The role of media in developing literacies and cultural techniques

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ABSTRACT

Not only new media demand new skills and contribute to cultural and social changes. The main purpose of this article is to present two theoretical approaches which look at how both traditional and new media (print, electronic and digital media) can function in terms of contributing to the development of (new) literacies and (new) cultural techniques. It is an ambitious project, trying to combine two relatively different theoretical approaches, each of considerable complexity.

Key words

media, literacy, technology, cultural techniques

The use of media, like books, newspapers, radio or television, is habitualized to such a degree that we hardly think about the fact that we have learned to use them. Even less do we think about the cultural and social consequences of their introduction. However, when it comes to new, digital and convergent media, many of us underline how important it is to learn their use and which far-reaching «effects»[1] they have; it is not unusual to talk about «revolutions» in relation to new media. If we look again it is evident that *all* media contribute to the development of new skills, influence our relationship with the outside world and have a transformative impact on culture and society at large. This is a relatively new, materialistic approach which deserves more attention.

The focus of this article is on how media can function in terms of contributing to the development of (new) literacies and (new) cultural techniques. It is an ambitious project, trying to combine two relatively different theoretical approaches, each of considerable complexity. One of these theories is relatively well-known, under the label of *media literacy*, but it is problematic because of its broad, interdisciplinary scope encompassing both the micro level of acquir-

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1. This term will subsequently be used in quotation marks or be avoided because it is associated with technological determinism. I use a concept of potential consequences or action possibilities, which I will come back to in the last section.

ing skills (pedagogy, psychology and cognitive sciences[2]) and the macro level of sociocultural changes due to the introduction of new media (sociology and cultural studies). The other approach is less well-known: a research tradition developed at and in connection with the Hermann-von-Helmholtz-Zentrum für Kulturtechnik at the Humboldt University in Berlin. However, this work is increasingly the subject of debate, most recently in a special edition of *Theory, Culture and Society* (2006, no.7–8).

The theories which are at stake here have at least some common denominators. The notion of both media literacy and media as cultural techniques refers to communicative practices and their mental, social and cultural implications. Thus, the approaches are basically interested in communication as social and cultural practices. They imply a broad conception of media as being tools and technologies which constitute special techniques and competences by using them, with specific user interfaces and «effects» on cognition, knowledge, memory, mental structures and socio-cultural shifts.

The following text will try to present some of the core ideas of the two approaches and point at intersections between them. In the case of the cultural-technique-approach this presentation has the character of an introduction since it is quite unknown in Norwegian academia so far. In one way it is currently less developed than the literacy-approach. The outline, incomplete as it is, will at best inspire questions, provoke debate and promote further exploration of the field.

APPROACHES TO MEDIA LITERACY

A definition of «media literacy» is both easy and complicated, depending on how broadly the term is perceived. Literally, and in a narrow sense, literacy means the ability to read and write texts. Literacy in this sense is a counterpart to orality, as the mastering of oral speech. Since writing and reading is a fundamental part of media literacy, probably more important or at least more widespread today than ever before, this narrow sense of the term is still relevant.[3]

Beyond this narrow or original definition, literacy has further dimensions: (1) It also means the mastering of a nation's cultural canon. A literate person was familiar with high culture; «those marked as 'literate' are well read in what usually consists of selected canonical works of literature» and they had the «ability to write 'polite', 'proper', and/or 'polished' essays» (Frechette, 2002,

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2. Literacy in a pedagogical, psychological and partly cognitive perspective is not the focus of this presentation; my main interest is the relevance of the literacy and cultural technique-approach for media studies.
3. A professorship has recently been established in literacy studies, «lesevitenskap», studies in textual production and reception, at the new university of Stavanger, Norway. The first incumbent of this chair was Bjørn K. Nicolaysen (see Nicolaysen, 1991, 2005).

p. 23). Thus, a literate person is not only able to read and write, but has a high cultural and social education, while an illiterate is an analphabetic in both a literal and metaphorical sense. Hence, the term literacy is often associated with both education and «Bildung».[4]

(2) Media literacy also goes beyond textual literacy. Joshua Meyrowitz offers a useful, multiple definition of media literacy as being (a) content literacy, concerning the ability to understand and analyse a mediated text or other kinds of messages, (b) «media grammar literacy», meaning the ability to «read» for example the visual language of a film, with cuts, zooms, fades and the like, and (c) medium literacy, underlining the understanding of the (technological) functions of a medium both on a micro and macrolevel (Meyrowitz, 1998). Content literacy is the focus of interest in both media pedagogy and media studies (at least in Norway); one of the most well-known scholars in this respect is James W. Potter.[5] It is far from being unimportant, on the contrary: new digital representations like hypertexts need new textual competences. However, literacy should not be reduced to the mastering of verbal and visual texts. Like Meyrowitz, I extend it to a kind of media-technological literacy, or a literacy which concerns both the understanding of a message and the meaning of the specific mediating function of the medium itself.

Technological implications of media literacy manifest themselves quite clearly in historical changes of media development. The most traditional way of conceiving these changes of literacy is in two steps, from orality (speech) to literacy (written verbal texts), to audiovisual competences (film, radio, television). Digital literacy is the most recent phenomenon and field of research. Some see it as part of audiovisual literacy, some claim that digital literacy is more than a variant of competences learned by analogue electronic media. The distinctions I have chosen are between the following three types of media and the respective competences they constitute: print culture, including written verbal expressions and images, electronic literacy and digital literacy.

An advantage of this distinction is that it refers quite strictly to different technological characteristics, in terms of different ways of processing, storing and presenting information. As a consequence, it shows that the content which is

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4. See, for example, Søby (2003) and Buckingham (2006). This extension has a parallel in two concepts of rhetoric (which has strong relations to literacy). In a narrow sense, rhetoric is the art of speaking well, predominantly by mastering the elocution part of speech as a technique of persuading. In a broader sense, or as a kind of «maximum rhetoric» (Johannesen 1987) it also covers the notion of *Bildung* and *humanitas*, in terms of communicative proficiencies which also always include broader intellectual and social competences (Andersen 1995, 1999).

5. Potter talks about media literacy as «a generic set of skills that underlies our ability to process any type of media message» (Potter, 1998, p. 5). Another quote: «The purpose of media literacy is to give us more control over interpretation» (Potter, 1998, p. 9). The book itself is about more aspects of media (e.g. economy, ownership, media effects) but does not explicitly include what Meyrowitz calls «media grammar literacy» and even excludes «medium literacy» (for example, in terms of mastering interfaces).

mediated takes different forms, or it clarifies that technology not only transports content, but also transforms it.

Print culture: verbal and pictorial literacy

Literacy originally meant the ability to read and write texts, in terms of understanding and composing letters of the alphabet.[6] Thus, literacy is linked to handwritten and typographic culture. Primary cultures are oral; they can be called preliterate, without being inferior. Both are highly structured verbal performances, with orality as a primary and literacy as a secondary «modelling system».[7]

Some of the most well-known works on literacy deal with the changes from oral to print culture.[8] Different in scope and direction, they claim that the basis of these changes was the invention of the (Greek) alphabet, and that the main consequences of written language were stored memory, systematic thinking and the development of science. At least some of them extend the implications of literacy also to the development of systems of administration, of state-building and democracy. Alleged relations between the mastery of written language and democracy still prevail, not least with UNESCO's support of the eradication of illiteracy as a crucial means of development.

Before the introduction of elementary schools for everyone, reading and writing were exclusive proficiencies for educated people. People who were not literate were illiterate in the strictest sense, but they mastered a specific form of literacy as well: they could «read» pictures. This is overlooked in most works about literacy, mainly because of the strong focus on the alphabet as the basis of literacy. An example is Olson who (in his work *The world on paper,* 1994) rightly criticizes the overstatement of reading and writing as direct causes for social progress, but does not include the many popular illustrated texts which have existed from the beginning of the printed press. A rich mass-distributed visual media culture besides printed verbal texts has contributed to what one could call visual or pictorial literacy. Thus, even illiterate people were able to at least basically understand, for example, early block-printed illustrated books, illustrated leaflets and «Bilderbogen», calendars, ABC-books and other types of illustrated printed material available in many European countries from ca. 1550.[9]

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6. In Western societies like Norway; ancient Greece was the most well-known nation with a developed alphabet, but far from all cultures use the alphabet as the basis of writing.
7. Ong, [1981] 1992, p. 8, with reference to Jurij Lotman.
8. Innis 1950 and 1951, McLuhan 1962, Havelock 1963, 1976 and 1982, Goody & Watt [1963] 1968, Eisenstein 1979, Ong [1981] 1992, Scribner & Cole 1981, Olson 1994.
9. See for example Brückner, Wolfgang (1969) *Populäre Druckgraphik Europas. Deutschland vom 15. bis zum 20. Jahrhundert.* München: Callwey, and Hassner, Rune (1977) *Bilder för miljoner. Bildtryck och massframställda bilder från de första blockböckarne, oljetrycken och fotografierna till den moderna pressens nyhetsbilder och fotoreportage.* Stockholm: Sveriges Radio, Raben & Sjøgren.

This inclusion of visual literacy is controversial. Even the term visual literacy is contested. Paul Messaris, for example, announces that visual «literacy» is a conceptual problem, by putting it into quotation marks (Messaris, 1994), and I agree with him in as far as images and verbal language are so different that a simple analogy between understanding verbal and pictorial expressions has to be refused. On the other hand, there are at least three reasons for including visual «literacy»:

(1) Writing letters of the alphabet, drawing and printing images on paper are systems of notation. (2) Images may look natural, that is to say they seem to be easy to understand. However, they are artefacts, following specific cultural conventions (like the central perspective and other structural and formal devices), aiming at specific goals and representing specific ideological views of the world. Thus, the «reading» of pictures has to be learned, and we know that it is learned. One of the most crucial tasks may exactly be the «detection» of the «artifice» of seemingly natural images (Messaris, 1994, p. 138ff.). (3) The construction of a polarization between an old (and good) age of typography, dominated by logos (language and rational argumentation) and a new (bad) age of visual culture (above all television), dominated by irrationality, emotions and entertainment[10] is not correct in a historical perspective. History does not give evidence for a united early verbal print culture, but for a class-divided verbal and pictorial «world on paper».[11]

Electronic media: visual and secondary oral «literacy»

The advent of mass media which were not based on print culture opened up new worlds to even more people. Mass media operating with pictures and sound, most typically film and television, gave really large parts of the population (like immigrants with insufficient mastery of the national language) access to media culture. Today electronic mass media provide access to information and entertainment to all those parts of the population which are less proficient in logos-dominated verbal argumentation. This effect has been welcomed as being democratizing, precisely because of the «low literacy barrier» of the mass media (Newhagen & Bucy, 2004, p. 7) which provides egalitarian access. On the other hand, and in a more spectacular way, it has been criticized for «dumbing down the masses», as suggested by Postman (1985).

Electronic media have introduced «an age of 'secondary orality', the orality of telephones, radio and television» (Ong, [1982] 1991, p. 3), whereas, vice versa, recent media like the mobile phone (with SMS-functions) have added writing to formerly oral forms of communication. There is still much to be done in this field, in terms of a definition of a kind of «aural» literacy, including non-verbal sounds. Like images, sounds seem to be natural, but as medi-

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10. The most famous of these constructions is made by Postman (1985).
11. Postman is far from the only one to start the history of literacy with verbal texts. Kress (2003) describes the development of literacy with two moves: from writing to image, and from book to screen. Or from «the world told» to «the world shown».

ated sounds they are artificial, conditioned by, for example, the quality of microphones, studio sound, outdoor sound production and digitally produced sounds.

Audiovisual media have also provided new impulses for the exploration of visual expression, analysing and theorizising «visual culture» and «visual literacy». Moving pictures establish new kinds of visual persuasion, compared to still images, for example, by juxtaposing shots and constructing visual narratives. Together with sound, they resemble reality more than still images; thus they demand even higher skills in order to «read» their artificiality. Predominantly television is easy to be misinterpreted as not demanding any kind of mental skills. Critics of this, scholars like David Buckingham, have argued for the existence and making of a «television literacy» (Buckingham 1989, 1993, 2006). More generally, verbal texts, images and sounds which converge in electronic media, both demand and facilitate «communication multiliteracies» (Tyner, 1998, p. 113). This is even more characteristic for digital media.

Digital literacy

While quite a few scholars would deny or at least doubt that electronic mass media culture needs literacy, all of them would agree that the ongoing processes of digital culture demand learning new skills and techniques. A short search under the keyword «digital literacy» shows a huge amount of publications from just the last 5 years. An obvious indication for the importance of this new form of literacy is also the fact that both elementary and secondary schools focus heavily on education for the digital age, both by informing about ICT and by providing digital education, in terms of, for example, e-learning.[12] Curricula are based increasingly on digital competences; learning is thus conceived of as the learning of a kind of «ITC-ABC».

Some might claim that digital literacy is not a really new proficiency since it is heavily based on the old techniques of reading and writing. Textual expressions are thus only remediated. Others claim that digital literacy is (far) more than the combination or sum of previous forms of literacy. Søby, among others, calls it the fourth basic literacy, after reading, writing and counting (Søby, 2003).

Accordingly, narrower and broader definitions of digital literacy exist, as we have seen in the case of more general *literacy*. Digital literacy is often defined quite instrumentally, as «using digital technology, communications tools and/ or networks to access, manage, integrate, evaluate and create information in order to function in a knowledge society. The … definition reflects the notion

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12. Concerning school politics in Norway, see Søby, 2003 and 2006. He claims that «Norway is the first country in the world with a curriculum based on digital competences» (Søby, 2006, p. 3), but criticizes at the same time the fact that there is a serious discrepancy between visions and the real situation in schools.

of ICT literacy as a continuum… from daily life skills to the transformative benefits of ICT proficiency».[13]

David Buckingham suggests a definition which goes well beyond functionalist approaches. For him, the fundamental prerequisite of digital literacy is the development of critical approaches to digital media. Children/people have to understand that media offer particular selections and interpretations of reality, learn that media use specific rhetoric (e.g. the promise of interactive communication), be aware of «who is communicating to whom and why» and be aware of their own position as readers or users (Buckingham, 2006, p. 267–268). A particularly interesting aspect of Buckingham's arguments is that he underlines the cultural and social implications of (digital) media: they are far from just being technologies and machines, mediating information – they are cultural forms (Buckingham, 2006, p. 264).[14] In the same vein, he refuses the definition of literacy as competences or even mechanical skills and suggests «a more rounded, humanistic conception that is close to the German notion of 'Bildung'» (Buckingham 2006, p. 265).

Di Sessa also proposes a «maximized» definition of digital literacy, refusing the notion of «computer literacy» as «having enough keyboard and mouse skills to make a few interesting things happen in a few standard operations». This is «as if being able to decode, haltingly, a few 'typical' words could count as textual literacy». Instead, the author claims a much more encompassing «computational literacy» which «will allow civilization to think and do things that will be new to us in the same way that the modern literate society would be almost incomprehensible to pre-literate cultures» (Di Sessa, 2000, p. 4–5).

Despite these broad implications of digital literacy, the debate about it typically foregrounds the importance of technological skills. This is, in a way, a reduction. However, the focus on technology is important as well. It has been a blind spot in not least large areas of media research so far. In retrospect it is more evident than ever before that not only digital technology is a technology: all media are technological, as tools and as technology-based systems of information and communication.

TECHNOLOGICAL AND TOOL LITERACY

The crucial role of media technology and the necessity to master it is not a new discovery; Ong characterises written texts as a «technologizing of the word» (Ong, [1991] 1992). Even handwriting, not only typography, is «a technology, calling for the use of tools and other equipment: styli, brushes or pens, carefully prepared surfaces such as paper, animal skins and strips of wood, as well

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13. Results from expert panel discussions (The Educational Testing Service, ETS) in the USA, 2001, quoted in Søby, 2003, p. 12.
14. This is quite close to Raymond Williams' groundbreaking work on television as «technology and cultural form» (Williams, [1975] 1990).

as inks and paints…» (Ong, [1981] 1992, p. 81f.). Correspondingly, «writing is completely artificial» (p. 82), and written texts are artefacts. Also Innis and McLuhan have focused on meanings of media far beyond their textual messages: Innis by analysing historical development influenced by changing materialities of communication (Innis, 1951), McLuhan by his famous statement that «the medium is the message» and by his conception of media as «extensions of man» (McLuhan, [1964] 1999). The core of both scholars' work is the question of how changing media materialities and technologies have changed both our perceptions of the world and the entire social and cultural order of societies.

Scholars like Roger Säljö (1999) and Svein Østerud (2004) have proposed the term *tool literacy* for characterizing this aspect of literacy. Tools can be both material and concrete devices, for example, a pencil, and symbolic systems like the alphabet or the central perspective. Not least, McLuhan conceives of media as tools, claiming that «we shape our tools, and thereafter our tools shape us» (McLuhan, [1964] 1999: XI). McLuhan is also one of those who talk of media as *prostheses*, in terms of an extension of man's physical and mental capacities.[15] Media extend specifically our natural senses and our perception of time and space. This notion is also shared by scholars in the field of «cultural techniques». They underline an important detail: media are different from traditional tools and machines which make work more effective. They contribute to «the creation of artificial worlds which enable new experiences and operations which were not accessible without [them]» (Krämer, 1998, p. 17).

It is not commonly accepted that we need technological literacy, or tool literacy, when we use media. As mentioned before, at least traditional mass media seem to be able to do without any kind of specific proficiency. However, one of the main reasons for their familiarity is that our techniques of using them have become automatised and habitualised. «In reality», all new media in history have demanded and constituted new competences, both in production and reception.

Media literacy as «an exercise of material intelligence»

One of the most fruitful concepts of media literacy so far, in my eyes, can be found in Andrea di Sessa's *Changing minds* (2000). The crucial idea in this concept is the use of «tools» as well, but generalized to «external materials». What happens in the process of literacy is an «external extension» of the mind,

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15. The prosthesis-metaphor has been used and re-used by many scholars; Søby et.al. (2006) refer to Freud (*Das Unbehagen in der Kultur*, from 1929) who very explicitly talks about technology as prosthesis, and about civilized man as «a kind of prosthesis-god, quite impressive, when he dresses in all his supporting organs» (translated from a Danish translation quoted by Søby et al, 2006, p. 168). Other scholars the authors mention are McLuhan, Baudrillard, Lyotard, Landow and Bateson. Bateson talks about the blind man's cane as an extension of the senses; I would like to add Merleau-Ponty here who, in his famous *Phenomenology of perception* from 1945, talks about this cane some decades before Bateson.

resulting in «an intelligence achieved cooperatively with external materials» (Di Sessa, 2000, p. 5). The approach conceives of «three pillars of literacy»: (1) material (alphabet, syntax, numbers, algebra, inscription forms), (2) mental or cognitive, (3) social. The description of the social dimension can stand as Di Sessa's more general definition of literacy: «Literacy is the socially widespread deployment of skills and capabilities in a context of material support (that is, an exercise of material intelligence) to achieve valued intellectual ends» (Di Sessa, 2000, p. 19). It is not least the focus on materiality which makes this approach compatible with the second theoretical approach to be presented here: the notion of media as cultural techniques.

THE NOTION OF MEDIA AS CULTURAL TECHNIQUES

The approach to media as cultural techniques takes its point of departure in the identification of three basic cultural competences: reading, writing and counting. The inclusion of numbers and counting is an important issue; not all scholars of the literacy approach recognize this aspect of basic techniques.

The term *technique* is related to technology, without being synonymous. In a strict sense it refers to Greek tekhné, as means and methods to perform something, typically a piece of art or craft. It can also refer to social and cultural practices more generally. Media operate both in terms of techniques of production and techniques of reception or use, and both aspects have implications as cultural practices. The aspect of reception, or what media mediate in terms of (new) skills to be appropriated and developed by their users, and in terms of new experiences and knowledge, is quite close to the concept of literacy, presented broadly in the previous sections. Correspondingly, some scholars of the cultural technique approach refer to the same literature as the literacy tradition does; some of their «favourites» include Havelock, Innis, McLuhan, Ong, Goody, Eisenstein and Meyrowitz.

The term *cultural techniques* points to a programmatically broader concept than not least more restricted versions of the literacy approach. It is quite close to concepts like «print culture», «electronic culture», «digital culture», etc., articulated more or less explicitly by scholars who adhere to a «macro-version» of the literacy research tradition. «Print culture», for example, implies that printing, far beyond being a mere technology of producing and decoding printed material, transforms existing cultural forms into a new culture. Such cultural transformations typically have social impacts as well, on both individuals and societies at large. Thus, the approach to media as cultural techniques tries to understand the impacts of media technologies on human mind and socio-cultural development in a very broad sense.

One of the most important sources for developing the theory of cultural techniques is French anthropologist Marcel Mauss, who in his essay *Techniques du corps* (1936) presented the thesis that swimming is not natural behaviour, but

culturally conditioned: Different cultures practice different styles of swimming.[16] This may sound far removed from media, but it expresses an important uncovering of seemingly natural behaviour as cultural or learned practices. It also clarifies the double-sided aspect of the concept: actions are both generated culturally and generate new socio-cultural practices.

An important aspect of research on the role of media as cultural techniques is being carried out at the «Hermann-von-Helmholtz Zentrum für Kulturtechnik» at the Humboldt University in Berlin.[17] Its actual director, Jochen Brüning, is a mathematician[18] and its most well-known representative is Friedrich Kittler who has a background in literary studies, aesthetics and informatics.

Friedrich Kittler

Combining a critical reading of the ideas of Innis and McLuhan with, among others, Lacan's distinction between the symbolic and the real and Shannon's mathematical communication model[19], Kittler examines the impacts of media technologies on ways of thinking and on cultural and social formations. He conceives of media as information and communication systems, with the fundamental functions of storage, processing and transmission of data.

Kittler is interested in both technological production, clearly fascinated by engineers and inventors of communication systems (like Gutenberg, Edison, Turing and Norbert Wiener) and cultural and social practices «caused» by technological innovations. Quite contrary to literacy theory which typically looks at the development of skills in a sense of progress, Kittler examines this development in a neutrally descriptive way which often gives rise to more gloomy perspectives. Like Paul Virilo (in *War and cinema*, 1989), he thus claims that the main source for the development of media technology is war. War is, if not the mother of all technologies, «at least the mother of all high speed information and communications technologies… Military and media history can be told, at least partly, as the story of a series of steps of escalation

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16. Information from discussions with Friedrich Kittler in Bergen, May 2004.
17. See *http://www2.rz.hu-berlin.de/kulturtechnik/zentrum.php*. Some scholars work at other universities in Berlin: Sybille Krämer at the Freie Universität, Norbert Bolz at the Technische Universität.
18. He has co-edited an anthology on «the mathematical roots of culture»; see Brüning & Knobloch, 2005. Also Sibylle Krämer has published a book about the cultural history of systems of counting and calculating (Krämer, 1988).
19. This one-way sender-message-receiver model has been developed for describing communication in a «mathematical» or abstract sense, the receiver being, for example, a radio; as thus, it is still used in parts of information science. It does not work as a model for communication with humans as senders and receivers because (1) texts communicated by humans are not unambiguous signals, but typically polysemic and because (2) human reception is embedded in social and cultural contexts and is (3) characterized by participants with different motives and competences. Human receivers thus «decode» the «encoded» messages in quite different ways. See Stuart Hall's seminal essay *Encoding and decoding* from 1973, reprinted in many later text books, predominantly in the British Cultural-Studies tradition.

where one innovation in technology really does triumph over its forerunner» (Armitage, 2006, p. 27–28).[20]

Kittler's account of media history is also somewhat different from the traditional narrative of a development from orality to literacy to electronic (and digital) media. Written culture is for him, with references to Lacan, a stage of symbolic representation while media which he calls technical, render «the real»; examples of the latter are the gramophone and film, with their «rendering» of «real» images and sounds (Kittler, [1986] 1999). In later debates he makes an interesting distinction between these technical media in terms of being analogue or digital: analogue technical media still have a relation to the senses, by «storing, processing and retracing physical effects such as light and sound waves… For the digital computer, such distinctions are mere surface phenomena… We are literally and metaphorically screened off from the inner workings of the computer, where everything (sounds, images and texts; data, addresses and commands) are reduced to binary digits» (Winthrop-Young & Gane, 2006, p. 11). In other words: digital media uncouple the media and the human senses, and, in a way, even media and the humane.

Kittler's concept is also quite different from traditional literacy studies in at least one more respect: he strictly suspends the hermeneutic meanings of media texts; textual interpretations are, in his eyes, idealistic enterprises which systematically exclude the much more important aspects of mediation and, more generally, the «mediality» of texts.

This version of the role of media Kittler presents, not at least his sceptical stance towards progress due to media literacy, has been criticized as being cynical. However, it has also been characterized as being enlightening in the strict sense of the word: by liberating cultural history from idealism, moralism, interpretation of texts and discourse criticism, «putting it onto its media-technological feet» (Winthrop-Young & Maresch, 2006).

Kittler's approach is controversial also because of its «cold» or even inhumane perspective, «beyond good and bad» (Nietzsche). For exactly the same reasons it has been praised as a revolution of the humanities: after Kittler «it is no longer possible to separate culture from technology, communication from channels, messages from technologically implemented codes» (Winthrop-Young & Maresch, 2006). Kittler's approach is also criticised for its bias towards technological determinism, ascribing the subjects of media technology a rather passive role, more being acted upon than acting themselves. I will come back to this point in the last section.

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20. Also Norbert Bolz underlines the relations between the development of media technologies and war. See Bolz 1993: 124ff.

Other scholars, not a school

The approach to media as cultural techniques is, as far as it is documented at the time being, characterized more by individual voices than by coherent statements of a school. But there are some overarching fields of interest and preliminary findings which will be presented here briefly.

One of the few definitions of the term cultural techniques so far has been made by Sybille Krämer and Horst Bredekamp: «Cultural techniques are (1) operative processes dealing with things and symbols which are based on (2) a dissociation of the implicit 'knowledge how' from the explicit 'knowledge that'. Thus, they can (3) be understood as bodily habitualized and rutinized competences[21] which have their effects in everyday dynamic practices, but at the same time (4) can function as an aesthetic, material-technological basis for scientific innovations and new theoretical devices» (Krämer & Bredekamp, 2003, p. 18). Related to media, these techniques do not primarily mediate texts, but they establish perspectives of and give imaginary access to the world, depending on the specific technological architectures and interfaces they employ. Media always transform, with different materialities and functions. Technological conditions like storing capacity, speed of processing, ways of transferring signals, ways of using numerical systems, symbols and simulations, etc., influence the users' perception, ways of thinking and communicative activities.

Some of the (mental and sociocultural) implications Krämer and other scholars from this tradition lead our attention to are changes in our perception of and relations to the world outside, cognitive and mental changes, changes in the generation and forms of knowledge, and, as a more extreme consequence, constructions of manipulated worlds of illusion. None of the works in this tradition shares the typically optimistic notion of literacy in terms of progressive learning of new skills or techniques.

Media as technologies have decisive impacts on our perceptions of the world, both as tools which expand sight and sound and as devices which give access to information which cannot be accessed by natural perception. Thus, media have had, from their beginning, magical qualities. However, this more romantic aspect is overruled by the overload of perceptual simulations in modern media societies. Perception is becoming increasingly dissociated from our natural senses; modern life increasingly resembles a «flight on instruments, in a cloud-covered sky where orientation is not provided by the world outside, but by system-immanent control panels» (Bolz, 1993, p. 39).[22]

In a similar vein, «computer thinking» is taking over from the processing of data by human brains. The precise and fast processing of huge amounts of data by the computer is probably due to the fact that it operates in a closed system,

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21. The second part of the quotation refers quite clearly to Mauss' *Techniques du corps*.
22. Bolz refers here to Humberto R. Maturana: *Der Baum der Erkenntnis*, München 1987.

while human brains produce «wild thinking», in an open system (Lämmert, 1998, p. 102). Thus, knowledge gained by experience tends to be overruled by mediated knowledge which is de-contextualized to a high degree. This may lead to an important cultural shift concerning the character of human knowledge (Lämmert, 1998, p. 103).

Today's computers condition new ways of appropriating and storing knowledge, with new forms of knowledge as a consequence. We predominantly need to know systems for catalogizing and retrieving, or we have to learn processes rather than memorizing data. This establishes the mastery of search engines as a new cultural technique (Esposito 282, p. 291). Media function as storage technologies in different ways and thus constitute different techniques of memory. As external memories (instead of memories stored in human brains) they are more effective and lead, paradoxically enough, to oblivion: external archives allow us to forget things. As Plato noted, writing is damaging for memory (Esposito, 1998, p. 282f). Bolz compares a development from the linear world of writing (Gutenberg) to «facets of a mosaic» created by hypertexts (Bolz, 1993, p. 195), from «classifications and causalities» to «configurations» (Bolz, 1993, p. 201). Media do not only mediate knowledge, they design it as well.

Media manipulate the time axis (Krämer, 2006) and, more generally, notions of place and time. This has also been underlined by Innis, McLuhan and, most programmatically, by Meyrowitz (1985). More dramatically, media as technologies open the way for aspects of the world which cannot be seen or heard by natural perception. As a consequence, they are fundamentally manipulative; they offer a world of illusion (*Schein*) more than reality (Bolz 1991). Predominantly digital media, with their simulation possibilities, contribute to such worlds of illusion, but create at the same time new realities (Bolz, 1991, p. 117). «Our pictures of the world (*Weltbilder*) are transformed to worlds of pictures (*Bilderwelten*)» (Bolz, 1991, p. 123). These pictures are «without a symmetrical counterpart» or there is «nothing behind»; they are products of design and parts of an interface. Manipulation and illusion are not negative in this sense, the terms are merely descriptive. «Pictures constructed by alphanumerical pixels» are manipulations by nature (Bolz, 1993, p. 114). But they can be used ideologically, as a kind of perception management, for purposes of control and power.

This presentation of the cultural technique approach is far from exhaustive. However, instead of referring to more scholars and more findings, and making more critical interventions, the following sections will present some ideas about how to develop this approach further. They refer to a research project entitled *New media as cultural techniques and fora for communicative action* (2003– 2007).[23] The notion of media as fora for communicative action was inspired by

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23. A collaboration between staff members from the Department of Media Studies and Information Science at the University of Bergen and the Faculty of Media and Journalism at Volda University College, Norway. The project was financed by the Norwegian Research Council. See http://www.kulturteknikker.hivolda.no.

the discourse theory of Jürgen Habermas, an approach which in some important respects is fundamentally different from that of the «Kittler school».[24] The most important difference is the project's normative turn from the description of (new) cultural techniques to the idea of developing «better» technologies and techniques. Very much against the denial of agency which characterizes much work in the cultural-technique tradition so far, the intention of this project was to point at possibilities relating to changing media architectures and interfaces, in terms of a kind of «cultural engineering», both in theory and practice.[25]

Cultural engineering by constructing interfaces for «better communication»?

«If technologies really do impact on human perception and cognition, it can be argued that humans can construct specific technologies in order to shape specific patterns of cognition» (Nyre, 2004, p. 45). This can be translated to the possibility of actively trying to shape social and cultural practices by using media interfaces more generally. Thus, the design of platforms and interfaces is a decisive means of influencing what media can «do». Quite correspondingly, a scholar like Kathleen Tyner, engaged in media education projects, speaks in favour of not only learning «reading the world», but also «writing the world», as «an access to literacy in its most powerful forms» (Tyner, 1998, p. 4).

Democratic communication, for example, is far from being automatically created by interactive functions; quite specific functions have to be constructed which, for example, allow real dialogues and relevant forms of participation. Another example could be the problem that one of the most fundamental technological functions of interactive digital media is that the provider can identify the user, that is to say, the introduction of a new technique of supervision. We seem to have accepted this, as a kind of «collateral damage» of the digital age, but is this a function which is naturally embedded in the platform, or can it be changed? In any case, problems like these should be reflected in a critical discussion about «better platforms» (Nyre & Ala-Fossi, 2007).

«Old» and new cultural techniques in a digital, global media environment

There are quite a lot of challenges to research in the perspective of the approaches to media literacy and media as cultural techniques. The first is that more research needs to be carried out on «old» literacies and cultural techniques. The consequences of written culture have been quite exhaustively explored, but should be re-examined in the light of new platforms for written verbal culture and new techniques of writing, most typically in terms of word-processing. Secondly, the debate about «new» creative media use enabled by digitality could be enlightened by remembering that media literacy from its

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24. See the sharp critique of «the myth of communicative action» made by Bolz, 1993, p. 59–79.

25. This practical part of the project was an experimental, talk-based Internet radio called *Demostasjon*. See http://www. demostasjon.net.

start had both «passive» and «active» or creative dimensions: writing is thus a very early form of «creative literacy».

Audiovisual literacy should be explored more extensively in terms of the specific mode of distribution and communicative architecture of these media. While print media enable one to go back and forth in a text, to jump over parts and re-read others, analogue electronic media, in terms of «moving images» and sounds, are ephemeral. They demand specific techniques or skills of reception which are still widely unexplored. Another aspect is the very specific way broadcasting constitutes audiences, and the changes of audiencehood in relation to changes in this one-way-communication system (Gentikow, 2007).

The mastery of late modern media environments demands multiple literacies, in terms of practical technological competences, traditional and new abilities to read and write, traditional and new pictorial literacy (due to the character of digital images), information literacy and communication literacy, etc. All of these competences also imply traditional and new social and cultural practices. As to digital literacy more specifically, it implies finding information, storing and retrieving material, orientation in huge amounts of data (browsing, scanning, navigating, using search engines), structuring and selecting information, making decisions, learning to decode multimodal texts, playing games and, not at least, communicating with others from traditional and mobile platforms. Other proficiencies may include file-sharing, as a highly interesting new social practice which, with its gift-economy, also «creates» new logics of economy. Not least, digital media enable many types of «creative literacy», like editing one's own pictures, blogging and contributing to collective documents (like Wikipedia) and other user-generated content (with YouTube as the most well-known actual example).

All these activities go far beyond developing technical skills; they transform traditional knowledge, thinking and communication and social practices, as well as traditional roles of being audiences and/or users of media and information systems. Thus, digital media play a decisive role in constituting new cultural techniques and thus contribute to the shaping of culture and society at large.

The global dimension of these cultural and social practices is an important characteristic of digital literacy, or one of the most important new aspects of this new cultural technique. Recent research underlines the importance of learning global communication. The most interesting work, in my eyes, is carried out by scholars who, like Hawisher & Selfe (2000) refuse the notion of a culturally neutral «global village», but are aware of cultural contexts which result in different social and cultural practices.

«ARCHITECTURES OF COMMUNICATION» AND THE NOTION OF AGENCY

One of the main problems with the theory of literacy, and especially with the approach to media as cultural techniques, is their bias towards technological determinism. McLuhan has been heavily criticized for his overstatement of the effects of new media, mainly due to his tendency to support a (mono)causal confounding of media development with socio-cultural «revolutions» (Williams [1975] 1990). Kittler has also been criticized for being a «technological determinist» for, for example, quoting the opening line of his *Grammophone, film, typewriter*: «Media determine our situation» (Kittler [1986] 1999: XXXIX) and for pointing to the denial of human agency in his analysis of media influences. Also the cultural-engineering-approach which I present as an alternative to the Kittler-school's «technological determinism» can be questioned for the same reason.

These problems can, at least partly, be dealt with by looking at media as different *architectures of communication*.[26] These are physical and in a way fixed frames or paths of communication, but they do not determine one specific pattern of use. As structures, these architectures do not force themselves upon their users but, of course, influence how they can be used. They offer possible interactions or *action possibilities* which have to be realized. Their realization depends on both the technological resources and the capabilities of actors (partly achieved through past experiences), and their goals, values and beliefs.

Communicative architectures offered by different media thus both enable and limit certain ways of communication. The metaphor of architecture in relation to communication is predominantly applied to today's computer and network structures. However, it reveals particularly interesting aspects when used for all kinds of media, including, for example, newspapers or books.

The notion of communicative architectures underlines the dialectical relationship between the existence of structures or frames for action, and the active role of users. One could talk of *Spielräume* for specific ways of acting upon specific action possibilities. Thus, (new) media literacies and (new) cultural techniques do not automatically spring from new media technologies but are products of user adaptations. Hence, it is not technology which develops literacies but people with (or without) experiences, with different intentions, in different situations.

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26. See Holmes 2005, p. 20 and elsewhere. Also Kittler operates with the term architecture in relation to media, for example when talking about «hardware-architecture», «the architecture of computers», «standard architecture» etc; see Krämer, 1998, p. 128–130.

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