are reminded that it is "important to keep up with developments" (GP 1994: 16). New forms of teaching and learning are widely presented as the result of general technological development.

Greater distance from the classroom and from teaching's everyday challenges

When the school is written into overarching technological visions and the process as a whole is presented in diffuse but glowing terms, it serves to create a distance from the everyday challenges of the classroom. The impression is further confirmed when concepts such as "training" ("opplæring") and "education" ("utdanning") assume a dominant position in discussions of core pedagogical activities at the expense of the twin concepts "teaching" and "learning". The demanding relation between teacher and pupil thereby becomes more ambiguous and receives far less attention.

"Education" ("utdanning") is introduced as a key concept in the White Paper from 1994, its status affirmed by its inclusion in the title. The term coincides with the linking of the school's activities to overarching national plans for technological development as described above. Pedagogical activities, and hence the relation between teacher and pupil, derive their justification primarily from the needs in society outside schools. The displacement of "teaching" and "learning" by the term "education" in the school sector can be seen as a key marker for this. Social utility is made the basic premise for the introduction and application of new technology in schools.

Correspondingly, the concept "training" ("opplæring") comes to dominate the descriptions of pedagogical activities in the National Curricula of 1997 and 2006. The link to new technology is not so obvious here but the use of the term "training" confirms that the school is being increasingly viewed from the outside. While "teaching" and "learning" are founded chiefly in the relation between teacher and pupil, "training" gives new and expanded perspectives. With "training" an all-embracing view of the school is introduced that goes beyond "teaching" and does not make the same explicit distinction between the relative positions of teacher and pupil. The training concept has a key role in the expressed ambition to connect different types and levels of school. The use of "training" as an umbrella term helps to underline this. In a way "training" seems to satisfy the political objective on the language level and the introduction of the training concept is thus clearly based on political grounds. It focuses attention on the universality and interconnectivity of the education system but simultaneously creates a greater distance from the pedagogical challenges in the classroom and the teacher–pupil relation.

A glimpse of the new society – the industrial society's spectacles

A critical question in connection with the planning documents for schools concerns to what degree they present new ideas, and thus a break with established ones, or are characterized by continuation. There is no doubt that the analysed documents increasingly describe new trends in relation to pedagogical, technological and societal factors. The introduction of new concepts to describe developments in education and technology hint at a new type of flexibility and dynamic. The new features can be glimpsed in the description of "learning organizations", "e-citizens", "digital competence", "modern teaching methods", "the school of the future", "global village schools" and "electronic networks". The same applies to the universal concepts of "quality" and "innovation". We see the contours of a society characterized by great complexity, globalization and cultural diversity, with new technology playing a key role. These kinds of descriptions also constitute important parts of ICT plans in other countries in Western Europe, and a common reference is the DeSeCo Report (Definition and Selection of Competencies) published by the OECD in 2002 (ITU 2003; OECD 2005).

The concepts and arguments are not well defined and carry with them uncertainty about what the new elements comprise, but they give a new direction and new potential. This is in line with Koselleck's (2004) descriptions of conceptual development in periods of comprehensive change. In his conceptual history, Koselleck takes as his main point of departure the transition from the pre-modern to the modern society. It is possible here to see parallels to what is taking place during the transition to the "knowledge society". Koselleck shows that while basic concepts in pre-modern times were anchored in "experience", in modern society they are primarily linked to "expectations" of something new (Koselleck 2004). When concepts are freed from experience in this way and associated with expectations, they are made universal and less specific but herald in the new.

In the planning documents for schools the message is about new ways of obtaining, documenting, analysing and communicating experience and knowledge, and other forms of communication between teacher and pupil. There is also focus on the need to meet new challenges and for continuous adaptation and re-prioritization. The impression of change is strengthened by the association of new technology in the pedagogical context with "learning" instead of "teaching", and "tools for learning" being contrasted with technology as a "teaching aid". This constitutes a clear contrast to what are usually seen as typical features of the industrial society, i.e. the classroom as the framework, the more static and bureaucratic environment, and the teacher as the undisputed authority and conveyor of knowledge. An active attempt is made to drive home the message of the "new". In the documents from the 1990s onward distinctions are made, sometimes marked, between the old and the new.

Analyses of continuation and divergence require, however, a critical distance to the explicitly formulated messages. This can be seen as a parallel to Foucault's aim of dissolving contemporary "truths" or "discursive truisms". A fundamental challenge in the documents from the 1990s onward is that the visions or expectations they present are allowed to stand with no basis in experience. The technological innovations are presented first and foremost as offering positive opportunities for the school, without any further explanation. They appear mainly as allusions to future alternatives and as part of visionary, non-committing reflections. If technological perspectives can be seen as new it is generally because we choose to focus on the technological devices that represent a whole new range of possibilities other than those we are used to. This approach is, however, a-historic and neither the technological solutions nor their use are put into a wider context.

In addition, my analyses of the school planning documents show that the tendency to perpetuate is on the whole their clearest feature. In many ways there is reason to say that the new is seen through the spectacles of the industrial society, at whose heart lies a traditional view of the role of technology. The tool concept in itself can be seen as a sign of this. The term stems from mechanical or industrial operations and the instrumental features are emphasized when "digital tools" are linked to both the quantitative and qualitative measurement of learning outcomes. Technology is consistently associated with development and progress and described as a means to simplification and efficiency. It comprises an autonomous field regarded as unnecessary to discuss. The general assumption is that technological solutions are self-explanatory. Technological optimism is prominent but also technological determinism. The dominant technology perspectives go hand in hand with a fundamental view of society and societal development marked by a firm belief in progress. In this way there is continuance of what must be seen as typical features of the industrial society (Qvortrup 1998).

Discussion

The contradictory perspectives my analyses reveal are thought-provoking but can help to shed new light on the dilemmas surrounding the use of new technology in schools. On the one hand, they provide a background for understanding the significant discrepancy between expectations and results. On the other hand, the unanimity of approach to new technology in schools is more surprising. Within the education system agreement and harmony have apparently held sway. Clarity has been created from ambiguity. A consensus has been established on determined perceptions seen as "true" and "self-evident", and presented without objection. We recognize here Laclau and Mouffe's descriptions of hegemonic meaning construction (Laclau and Mouffe 2001). It is a clear expression of hegemony when the most important arguments from overarching national plans for technological development are transformed unquestioningly into the school planning documents.

In many ways, following Fairclough's arguments, this can be seen as a colonization of the education system (Fairclough 1992; Chouliaraki and Fairclough 1999). The recontextualization that takes place when computers that have been developed for other purposes are introduced into the school bears little mark of active adaptation. These colonizing tendencies are dominant in the planning documents from the 1990s. They indicate clearly that teachers and didactical reflection must yield to political ambitions of control. Political objectives overshadow any regard to continuous didactical reflection on professional challenges. From the 1990s onward we see the development of a hegemonizing meaning alliance of politicians, educational bureaucrats, researchers and suppliers of computer systems. There is little room here for nuance, doubt and critical reflection.

In my view, a direct and necessary consequence of these analyses is that the use of new technology in schools must be re-examined. In this connection it is possible to get inspiration from the approaches developed in the 1980s. It is here we find the clearest and most fully developed alternatives to colonization. Most examples are found in the White Paper from 1984, which to a high degree can be understood as an attempt at adaptation based on the premises of the education system itself. The evaluations in this White Paper are much broader and more nuanced that anything found later. It is naturally necessary to take into account the present-day situation in respect to social frameworks, technological possibilities and pedagogical challenges. It is also important and necessary to break down the existing meaning-formation hegemony. Alternative approaches must be developed in which all those involved can participate and where there is room for critical reflection. But the point of departure must be the basic premises set by the new society.

Concluding remarks – the need for new direction

With my analyses in mind, I believe that a new direction must firstly be based on the new learning possibilities but that there must at the same time be established a clear "both–and" attitude to teaching and learning. This will provide an opening for the reintroduction of didactic principles and make evaluation of the new technology a natural part of the teacher's domain. The emphasizing of the teacher's critical role also appears prominently in an increasing number of international research reports (Olofsson et al. 2011). Secondly, we need a broader understanding of the function and role of technology in present-day society. The new technological possibilities must play a key role both in the school and in society at large. It is important to find out as much as possible about how the available solutions and networks can contribute to promoting new learning strategies and simplifying established forms of working. But there must also be room for the new complexity, the

more problematic, contradictory and unforeseen aspects. Any measures implemented must be evaluated "in their human context and educational complexity" (Convery 2009: 39).

Technology has frequently been presented as absolutely critical for handling the complexity of the knowledge society. Important yes, but a factor seldom paid enough attention to is that technology leads to new complexity. The Internet, e-mail and the mobile phone have become indispensable since they enable us to do new things and to deal with complex streams of information. At the same time, however, they play their part in increasing the amount of information and the number of channels of communication, in expanding current networks and changing the forms of communication and social interaction. This has its parallel in the classroom, where all pupils have a PC before them on their desk. New possibilities are opened up but at the same time there are new doubts and uncertainties and a new type of challenge to be dealt with. New technology, therefore, seems to be both the answer to, and the cause of, the complexity we experience.

This points to a third challenge, that of developing accounts of society capable of identifying the unique new elements in the society now emerging. This applies whether we call it an information society, a knowledge society or a learning society. We must seek to clarify the factors that comprise the basic differences between the new society and the industrial society. The basis for my arguments is a perception of social development as increased complexity (Qvortrup 1998). Where the industrial society appears understandable, with a clearly defined centre and the nation as a natural hub, the new society is difficult to grasp in that it has multiple centres and is no longer confined to national boundaries. In the industrial society the assumption is that progress is possible, based on incremental changes and adherence to universal, objective truths. In the new society change represents primarily an expansion of possibilities and hence increased complexity, and truth is the result of negotiation.

This requires significant reorientation, and no one has the ideal answer to what must be done. A necessary consequence is that the process will be different, and take longer than suggested by the technology-fixated visions of "digital schools". There is no instant miracle medicine for the "digital school".

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1 The studies referred to were mainly conducted as part of a PhD project in the period 2004–2008 (Haugsbakk 2008 and 2010).

2   Quotations from the curricula and governmental papers are translated by the author.