On the remediation, relativisation and reflexivity of mother tongue education

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Abstract
In this article, education is regarded as a medium (Salomon, 2000), i.e. a channel for the transmission of knowledge with its specifically and historically defined form and content. From a media ecology perspective, media are not neutral, transparent or value-free channels for transporting information. Instead, the inherent physical structures and symbolic form of media play a decisive role in the design of what and how information is coded and transferred and hence also how it is decoded. It is the structure of the medium that determines the content and nature of the information. In our digital era this medium, i.e. education, is now being remediated (Bolter & Grusin, 2002). With this point of departure, in this article traditional education is placed on a par with a coherent text in the form of an essay. This implies that what typifies an essay in a transferred sense is characteristic of traditional education based on paper, pencil and book technologies. In a new media ecology context, what is polyvocal, interactive and transient is also becoming characteristic of education in its capacity as a medium. Like all remediation this also offers a promise of reforms and changes in the sense of remoulding, which partly corresponds to all the expectations placed on new media as regards the possibilities to develop education, for teaching and for pupils’ learning. This article aims to indicate and discuss what is identified as a relativisation that appears when schools and teaching are remediated and which manifests itself on three different levels in schools, i.e. regarding: (1) the content of the teaching; (2) the forms of teaching; and (3) the relations in the classroom. The examples are taken from teaching of the school subject Swedish (mother tongue).

Keywords: relativisation, remediation, polyvocal

Introduction
Education is an institution aimed at transferring the knowledge, abilities and cultural values required for the continued existence of society. With these duties, education may also be regarded as a medium (Salomon, 2000) or “a uniquely human device for both the reproduction and production of culture” (Bernstein, 1990/2003:64). A medium consists of several so-called modes which stand for way or form and are socially and culturally created resources for creating meaning. Modes have different “affordances” and they are all used as resources for learning in e.g. education (Bezemer & Kress, 2008). A medium has both a material and a social aspect and consists of the substance or the material through which meaning is
created and through which it becomes available to others (Bezemer & Kress, 2008). In the case of education, it is a matter of school buildings, classrooms, textbooks etc., but also of an institution with its specific history, social relations, hierarchies and other prerequisites.

The point of departure in this article is that the medium of education traditionally and as an idea was based on older technologies and media such as books, paper and pencils, but that under the influence of new digital technology this condition is being ever more challenged since the balance point among the different modes is being shifted. The inherent physical structures and symbolic form of media play a decisive role in the design of what and how information is coded and transferred and hence also how it is decoded. It is the structure of the medium that determines the content and nature of the information. Like other media, education will be remediated in a new media ecology perspective which, to fulfil Bolter & Grusin’s (2002) reasoning about the concept of remediation, means that education will pay attention to itself as a medium. Concretely, it is then a matter of the mechanisms governing the pedagogical discourse of education, such as teaching content and teaching practice, which includes hierarchies and social roles, becoming visible and a subject of reflection. When teaching content and teaching practice become visible in this sense, it also means that one looks at it in relation to something else, i.e. there is an act of relativising.

Like all remediation, this also offers a promise of reforms and changes in the sense of remoulding, which partly corresponds to all expectations placed on new media regarding the possibilities to develop education, for teaching and for pupils’ learning. Like with many other countries, Sweden has invested significant resources in new technology and new media, here called digital media, becoming a natural and important part of the teaching of schools. A developed use of digital media is assumed to lead to pedagogical change and hence better teaching (SOU 1994:118; Prop. 1995/96:125).

But new and old media interact with each other in different forms, the so-called convergence paradigm (Jenkins, 2008). It functions as a unifying force but is always in a dynamic relationship to change. Since a medium is both a technology and a social practice, a media shift can never ignore the cultural dimension. Media convergence changes the relationship among existing technologies.

From a pedagogical perspective, the remediation results in both gains and losses. The gains include polyvocality, interactivity and reflectivity in the teaching. In the case of the subject of Swedish, it may e.g. be about reflections on how narratives are mediated in different ways by films, books, computer games etc., which Elmfeldt & Erixon (2007) call “media reflectivity”. The losses include disintegration and fragmentation, which has seldom been considered in the debate on the digitalisation of education. It may be a matter of perspectives and individual associations being equally valued and of pupils’ opportunities to move out of their own perspectives being made difficult.
Background

The predominant pedagogical discourse in education consists of two conflated discourses; one about teaching and the other about upbringing (Bernstein, 1996/2000). Yet, up until quite recently, this discourse was traditionally maintained by the teacher, who organised and controlled the activities, initiated and transferred knowledge and had control of the content through textbooks and other teaching materials. With new technology now making its entry to school teaching in earnest, both the teacher's and the textbook's function of controlling knowledge is being challenged.

If education is regarded as a medium, then it is also possible to claim there is a similarity between education as a medium and the essay (Tuman, 1992). In its capacity as a miniature book, the essay reflects the connection between the writing culture and the task of creating a focused text, according to Tuman (1992). The essay constitutes a coherent text with, to refer to the visual arts, a kind of textual central perspective around which the narrative moves. This implies that the essay in its form and hence in its content gives expression to a coherent perspective or worldview. The essay is what Bakhtin (1981) calls “monologic” in contrast to dialogic literature, i.e. it pretends to be the “last word” (Todorov, 1984:107).

With the Internet the traditional textbook in the educational setting will be more and more replaced by what Lanham (1990) regards as a “polyvocal, interactive, volatile computer file” (p. xv), which means an extension of the repertoire of means of expressions in the teaching. This implies expanding the comparison I will make in teaching/narratives. Rather than a composed narrative/teaching, we will not read essays or narratives via what we now call the Internet, i.e. study and read the teacher's analyses or textbooks, but the material that forms the basis of such an essay or novel. All of this happens by means of the computer, the screen and the Internet.

Historically and symbiotically, school and education are connected not only with church and literacy, but also with the technologies of book, paper and pencil (Erixon, 2010a; Johansson, 1977; Tyner, 1998). These technologies have set the framework for both the form and content of school and education. This condition is well summarised in the national curriculum of the school subject Swedish where, under the heading “The Subject’s Aim and Role in Education”, it states: “education in the subject of Swedish is aimed at giving the pupils opportunities to use and develop their ability to speak, listen, see, read and write and experience and learn from works of fiction, film and theatre” (Swedish National Agency for Education, 2000). Reading, speaking and writing are the focus of teaching in the subject of Swedish and, hence, so too are the technologies of paper, pencil and book (or codex). Activities and competencies take their point of departure in old technology. For this reason, the importance of learning to write by hand is emphasised, not learning word processing by means of a keyboard. The development of digital media is said to
‘create opportunities for development’, but the concrete meaning of this is not mentioned. Language and works of fiction are concentrated on.

Internet-based teaching means the same for the classroom as what hypertext means for reading, namely that the author/teacher is moved from the absolute middle to a more decentred place, which also allows readers/students to develop their own interests. The teacher’s voice is becoming one among other voices and it is also becoming possible to communicate without a mediating teacher. Internet literacy is thus changing the traditional idea of a text in that it brings back the writing from having been controlled by an individual person (the traditional author/teacher) to a system of activities and texts which can be quickly moved and copied and to which a large number of comments and responses can be attached. All in all, the remediation that education is undergoing implies a relativisation of the activities involved in the teaching content, teaching practice and social relations in the classroom, which I will deal with in greater detail below.

**Aim and questions**

Based on a national investigation in the research project “Skolämneshandgivning och undervisningspraktik i skärmkulturen” [“School subject paradigm and teaching practice in the screen culture”], this article aims to indicate and discuss how the relativisation that appears in our empirical material when schools and teaching are remediated manifests itself on three different levels in schools, i.e. regarding: (1) the content of the teaching; (2) the forms of teaching; and (3) the relations in the classroom. The examples are taken from the teaching of Swedish.

**Research orientation**

Reading and writing no longer only include paper and pen but now also a screen. Literacy is therefore not a question of language anymore, but also of multimodal design. Cope & Kalentzis (2002) introduce the concept of multiliteracy in order to show that this also requires other and widened competencies. The screen is on the way to replacing the book as the dominating medium of communication. At the same time, the image and image production are replacing writing. Kress (2003) envisioned ten years ago that writing would be replaced by other modes of communication when “the world told” instead becomes a “world shown” (p. 1). Different media hold both potential and limitations with regard to creating meaning, i.e. different “affordances”.

The computer’s interface is not a transparent window into the information offered by the computer but, according to Manovich (2001), through its appearance and its structure it sends strong messages itself. In semiotic terms, the computer’s interface acts as a code. By organising the computer’s information in a specific way, the interface offers a distinct model of the world.

Some argue that images open up for more personal interpretations than written text, although Bakhtin (1981) highlighted that all texts and utterances are intertextually
related in a dialogic relation to other texts and utterances. Visual communication should in that sense be more subjective, Matusitz (2005) claims, since it does not function within the same restrictive frameworks as language-based communication. Visual communication includes a dialogic process where the way in which a person conceives something is connected to his or her previous knowledge and experience. The visual sphere is the subject of more active personal interpretation than e.g. a written text. In line with this, Watkins et al. (2004) show that pupils in lower forms (elementary school), when relating to illustrative pictures in textbooks in the area of science, use their own experiences when interpreting pictures and illustrations in a book and that their intuitive constructions, often built on their naïve assumptions and everyday experiences, form the basis of their knowledge. The result of the study also shows that illustrations in textbooks do not support the pupils’ understanding but encourage their misconceptions.

The visually represented world is not the same world as the world represented by the scripture. It is a different world, which creates other individuals and citizens. This implies a number of issues that are the focus of this article, namely, what happens in the educational discourse when digital technology comes in while in school contexts the historically dominant textbook is partially losing its significance in favour of images and multimodal forms of presentation often taken from the Internet.

The World Wide Web could be regarded as a single large global hypertext with many different types of web pages. Hypertext challenges the procedures for both reading and writing. A hypertextual essay may consist of a number of contradictory angles of approach, without any ambition to indicate what is worth defending or not. Hypertext and hypermedia are thus in opposition to the very idea of a discursive presentation of arguments. In the late 1990s, Bolter (1998) prophesised that literacy in the electronic age may therefore come to be about the production and consumption of images rather than reading and writing either hypertexts or linear prose.

Teachers in Swedish upper secondary school are handling the changes that Kress (1998) and Bolter (1998) could only divine about ten years ago. In Erixon (2010b), for example, the teacher, Mark, discovered that the pupils had difficulty reading and understanding written texts. For this reason, the teaching as it appeared was organised and implemented so that Mark could largely rely on pictures as a point of departure in discussions about different issues and areas in the subject of social studies. The pupils’ life-world was becoming part of the content. It was their associations just as much as the teacher’s ambitions that determined how the lessons developed. In this way, more perspectives were being let into the talk. When more worlds and perspectives were allowed, a dialogue was created among the different perspectives. At the same time, the normative element was weakened and hence so too was the entire pedagogical discourse.

When the writing, the textbook and the teacher are decentred in favour of the image and the Internet, the disciplined role of both the textbook and the teacher is...
challenged. The image as fashion opens up for individual and subjective interpretations that on a concrete content level make more perspectives and adherent values available. At the same time, searching on the Internet also leads to a fragmentation of the content. Carr (2010/2011) claims that a search engine often draws our attention to a particular fragment of a text, a few words or sentences that have strong relevance to whatever we are currently searching for, while providing little incentive (motivation) to take the work in as a whole. All these changes in the form of the content are also altering the ways we use, experience and even understand the content.

**Theory**

The pedagogical discourse includes both a discourse concerning abilities or knowledge of different kinds and their relations to each other and a discourse for social order (Bernstein, 1996/2000). By means of *recontextualisation*, the pedagogical discourse creates a selection of imaginary subjects, i.e. school subjects. Among others, textbook writers work in the recontextualisation field that is so formed. In their work, they make different selections from their respective subject areas which, in order to fit into education, are also related to other subjects as regards their sequencing and the way and order in which the pupils are expected to acquire the content. The rules for this transfer are a function of the *regulative discourse*.

Bernstein’s concept of “classification” is among other things about how different school subjects or disciplines relate to each other, i.e. what distinguishes them and what unites them. A distinction can be made between strong and weak classification. Where there is a strong classification, things must be kept apart, i.e. the difference must be emphasised. Where there is a weak classification, things must be brought together and the differences are no longer emphasised. Framing represents the pedagogical practice, i.e. what form the control has over the communication between teachers and pupils and pupils and pupils. It is about who controls the communication and hence also the sequencing of the teaching, i.e. in what order things should be presented and in what way. When the framing is strong, the person who transfers has explicit control of the selection, sequencing etc. Where it is weak, the recipients have clearer control. Where there is weak framing as regards the instruction discourse, there is also weak framing of the regulative discourse. Here the rules are implicit and unknown to the recipient. A weakening of the framing will also challenge the classification. Changes can thus take place on the level of the framing. This means that the forms of teaching challenge the content of the subject. This also shows how the paradigm is kept together by the form and content; how they constitute a coherent entity.

School subjects are social constructions that conflate social relations and structures in the task of transferring the cultural tradition (Bernstein, 1996/2000; Goodson & Colin, 1996). They also set up their frameworks for how the practical activities are organised. School subjects organise the knowledge that is mediated in
schools and create what Foucault (1971/1993) calls “regimes of truth”. This is about rules on what is possible to say or do. In order to maintain these there is a truth claim on what is knowledge.

**Media ecology**

Media ecology is based on the idea that communication media are not neutral, transparent or value-free channels for transporting information from one place to another. The idea is instead that the inherent physical structures and symbolic of media form play a decisive role regarding the design of what and how information is coded and transferred and hence also how it is decoded. It is the structure of the medium that determines the content and nature of the information. The different inherent physical and symbolic forms in different media presuppose corresponding different biases. As a logical consequence, media ecology claims that different media promote different physical or perceptual, social, economic, political and cultural effects that can be related to media’s inherent biases. It is a matter of how media influence culture.

**The visual sphere**

The visual and the verbal spheres offer fundamentally different possibilities for capturing the world (Kress & van Leeuwen, 1996/2000; Erixon, 2004; 2007). Language has syntax, i.e. rules governing the order in which sounds are combined, words and phrases, which lack flexibility (Messaris, 1998). In that sense, language is digital since it is an either-or condition that applies. The syntactic sphere is about the relation between the elements themselves. Images are subject to other semantic laws, but are rarely or never arbitrary. Lemke (1998) speaks of two fundamental ways in which we create meaning, by both classifying things into different sorts, or exclusive categories (“typologically”) and distinguishing differences in degrees along a continuum, rather than sorts (“topologically”) (290). Language is chiefly typologically based while visual perception and spatial gestures (drawing, dancing) are topologically based. The visual sphere is spatially organised and simultaneous and uses media such as light and materials of different structures. The spatial and simultaneous elements of the visual sphere lead to an underlying logic, namely the simultaneous presence of elements and the relationship between the elements. Its inherent characteristic is to show the most important elements in the spatial relation between the elements. Image and written text therefore offer different epistemological advantages and demands.

**Writing**

Writing is also changing. Ryan (1999) thinks that the printed text represents constancy, linear organisation, the writer’s authority, predetermined meaning, a centred structure, something monologic and solid, or a static representation of
the world. She believes that the **electronic text**, on the other hand, in its more spatial organisation represents something ephemeral, dialogic, fluid and interactive, but also and precisely therefore for reader freedom and growing meaning. A transfer from one modality to another can never be perfect in the sense that all semantic material can be transferred. Images have no words and words have no images etc. The concept of ‘transduction’ is close to Bernstein’s (1996/2000) concept of ‘recontextualisation’, which can be used to illustrate how discourses whose origin lies outside education and teaching are realised in a way that is intended for a pedagogical context such as e.g. a school subject. When semantic material is moved from a social context, from one medium to another, from one context to another, this includes a social and semiotic remaking which also includes social, pedagogical and epistemological change (Bezemer & Kress, 2008).

**The relational aspect**

All languages are considered to be shaped and organised in relation to three functions, or meta functions, which Halliday (1985) calls the **ideational**, **interpersonal** and **textual**. Writing, image and sound represent different textual meta functions, which also implies that they offer what Halliday (1985) calls different interpersonal meta functions. From a media ecology perspective, Meyrowitz (1985/1986) develops general principles or the relations among media, situations and behaviours with special respect to the shift between situations connected to the printing culture’s technologies on one hand and situations connected to what he labels electronic situations linked to the growing electronic technology. Meyrowitz thinks that the printing culture divided people into different information worlds depending on their writing and reading competence. Electronic media contribute to dissolving the boundaries between the different information worlds established by the printing culture by changing the “situational geography” of social life (p. 6). Based on Goffman’s (1959) drama metaphors, Meyrowitz contends that all individual behaviour in a given context can be broken down into two broad categories, namely behaviours connected to the back and the front stage, respectively. The development from printing culture to electronic culture implies that behaviours connected to the back stage increasingly often also appear on the front stage. The behaviour is thereby developing from what is more formal and impersonal to what is more informal and personal.

**The study**

The study “School subject paradigm and teaching practice in the screen culture – art, music and Swedish under influence” is based on observations and interviews with pupils and teachers in nine secondary schools (14–16 years old) spread over the whole of Sweden, involving 50 mother tongue teachers and 100 pupils (50 boys and 50 girls). The selected schools were not chosen with respect to statistical
representativity. Yet the ambition was to include a spectrum of schools with different preconditions, i.e. schools from relatively large cities, smaller towns and schools in the countryside, as well as schools with recruitment areas in relatively well-to-do areas, schools with many immigrants etc. One of the schools is a so-called multicultural school, one is a private school, and one recruits many of its pupils from areas with social problems. Yet another school is idyllically situated close to a medium-large community and belongs like another school in the study to a municipality where a conscious effort has been made to develop the use of media in the teaching. All nine of the schools have been anonymised and are named after trees: Sallow School, Nut-tree School, Lime School, Willow School, Larch School, Hawthorne School, Pine School, Rowan School and Birch school.

**Method**

The research approach is ethnographic (Hammersley & Atkinson, 1995). The collection of material was made in its natural context and the research process was as open as possible. Interviews were conducted both individually and in so-called focus groups, which is a commonly used qualitative investigation method among other things for studying conceptions and assessments of and attitudes to e.g. different aspects of teaching (Wibeck, 2000, 2002). It is a method that in a short period of time can yield a great deal of information in an area of interest (Morgan, 1997). In group talks, teachers are influenced by the social interaction (Bloor, Frankland, Thomas & Robson, 2001). In an individual interview situation, the researcher has greater control over the interview situation. In focus talks, this control decreases at the same time as the informants are forced “to explain themselves to the interviewer so that the elaboration of initial statements often occurs with relatively little input from the interviewer” (Morgan, 1998, p. 11). Wibeck (2000) points out a risk that may exist in connection with focus talks, namely a kind of group thinking, i.e. that there are norms governing what is allowed to be said or not in a certain group. In this investigation, it is precisely the group thinking that is the subject of interest.

The interviews focused on themes concerning the school subject’s relation to digital media and how the interviewed teachers and students thought new media have affected the content and teaching practice in the respective subject. Each interview lasted approximately 30–50 minutes. The empirical material has undergone three so-called transformations (Wolcott, 1994). From having initially been speech registered as sound on a voice recorder, the speech became text in a literal sense – a text event in a research project. Already, at this moment, a transformation had taken place since all significant paralinguistic and extra-linguistic signs of importance for the face-to-face meeting were reduced. The first transformation is thus from speech to writing. During this work, it became necessary to bring order to the material by means of the word-processing programme’s function for line division (Ely, 1991). This initial processing or “transformation” (Wolcott, 1994) of the material is what Kvale & Torhell (1997) call
a “concentration of meaning” because sentences and phrases in interviews are formulated more concisely, in my case in an Excel sheet. Long expressions are compressed and the essential meaning of what is said is transformed into a few words. The second process (“transformation”) included a “meaning categorisation”, which meant the material was coded into categories, enabling a large body of text to be reduced and structured. Meaningful categories were based on the survey’s overall and specific aims. They were based on the most fundamental function of the word-processing programme: to be able to rapidly copy, cut and paste. The aim was, thus, to generate themes in relation to the questions asked in the interview guide. The text material resulting from the second transformation consisted of a number of quotations from different interviews grouped under the respective theme with reference to the page and line number. The third processing (“transformation”) was enacted on the basis of categories of “making sense” by tying together what belongs together, creating images and expressions, relations between different phenomena and forming a conceptual and theoretical context.

**Results**

In this article, I have chosen to give an account of three themes that were crystallised in the various stages of the transformation process regarding: (1) the content of the teaching; (2) the forms of teaching; and (3) the relations in the classroom. The examples are taken from the teaching of Swedish. The purpose is, however, not to make comparisons between the participating schools, but to uncover thematic patterns and variations related to the use of new media in education in the interviews and observations that were conducted.

**1) The content of the teaching: From textbook to the Internet**

During our observations we could notice that the textbook, which is one of schools’ most important instruments for the recontextualisation, is taking on an increasingly unimportant position in the schools’ teaching. The overwhelming majority of pupils think that the content of what they study via the Internet is richer and more varied than a textbook or a teacher’s exposition (1702; 11). Some girls at Willow School say:

> I think it’s more varied in all tasks, instead of working with some books and the whole class doing the same things. There are perhaps not as many factual texts and things you think are interesting in the books, which you can more easily find out things about on the Internet. Even if there are three people working with the same subject. You can find different things about it (255).

By means of the Internet, the pupil’s own work is not only more varied and hence richer as regards opportunities to include e.g. different perspectives in the work; the variation is also greater when comparing different pupils’ works. In this way, the pupils’ works show a breadth that did not exist before. The increasingly abundant
supply of information thereby widens the perspectives in both the pupils’ own works and in comparisons between different pupils’ works. A possible aspect of the increasing variation is likely to be that the information and knowledge also then correspond to the individual pupils’ interests to a greater extent than used to be possible.

One aspect of the access to more abundant content is that the freedom of choice thereby increases. The printed book is associated with limitations according to such reasoning. Some boys at Larch School say:

There is much more freedom of choice when you have direct access. In a book it’s the content of the book you have access to directly, but the Internet is almost unlimited. So even if you read something there and you don’t quite understand, you can always find some way, there are so many choices there, like versions of books or such things that you can find there (136).

The boys seem to suggest here that if someone e.g. works with an area in Swedish and does not quite understand what is written in e.g. the textbook or information obtained via the Internet, they can always go further and find other texts that comment on or explain that content. This is another example of how several perspectives are brought into the teaching and how the relativisation of knowledge is increasing.

Accordingly, one has also understood a problem that must be handled and that is obviously becoming a more prominent content in the teaching of Swedish: criticism of the sources. Textbooks made more limited and adapted demands regarding criticism of the sources when the content was strained through textbook writers’ own moral filters and publishing houses’ observant readers and publicists. With the Internet and free access to information, opinions and interpretations of the world, demands are made on selections and analyses in order not to be entirely lost. Some boys at Sallow School express an understanding of this:

New opinions appear, that is, people think and can change more freely on the Internet. If you rewrite (change) a book, that’s not regarded as the right thing, but if you enter the Internet you can visit Wikipedia or wherever and rewrite (change) what is written there. So you can never rely 100 percent on any information that you get at all (338).

The boys’ reasoning seems to be based on the idea that what is written in a book is more reliable since it is more difficult to change the content once it has been published. On the contrary, the information that is available on the Internet, e.g. Wikipedia, can easily be changed and is therefore less reliable. This reasoning touches on the question of what is reliable knowledge and, of course, on the question of the nature of knowledge, but it also brings to the fore an altered view of writing. Written and printed text in a book appears more solid than written text on a screen, which is experienced as more fluid and changeable.
The new technology provides new opportunities for gaining access to information and the teachers also think there are great advantages in this:

Other opportunities are opening, that's definitely true, so surely the amount of information provides great advantages. /. . ./ . It was either a textbook or else you had to compile material yourself and then the world was smaller, so of course it's an advantage, I have to say (153).

The world is opening up with the new technology and the influx of information is increasing. Earlier on, they used textbooks and had to compile material themselves. Then the world was smaller, according to the teachers. The teachers also think that criticism of sources is important and partly represents a new content in the teaching of Swedish (1703; 13). A teacher at Pine School believes there has always been something that may be called criticism of sources, but that it easily became “a little constructed at times because it was not necessary”. The supply of information via the Internet makes other and greater demands. It seems that a new item is required in the teaching, which is connected to the criticism of sources, but at the same contributes new parts and attitudes to the content of the teaching, i.e. reflection. It is no longer sufficient to find facts and account for them, which is associated with the textbook and the older technology. The result may easily be that the pupils 'cut and paste'. The teachers at Rowan School say:

/. . ./ that there is some cutting, but if we include some reflection, some thinking of one's own, then this is broken (205).

The teachers seem to think that the new conditions require a higher form of thinking, namely that pupils relate to the knowledge and information they are gaining access to. Reflection is required.

In summary, the Internet stands out as a powerful tool in the teaching of Swedish, giving the pupils opportunities to access an almost inexhaustible source of information. According to the pupils themselves, their works exhibit great variation and rich content. The hypertextual information available consists of a number of contradictory angles and approach, without any indication of what is worth defending or not. Hypertext and hypermedia are, as mentioned, in opposition to the very idea of a discursive presentation of arguments. In all of this, the principle or recontextualisation weakens and the disciplined role of both the textbook and the teacher, i.e. the “regimes of truth”, is challenged (Foucault 1971/1993) and the classification and framing become weaker (Bernstein, 1996/2000). All of these changes affect the ways we use, experience and even understand the content.

This opening up towards cyberspace requires that a source-critical approach be developed in order not to entirely lose the perspective, according to both the pupils and teachers. According to the teachers, the easily available information requires a
higher form of knowledge, i.e. not only an ability to account for facts in an area, but also an ability to reflect on and take a critical approach to the knowledge that is obtained (new epistemology). The textbook is associated with limitations regarding both the amount of its content and its perspective, but is also regarded as something stable and reliable. In a further perspective, this implies a relativisation of what is relevant and reliable information and hence in this sense also a relativisation of the concept of knowledge and thereby an altered epistemology.

(2) The forms of teaching: From ‘telling’ to ‘showing’

When the textbook loses its self-evident place in teaching, this at the same time implies that other modes, such as images and quite often different multimodal combinations, are starting to be used more and more. Both pupils and teachers believe this is a positive development, even if it also creates specific problems.

The pupils think unanimously that it is more fun to both produce their own and become acquainted with others’ multimodal productions and accounts in comparison with merely written descriptions. When image, sound and text are combined, the result is not only better but also “sticks in the memory much better” since a certain type of information is linked to something else, according e.g. to the girls at Rowan School. They think that when a sound is linked to a text or an image, they will remember it.

The girls at Hawthorn School talk about getting a “vision”, which seems to mean that “they get an image more easily”, making it easier to keep up with things (38). Correspondingly, the boys at the same school think:

R: For example, we are supposed to write about Africa, so we write a very long composition, it’s much more difficult to describe something on paper. If you have a picture, ‘this is Africa’, it’s much easier to explain. You can have pictures of the inhabitants and of an event, what the terrain is like and the society there, instead of writing by hand, because then you don’t get a direct picture.

However, the boys at Larch School point out an advantage of writing and, in this case, the book:

F: There are more details in books than in a film (133).
The boys’ points of view relate to the question of the inner and outer images we create and are probably based on experiences of literary narratives transformed into the medium of film.

Yet some teachers at Larch School do not think that the increasingly frequent use of images in the teaching must automatically imply that writing is being decentered. They think that the number of images is rising in the teaching in the sense that teachers use more pictures in their expositions, which is a development that has been in progress for quite some time (cf. Erixon, 2010b). This means that the pupils consume more images than pupils did e.g. 20 years ago. At the same time they think, which is an interesting fact in the context, that the texts the pupils themselves produce are becoming longer.

Like the pupils, the teachers talk about the multimodal mode as being “more fun”, and that when more senses are used in the teaching this is also likely to facilitate learning (Rowan School, p. 209). The teachers at Hawthorne School believe that the multimodal mode “makes the pupils think”. In this context, pupils with reading and writing difficulties are mentioned in particular:

I think you can make them think many times by means of images and many pupils who have reading and writing difficulties or language disorders are encouraged by us to use many images and link words and images together (16).

A multimodal presentation enables the pupils to use several senses and thereby to also be more “creative” (248), according to the teachers at Willow School.

Many teachers believe the multimodal mode is also deceptive to the eye. A fine layout or ‘flashy’ appearance is perhaps not only difficult to judge, but it might also conceal a lack of content. A teacher at Lime School says:

We worked with trends, and then some wrote about the 60s and some different trends. They made oral accounts. But there a group that made a film about this. And they had dressed up themselves and acted. I was therefore taken in directly, but the content was very thin, there was somehow almost no content in this film after all. They certainly managed to include a little, but in comparison with writing about it there was a great difference (73).

The norm for a teacher of Swedish is oral or written text in some form of genre. This implies that all other modes are evaluated from this very perspective.

This is partly about teachers of Swedish who in this case are chiefly educated to relate to written texts. Their competence concerns writing, not images. With images becoming increasingly common in the teaching, this creates problems in the judgements. It is also a matter of all the aids in the form of models and other things that easily attract attention to the surface, the layout.

The teachers of Swedish also think that teachers are now competing against the world of entertainment. In comparison with it, they feel “so dry that it almost cannot
be said”. Apart from the feeling this may create, one aspect they emphasise is interesting from a pedagogical perspective. It is about the accustoming that the pupils are exposed to in their leisure time:

But there is a risk that with the new technology coming in what they want is entertainment and that we don’t quite reach them with the basic knowledge we want them to learn, but that it is the entertainment facts that are more important (278: Pine School).

The “entertainment facts” they talk about here seem to be another form of knowledge than what in educational contexts is usually called basic knowledge or basic facts. What they have in mind might be what the teachers at Lime School call “flashy”, which corresponds to the type of knowledge they think should be on its way out from education:

The knowledge they bring in multimedially is often factual knowledge, while we want reflection and analysis; it’s like a contrary production (Pine School, 278).

The teachers at Pine School seem to think that at the same time as the Internet provides preconditions for critical thinking and shifts of perspectives, it paradoxically seems to also lay the basis for more instrumental and fact-oriented learning.

The teachers at Pine School also admit that the multimodal mode is experienced as pleasurable, but that the disadvantage may be precisely that there is less to judge because there is less language, and they add:

It may easily take over this part when they produce images and they can spend any amount of time on it, but the reflection on it, the linguistic reflection that I need to include in order to judge is not taken equally seriously (278).

The possibilities for multimodal productions that now exist in different teaching contexts imply that the primacy of writing is being challenged and that images together with other modes are becoming ever more common. The pupils experience the multimodal mode as something pleasurable. The teachers also regard the multimodal mode as highly valuable, but at the same time think they are thereby facing a number of challenges. In their capacity as teachers of Swedish they are educated to judge texts, not images. It is therefore experienced as more difficult to judge and finally to mark the pupils’ achievements. The judgement difficulties are also connected to the fact that several pupils are often involved in multimodal productions. Multimodal productions and presentations open up new perspectives but, according to the teachers, they also seem to be able to lead to a more limited account of facts.

Taken together, this development implies a movement from ‘telling’ to ‘showing’ or from “narrative to display” (Kress, 1998:72), i.e. from the traditional way in a teaching situation, i.e. explaining, which is synonymous with stating the reason and interpreting, to showing, or letting somebody see and implicitly put the parts together oneself.
For Ryan (1999), *printed text* on one hand represents constancy, linear organisation, the writer’s authority, predetermined meaning, a centred structure, something monologic and solid, or a static representation of the world. *Electronic text or hypertext*, on the other hand, represents in its more spatial organisation something ephemeral, dialogic, fluid and interactive, and reader freedom and growing meaning.

The ever more common use of multimodal productions offers possibilities as regards reflecting on which affordances different forms of mediation have. A “transduction” (Bezemer & Kress, 2008) has taken place when semiotic material is moved from one context to another. It is a social and semiotic remaking, which offers different epistemological advantages and demands. Images are subject to other semantic laws, but are rarely or never arbitrary. It might open up more for personal interpretation, according to Messaris (1998) and Matusitz (2005). Here the pupils’ own media competencies can be raised to a meta-level.

**(3) The relations in the classroom: From teacher to friend**

From a media ecology perspective, social relations also change when new technology is brought into a context. The textual meta-function gains importance for the interpersonal meta-function, as Halliday (1985) puts it. The boys at Sallow School give examples of this. Since many pupils do not know very much about the technology, they need help from others in the class. This means they help each other and thereby also come to know each other better (322). In this way, the new technology encourages cooperation and social contact.

The different technologies provide different prerequisites for the social life at school, which also includes the way in which they work:

P: When you sit writing by hand you hit on ideas, but when you sit writing on the computer, you just write and don’t cry for help (266: *Boys Willow School*).

A majority of the pupils emphasises the fact they not only know more, but that they also often have to help the teachers with the new technology when it involves somewhat more difficult things. At Lime School, the boys talk about this in the following way:

G: Many, nearly all teachers in this school are not very technological, and then it is the pupils who have to handle the projector and such things because the teachers have never been told how to do it, and they have never bothered to learn it either. And that feels a bit tiresome (104–105).

The boys at Sallow School think that this probably creates a “little less confidence in the teacher”. After all, the idea is that the teachers should know more and teach but, since the pupils know more “in certain areas”, this also means that they lose respect for the teacher:
That the outlook changes, the teacher does not perhaps know everything, but the pupil gets more self-confidence and loses respect for the teacher in precisely what is taught (340–341).

It is not only the textbook that is questioned, but also the teacher, both being tools for the recontextualisation. This also implies a kind of relativisation of the knowledge.

Like the girls at Rowan School, one can point out another aspect of this situation whereby the pupils know more about the new technology, namely that for this reason the relations between teachers and pupils also improve. The normal starting position in schools is and has been that the teachers teach the pupils. Now the pupils have to help the teachers and a kind of mutuality develops:

If you then have to talk to the teachers about some new tool, they probably think that it is only positive because everybody can take tips and advice, so if you put somebody on the right track, that person can put you on the right track /…/ I think it’s more acceptable that the pupils know a lot nowadays (Girls, Willow School, 258).

Of course, this also implies that the pupils have views of their teachers’ ability e.g. to organise a PowerPoint presentation. If it does not look quite ‘okay’, the girls think that the pupils focus on that instead of the content. They are distracted. The boys at Sallow School also believe this makes the pupils less confident in their teacher:

They are supposed to teach, while we know more than they in some areas. As a result we also lose respect for the teacher; that the outlook changes. The teacher does not perhaps know everything, but the pupil gets more self-confidence and loses respect for the teacher in precisely what is taught (341).

The teacher’s competence also plays a role here. If the teacher is considered competent and the pupil is given tips, then some sort of a buddy relationship develops, they think.

The outcome is that there is less difference between pupils and teachers and that the levels and hierarchies are levelled out. One aspect of this situation is not only that in some areas do the pupils feel equal to or even superior to the teachers, but also that the pupils in some contexts might feel that the demands are not as high as they could be if only the teachers knew more:

/…/ I mean, it would have been good if they too had known just as much, but as a result not so high demands are made that you should know absolutely everything (323: Girls, Sallow School).

The teachers think the pupils help each other very much, that they seem to be happy about it and they are honest to each other. The advantages of this are not only a nicer atmosphere in the classroom but, according to the teachers at Nut-tree School, the pupils’ self-confidence grows when they see they can help each other (158).
The mutual help takes place not just between the pupils but also between the pupils and teachers, according to the teachers at Rowan School.

I don’t think there is any difference between myself and pupils as regards media since I can give them things and they give me things; there is interaction. Because I know some things that they don’t know and they can show me some things that they know better (209).

The teachers at Hawthorn School speak in a similar way about technology that goes wrong and that they then know whom to ask. But they never feel “that it would ruin any relationship but just the opposite” (18).

At Larch School, the teachers describe an optional language group chiefly attended by low-achieving pupils. There is also a pupil there who is very good with technology; if there are problems they ask him and he can help. This influences the relations between the teachers and the pupil in question:

And he is one of the weakest pupils I have but, because of this, our relationship has become stronger and because of this he works more, he is more positive when he comes to the class (120).

In this way, otherwise weak pupils can acquire status by being knowledgeable about technology. For weak pupils, the technology is not only an aid in e.g. the teaching of writing but also a competence that is valued at school.

For one of the teachers at Birch School, it is about “learning with respect”, i.e. that the pupils respect the fact that as a teacher of Swedish she has knowledge of the Swedish language that they do not have:

If I don’t know, I ask Matteus and then he explains where it is and then it’s sorted out and then it raises the status of some of the pupils in the classroom because they can finally show that they know something. But, of course, it is more equal since I don’t know everything, but I think that’s nice (355).

The teachers at Rowan School state that by means of the new technology they are moving somewhat closer to the pupils since they have started blogging and interact on the Internet.

I think it’s getting closer. I think we have taken an enormous step towards them since they started blogging and we can interact on the Internet and we can be more personal and I have demanded that they should be personal (209).

In summary, one finds that social relations are changing in the new media ecology context. Greater opportunities for contacts between the pupils seem to arise and the power relations between students and teachers are shifting when the teacher’s knowledge monopoly can be questioned. Pupils are partially losing their traditional
respects for teachers, which directly and indirectly includes the teacher’s role as a conveyor of knowledge, and a kind of relativisation on the social level is taking place in the classroom. Behaviour connected to the backstage, i.e. outside the classroom, appears now on the front stage, i.e. in the classroom (Goffman, 1959; Meyrowitz, 1985/1986).

Discussion

In this article, I regard education as a medium (Salomon, 2000) which is remediated. With this point of departure, I place traditional education on a par with a coherent text in the form of an essay. This implies that what typifies this genre in a transferred sense is characteristic of traditional education based on paper, pencil and book technologies. In a new media ecology context, what is polyvocal, interactive and transient is also becoming characteristic of education in its capacity as a medium. The modes that digital media are based on have both their potential and limitations with regard to creating meaning, which Bezemer & Kress (2008) call “affordances”. Communication media are not neutral, transparent or value-free channels for transporting information from one place to another. The inherent physical structures and symbolic form of media play a decisive role in the design of what and how information is coded and transferred and hence also how it is decoded.

That education is remediated implies that, like other media, education will oscillate between ‘immediacy’ and ‘hypermediacy’, between transparency and opacity. From having been transparent, education is becoming opaque, i.e. education is directing attention to itself as an institution and a medium. Concretely, this is then about the mechanisms controlling the pedagogical discourse of education, such as content, hierarchies, social roles etc. becoming visible and the pedagogical discourse thereby being challenged. It is being relativised. Under the headings “From textbook to the Internet”, “From telling to showing” and “From teacher to critical friend” I have tried on three levels to shed light on the remediation and consecutive relativisation that are taking place.

Relativisation occurs via all the perspectives that are brought into the pedagogical discourse through e.g. the influx from the Internet. In the interviews accounted for it is obvious that both the pupils and teachers think that the freedom of choice is increasing and that the world is suddenly opening. At the same time, criticism of sources stands out as an important content element in the teaching of Swedish. The textbook is associated with limited perspectives and restricted and partially obsolete content while, at the same time, it represents something reliable and solid; the Internet for something more transient and vague. The printed text’s materiality is experienced as a guarantor, while the more ephemeral nature of the screen is experienced as unreliable. This is in line with Ryan (1999) who contends that the printed text represents constancy, linear organisation, authorial authority,
predetermined meaning, a centred structure, monological, solid, a static representation of the world, something engaging. She thinks that the electronic text, on the contrary, represents what is ephemeral, a spatial organisation, a reader’s freedom, developing meaning, a decentred structure, dialogic, transient and interactive. In this way, more perspectives will be put up against each other in the teaching and the question of the nature of knowledge will be brought to a head when the boundaries between values, knowledge and perspectives are challenged.

On the second level and in the concrete teaching a transduction is taking place, i.e. a transition from ‘telling’ to ‘showing’ or from telling and expositions to images and models. This is happening, among other ways, through textbooks, in cases where they are being used they are becoming increasingly illustrative in their character, while the amount of text is decreasing in favour of images and illustrations. This movement towards the image and the model is also occurring when images are being used to a growing extent in different multimodal combinations. The image offers other affordances than the text and hence also a different content; among other things, it invites more individual interpretations in comparison with a written text. At the same time, the writing in textbooks, as Kress (1998) has shown, is going through a movement from “narrative to display” (p. 72), and within the same mode, i.e. a “transformation”. Booth (1983) made the same observation concerning modernist fiction.

The pupils think that a multimodal presentation is easier to take in; they learn more easily by gaining more impressions in the form of images, sounds and text. It is also described as easier when pupils themselves are to present something to have access to e.g. a multimodal production in the form of PowerPoint. In this connection, they think it is easier to explain in one’s own words so that everybody understands. The multimodal mode appears pleasurable and creative in comparison with written text. Simultaneously, some teachers believe new media cultivate a kind of superficiality; they talk about “entertainment facts”, which leads to the interesting reflection that the same technology can both contribute to more perspectives and reflection and at the same time lead to qualities that are in direct contrast to these. But, in addition, there is an insight provided by pupils that the book also has its merits. There are more details in books than in films, according to a pupil, at the same time as a teacher probably thinks that it is certainly true that images are taking over more and more of the teaching, but also that the pupils themselves probably write longer and more texts for this very reason. The teachers also realise that they will now have to develop a competence that is relatively new to them, namely image analysis, which will make it possible to more actively lead and put in perspective the interpretations and associations the pupils contribute.

The third level concerns the relations in the class, both among the pupils and between the teachers and the pupils. With the teacher’s function changing, as I call it, from teacher to friend, the traditional hierarchical structures are also being
challenged. Theoretically, this is expressed in both Halliday’s interpersonal meta-
function and Meyrowitz’s media ecology theories of the front and back stages. The
teacher cannot possibly keep control of the content that the subject of Swedish is
suddenly being filled with via the Internet. When teachers in the new media ecology
context and in comparison with the pupils also have obvious difficulties in handling
the new technology, there arises a state of dependence on the pupils which may
be experienced as both positive and negative. Regardless of this, it implies a
questioning not only of the teacher’s technological know-how, but also of the
teacher’s knowledge monopoly. It is not only the textbook that is questioned but also
the teacher, with both being tools for the pedagogical discourse and its recontextua-
lisation apparatus.

Conclusion
When new digital technology and access to the Internet are brought into a teaching
context, the recontextualisation becomes weaker in the sense that the flow of facts
and information directly enters into the school’s teaching and past the transforma-
tion centre of recontextualisation, which opens up for information and knowledge
that represent several different perspectives, thereby also weakening the boundaries
between what is knowledge and what are values. The teacher’s and the textbook’s
knowledge monopoly, as well as the teacher’s authority as a conveyer of knowledge,
are being challenged. This tendency is strengthened by images and multimodal
productions becoming increasingly common in the teaching. In turn, this opens up
to associations and subjective perspectives in a way that printed texts never do. This
leads to a weakening of both the classification and the framing of the subject of
Swedish. When new digital media are brought into the teaching, the teacher’s
mediating function is also challenged. In this new context, teachers seem to no
longer have full control of the ‘text’ s/he compiles for the pupils. It is more the case
that the pupils themselves compile their ‘text fragments’ based on available
information. In this way, the ‘truth regimes’ of education are challenged by new
technology, i.e. when the coherent truth, mediated via the omniscient teacher and
the textbook, to an ever greater extent is being replaced with hypertextual schooling
including several perspectives, and hence also, as the flip side of the same coin,
mutual and incompatible perspectives, i.e. disruption and fragmentation.

One might say that the education with a long tradition based on the older
technologies of book, paper and pencil, and like an essay, was linearly structured
with an omniscient narrator. When the development with the aid of new technology
moves from telling to showing, the linear sphere is weakened and thereby so too is
the cause-effect connection that the omniscient teacher mediated by means of the
textbook in favour of a more spatially and hypertextually structured education,
based on subjective interpretations and associations.
But the hypertextual mode is not only leading to perspective shifts and opportunities to connect the content of education more individually to the pupil's own life-world, but also to a fragmentation and disintegration of what in a more monological school culture was integrated and given a meaning. By combining many different kinds of information on a single screen, the multimedia Net fragments content and disrupts our concentration (Carr, 2010/2011). Greenfield (2009) claims that, although the visual capabilities of television, video games and the Internet may develop impressive visual intelligence, the cost could be deep processing: mindful knowledge acquisition, inductive analysis, critical thinking, imagination, and reflection.

But the remediation of education is not only leading to a relativisation or fragmentation but also to a possibility of reflexivity. This includes the pedagogical and didactic challenge in an emerging polyvocal, interactive and volatile hypertextual education. The remediation of the school offers a meta perspective on the school as an institution which involves not only pedagogical content and frames, but also social relations. But this calls for an active teacher who can help the pupil find connections between different hypertextual threads that otherwise threaten to hang loose in cyberspace.

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