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der Carl von Ossietzky Universität Oldenburg

Band 15

Otto Peters

Against the Tide

Critics of Digitalisation

Warners, Sceptics, Scaremongers, Apocalypticists
20 Portraits

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Editors' Foreword

> *„Technology reveals the active relation of man to nature, the direct process of production of his life, and thereby it also lays bare the process of production of the social relations of his life, and the mental conceptions that flow from those relations."* (Marx, Capital, Vol. I, Chapter 5, Footnote 4)

The ASF-Series was meant as a platform for the faculty involved in the Master of Distance Education (MDE) program jointly launched by the University of Maryland University College (UMUC) and Carl von Ossietzky University Oldenburg to reflect their experiences with the new format of online distance education. Otto Peters was part of that team from the outset (2000) and even a contributor to the "Virtual Seminar for Professional Development in Distance Education" (1998), a fully online seminar which served as a testing ground for the MDE[1]. He certainly experienced some of the excitement of the pioneers of the new digital era who in fact had to try unchartered waters. The depth and productivity of his reflections are summarized in "Distance Education in Transition - New Trends and Challenges" (4th edition) which included his explorations of the "New Learning Spaces", culminating in his "Visions of Autonomous Learning". (Peters, 2010[2])

Now, in 2013, digitalization has become ubiquitous and online learning mainstream. Time has come for re-visiting what has happened, confronting also the possible collateral damage done, since according to the motto Peters chose for his introduction "nothing is true anymore without its opposite." The complete contradictory picture of what has happened (and is happening) requires giving the critics of digitilization a voice to be heard especially among distance educators so hooked to the affordances of digitization. For this purpose he is taking us on this journey "Against the Tide".

Otto Peters selected 20 critical voices[3] who address a range of dangers connected with digitalization. The authors are chosen among prominent personalities who attracted considerable media attention. Each chapter opens with a short biographical note about the author and ends with a summative assessment by Peters himself. In between, the main motivation of the author is discussed, his/her most influential publications are listed and the most salient critical points are discussed.

There is no obvious order of the chapters, since the book is not meant as developing a specific line of argument; rather it is meant as a resource book where chapters can be read independently and hence allow a modular arrangement.

The themes are widespread and, not surprisingly, often overlapping. However, most authors have their specific vantage point and focus, due to their own professional background. To comment on a few themes:

- The tool-user uses tools to change his/her environment: this again shapes the user. Using tools engenders division of labor and forms of social organization with which come

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1 Bernath, U., Rubin, E. (Ed.). (1999). Final report and documentation of the Virtual Seminar for Professional Development in Distance Education Oldenburg. BIS-Verlag der Carl von Ossietzky Universität Oldenburg.

2 Peters, O. (2010). Distance education in transition (5th ed. Vol. 5). Oldenburg: BIS-Verlag der Carl con Ossietzky Universität.- The first edition was published in 2002.)

3 One of the 20 chapters (Ch.10) refers to two authors who published jointly.

status and power. This applies to technological tools in general, and that bundle of information and communication technologies (ICT) referred to as digitalization makes no exception. The exteriorization of various functions of the body has changed our bodies and the exteriorization of cognitive tools will not leave our identities unscathed. Prensky hypothesized about a net-generation with 'differently wired brains'. While that view remains contested some of the researchers portrayed in this volume add some plausibility to it: the brain is a malleable organ and is shaped by exposure to its environment; hence it is to be expected that the increased media exposure leaves its imprint (cf. in this book Greenfield, Ch. 9; or Sigman, Ch.7). How it is changing is an open question. The assessment here, however, is less up-beat than most protagonists of the net-generation would have it: instead simply enabling multitasking, the 'new brain' may come with attention deficit, autism, or erode our ability of deep learning and reflection, often associated with traditional cognitive tools such as writing and reading (cf., among others, Greenfield, Ch. 9; Carr , Ch. 14; Gaschke, Ch.13).

- But it is not just about cognition; it is also about emotion. While the tamagotchis which allegedly served Japanese school kids to project (or develop?) their caring capabilities appear with hindsight as fanciful but rather harmless, Sherry Turkle's description of 'social robots' in residential homes for the elderly appears positively creepy (Ch. 17). It shows how digital technology, rather than enhancing conviviality, is merely used for coping with an increasing loneliness. - Loneliness and alienation is a recurrent theme: That mobiles allow us connecting with absent 'friends' may well introduce 'distance' even where is physical closeness. 'Being together alone', diagnoses Sherry Turkle. The irony would be that technology, meant to reach out to those distant, recoils by introducing distance among those who are close.
- In fact, the all-pervasive mediatisation of our experiences blurs the very distinction of the real and the virtual, the world and the image; to the extent that Baudrillard (Ch. 18) declares not only the 'death of distance' but the very 'disappearance of the real'.
- Digitalization not only tends to 'annihilate' *spatial* distance but also impacts on our experience of *time*, a theme Virilio (Ch. 19) expands on. The paradoxical experience is that time-saving technologies seem not to free up time but requires us to accelerate. To some extent digitalization can be seen as a code for capitalism where the quest for profit drives a relentless pace of innovation.

Capitalism is the stowaway in this book and rarely mentioned except by a few such as Nobel (Ch. 6) who sets digitization in the context of technological developments under capitalism. But the book can be read as an illustration of the initially cited observation in the first volume of Capital: That human beings use technology to change the very conditions of the production of their lives and ultimately themselves.

We appreciate that Otto Peters entrusted us with publishing the English edition of his latest work of this volume making it widely accessible to an English speaking audience not least the students of the MDE who may, albeit more implicit (since distance education and e-learning is hardly mentioned in this book) encounter a number of unusual and challenging views on a number of cherished beliefs.

As usual we thank Franziska Vondrlik for her thorough text editing of the volume and Ulrich Bernath for contributing the comprehensive index.

The Editors

Introduction

"Unless you say the opposite of something as well, you only say half. Nothing is true anymore without its opposite." Martin Walser (2011).

1

Up to now, there has not been a detailed description of "critics of digitalization". The subject has not been opportune. Authors who should have wanted to deal with it have probably been apprehensive that they would be regarded as unprogressive, caught in the past, or technophobic. In addition, anyone who criticises specific disadvantages of network culture is rapidly accused across-the-board of being an opponent of digitalization. And those who refer to traditional values of bourgeois culture when working in the Internet, or even want to adhere to them in part, are laughed out of court by apostles of progress.

However, this book presents twenty-one critics of digitalization. It does not intend to warn about digitalization,[4] or to belittle its significance. Admittedly, it does want to plead for a differentiating consideration of this technology, now that the voices of critics have become more numerous and vociferous. Along with the chances of digitalization, soberness and truthfulness demand that its risks be recognised as well, and that they are included in the calculation. These risks will be described and discussed in detail from many aspects. They should be taken note of, reflected on and related to the incomprehensively great chances of digitalization. The challenge for us is to develop forms of living and working in the parallel digital world that is now available, in which the positive facets of digitalization are strengthened and their negative facets are weakened. We should let ourselves be guided by the intention of adhering to perceptions of a humane life.

2

The context in which the descriptions of critics of digitalization are located can be sketched as follows: since about 1995, the digital world that had been established up to then expanded through the Internet for amateurs as well, and developed unsuspected new dimensions with regard to forms of use and range. This made PCs much more attractive and provided them with their present penetrating power. Since then, the number of users has increased from year to year, in places even by leaps and bounds. In 1997, there were 4.1 million users in Germany, and this figure increased to 49 million by 2010 (ARD,

4 The term "*digitalisation*" does not refer in this context to the special technical process in which sound, images or text are converted into a binary characters system so that they can be transmitted, processed and stored electronically easily and very quickly. What it refers to in general is the *consequence* of such processes: the creation and further development of that "digital" "virtual" world that since the beginning of our century has appeared more and more alongside the real world. Everyone knows the cause of this unprecedented process: the universal use of digital media, which is prevailing rapidly and inexorably, above all, of course, *personal computers*, Notebooks and pocket PCs – and extended in the last few years by PDAs (personal digital assistants), E-Books and E-Pads. The incredible triumph of the mobile telephone is a further momentous contribution to this form of digitalisation.

2010). The proportion of young people is particularly high. The Shell Youth Study 2010 reports that 96 per cent of the younger generation are now covered. Accordingly, we can speak of "an almost complete distribution of the Internet among young people", whereby they use it on average for almost 13 hours per week (Leven, Quenzel & Hurrelmann, 2010).

The number of Internet users has already increased rapidly throughout the world: in 2008 1.6 billion people used it. This is about 15-23 per cent of the world's population (Ullrich, 2009). There was a further surge in development in the first decade of the new century, as mobile phones changed into Smartphones and thus became small computers that are available everywhere and at any time and can access the Internet. This innovation was accepted quickly as well; at all events, in 2010, 31 per cent of all mobile phones in the USA were smartphones (OMT, 2011). The UN Organisation for Telecommunication reports that in January 2011 two billion Internet users were counted and that at the same time there were five billion mobile phone contracts (Touré, 2011). These statistical data tell us how many people not only use the advantages of digitalization but are also affected by digital aberrations as well. The particular relevance of the criticism that is articulated in this book arises with regard to this as well.

The rapid global spread of digitalization in a period of not even twenty years is the result of the actions of four US Internet companies: Apple, Google, Amazon and Facebook. Their incomprehensible and almost incredible commercial success can be measured against their stock market value: for example, Google is valued at $200 billion and Apple at as much as $360 billion. Together, these four companies have an "arithmetical corporate value of $750 billion" (Bethge et al., 2011, p. 72). It is extremely difficult to gather an impression of their almost eerie growth and the extent of their commercial activities: by September 2011, Apple had sold 146 million iPhones; Google reacts to 1 billion queries daily; on good days, Amazon receives 13 million orders for goods of all types, and Facebook supports 800 million members worldwide (Bethge et al., 2011, p. 71). This means that they dominate digital events in a way that no one could have foreseen. Their successes: users' mobility is increased enormously, information is incredibly easy to obtain, sales transactions are speeded up amazingly quickly, and social networks are linked closer and extended. These four companies dominate the Internet, penetrate our way of life, establish new values in place of traditional ones, and propagate the image of the new person in the fully digitalised world. In addition, they have become an incomparable economic and cultural superpower (cf. Bethge et al., 2011, p. 72).

3

From the point of view of users the effect of digitalization is immense: in comparison with previously introduced technical media, such as radio and television, the virtual world generated with the help of digital media was created, accepted and used unusually quickly. It fascinated younger people and caught older people unawares. Many users also let themselves be trapped in the wake of the hype surrounding this technical innovation and celebrate it as an unparalleled progress. The attraction of the Internet has moved or even forced users all over the world to work, learn, research and amuse themselves through the rapidly created new virtual world. People are amazed by its unfathomable new opportunities, chances and challenges. The different new forms of information, storage and communication are regarded as significant innovations. Users are bewildered and overwhelmed by the previously unknown huge range of information,

which is fed from sources throughout the globe and can be accessed in seconds. They are unable to grasp how large storage capacity has now become, not only that of their own new computers with USB sticks and DVDs, but also that of the connected computers and servers, and now with cloud computing. Today, complete life histories can be recorded with all details, and large digitalised works of reference and even huge libraries can be made accessible. However, the many new opportunities provided by synchronous and asynchronous communication, interaction and collaboration in word, image and video are seen above all as invaluable.

The three basic functions of networked computers referred to here have each been used and developed further in a specific way, which has led to radical changes to methods of working and ways of life that are furthermore welcomed as an enrichment. For example, new forms of information and of reciprocal exchange have been created, as well as monitoring of complex processes in industry, politics, research and entertainment. The Internet has turned into a "key technology for innovation and development", and into a "powerful lever for energy-efficient, sustainable growth", at least according to the CEO of Deutsche Telekom AG (Obermann, 2010, p. 33). Global mass markets are created in the digital world. New forms of communicating, political participation and consumer behaviour are being developed. Protagonists of digitalization even prophesy prosperity, full employment and competitiveness. In the early stages, one Internet expert even saw in it the economic basis for the "worldwide creation of wealth" (Tapscott, 1998, p. 15). An expectation of salvation that, up to now, has only been fulfilled for the four US Internet companies referred to above.

4

The enthusiasm and assurance of advocates and users of digitalization, and the satisfaction regarding the great progress it has achieved, should not deter users from perceiving its drawbacks as well. The experts presented in this book have grappled with them in detail. If we observe their insights, views and opinions in context, we obtain a comprehensive impression of undesired and, in some cases, even dangerous side effects and consequences of the great digital transformation or revolution that we are witnessing at present, and probably for some time to come. These are having a drastic effect not only on individuals, but also on society and our culture.

Individual influences. The authors do not criticise the tribulations of everyday work with computers, such as crashes, data loss, virus infection or advertising, but above all changes to the way users work: their social isolation, the speed at which the computer forces them to work, the distraction of attention caused by multitasking and the many links, the disorientation in the data flood. They also look at changes to basic cognitive and emotional hardware: a new mental state is created, people see themselves forced to do something they do not really want to do (cf. Schirrmacher, 2009, p. 14f.; Carr, 2010, p. 16). People lose the capacity to concentrate over a longer period of time and develop an aversion to reading books, their retentiveness is reduced, they tend towards superficiality, and they feel just how impossible it has become to think deeply, reflectedly and creatively. Changes in the brain that are brought about by a different "wiring" of its cells are taken even more seriously, as this a long-term impact on users' thinking, feeling and behaviour. If these thoughts are continued consistently, after just a few decades we would be dealing in the coming virtual world with a different type of human being, which would be significant anthropologically. The stringency of this change, which has already begun, causes some critics to ask the

question whether we ever wanted such changes to human substances and whether we simply have to put up with them. They look with concern into the future because they have a foreboding of where the rapid digital development could still lead.

Societal influences. The critics are concerned above all with the central question of whether the Internet supports processes of democratisation. In this context, they refer to the role of the Internet in the election of President Obama and above all in the revolts of the populations in North African countries against their authoritarian rulers. Different views are discussed here. On the one hand there is the optimistic view that the Internet supports non-hierarchical discourses and even brings about the creation of a "participatory culture", but at the same time "potential hazards" are described. According to this, the Internet offers users the previously unknown opportunity to mirror themselves, by creating their own world in accordance with their personal wishes and remaining there (Palfrey & Gasser, 2008, pp. 129, 267). More sceptically inclined authors attack the view propagated by Internet prophets that the Internet provides a chance for the creation of a direct democratic society, the "consummate network society". This is vehemently rejected because it engenders an "anti-Enlightenment illusion" (Gaschke, 2009, p. 11). In addition, it is argued that democratic political life in the Internet is inconceivable in the first place, because political actors need proximity in their opinion campaigns in order to be able to discuss their views from face to face (Gaschke, 2009, p. 11). Ultimately, the firm opinion is put forward that the Internet cannot bring about desired social changes by itself: it is "not of itself democratic, open, and horizontal; it can also be hierarchic, closed and vertical." With projects of this nature, the social must determine the technical (Weizenbaum, Akbar, & Helfensteller, 2002). Dangers are also seen in the key term "knowledge society", because it is said to be used to reorganize society for neoliberal purposes in the information age – with radical effects on the employment market and careers. Computer crime, which has increased in many forms to an alarming extent in recent years, represents a particular great danger. Two law professors will deal with this subject in this book. The new dangers have already penetrated far into public consciousness. The German weekly *Der Spiegel* felt compelled to dedicate a cover story to it (Rosenbach & Schmundt, 2011). And just a few weeks later, the weekly *Die Zeit* published a long article in its financial section entitled *"Build a new Internet"*, because the traditional Internet had become a "danger to prosperity and security" (Fischermann & Hamann, 2011, 2011a). Evidently, the numbers of those among the general public who think that things cannot develop further in this way are increasing as well.

Cultural influences. The authors describe unexpected and undesirable consequences here as well. In the foreground there is a fundamental change that will have historico-cultural significance: the change from a linear book culture to kaleidoscopic digitalization. In its drama, capacity and range it is incomparable and cannot be surpassed. Amazon already sells more e-books than bound books (Heise, 2010). As one media expert writes, this process is changing "the determinants of our civilization … unhesitatingly, inexorably and rapidly, like a force of nature" (Hombach, 2010, p. 39). Many fields of activity are affected by this. The traditionally perceived environment has been extended for users (augmented reality), space and time relations have been altered in a dramatic way and people are now forced not only to observe their environment globally, but also above all to live at the same time in a real and in a virtual world. In addition, mediatisation has contributed to the creation and spread of a "secondary reality", which is steadily displacing primary reality. Such a profound transition

changes people's behaviour, their way of life and their cognitive-emotional frame of mind. Some authors also discuss this profound transition under literary, sociological, psychological, neurological and philosophical aspects.

If we take initial misgivings, subsequent negative experiences, determined fears and anxieties, and already implied points of criticism together, a first critical attitude is created on this level to which greater attention should be paid. If it is overlooked in the long term, unease is germinated that can lead to dissatisfaction and rejection. The authors of this book describe processes of this kind, but meet with resistance from the majority of users. Enthusiastic Internet fans close their eyes to the individual, social and cultural consequences that have only been implied here, or engage in placatory discussions about them.

5

Several critics are also concerned about the future of digitalization. For example, the impact of pervasive computing remains uncertain if, as prophesied by experts, computers are applied unseen to the body, and can therefore be used when walking around as well (cf. Maurer, 2004). One critic has described an eerie scenario: on the street where she lives a woman encounters only people with headphones in their ears, and all of them are talking to themselves in an undertone. She is unable to say hello to any of her acquaintances as they pass her, or even to nod to them (Turkle, 2011, p. 13). Is this already anticipating the future? Will the processes of isolation, exclusion and impoverishment of personal relationships continue to increase? And above all: what will be the consequences of the link between nanotechnology, genetic engineering and digital technology? Will our children and grandchildren be faced in the future with still unknown risks and dangers?

Three of the fundamental convictions held by critics are referred to here in advance, because to an extent they reflect a basic critical consensus of several authors of this book.

(1) Disastrous accidents are inherent in every technical development**.** All technically achieved benefits always entail disadvantages, often even destructive undesirable developments. This started with the hand axe, continued among other things with the railway and the car, and has entered a phase of self-destruction with the atom bomb and exploding nuclear power stations. This regularity is true as well for the technical medium of the networked computer. You do not have to be an enemy of technology to recognise this. If we remember Chernobyl, and the massive impression of the Fukushima catastrophe, we are practically forced to agree with this criticism. The following question arises for these critics: what unintended secondary effects will information technology cause in combination with nanotechnology and genetic engineering?

(2) The continued existence of humanity is endangered. Some of the contributions to this book inform us about serious perils for humans in the future. If this tempestuous digitalization continues, evolutionary changes are to be feared. In just thirty years, a type of person may have developed who has changed and appears obnoxious to us today, and who would live in an environment that is still strange to us today, because it is fully engineered. This prognosis of an eminently successful researcher is nothing less than disturbing: "People with an underactive pre-frontal cortex (hypofrontal), perhaps because of brain damage, are reckless, easily distracted and have short attention spans. […] By the middle of this century, our minds might have become infantilised –

characterized by short attention spans, an inability to empathise and a shaky sense of identity" (Greenfield, 2009).

(3) Not only our digital "brave new world", but also our traditional world, are in decline and will perish in the end. The process of transformation and disintegration of our traditional culture, which is in progress anyway thanks to industrialisation and commercialisation, will be intensified and extended through digitalization. In the end, boundless eagerness for progress will lead to the apocalyptic end of humanity.

At present, we are still able to reflect on whether, with our traditional image of humanity, we find that the inhumane living conditions in such a terrible future lifeworld are conceivable for our children and grandchildren and whether we want them. Later, people will no longer be able to do this because of their unformed personal identity and lack of distance to technical systems. For this reason, one of the critics making a contribution disputes the presumption of the inevitability of the digital further development and reports cleverly and courageously of his "doubts about the inevitability of the change" (von Hentig, 2002, p. 167).

We are called upon to figure out whether we want to accept possible radical undesirable developments ("accidents", "catastrophes", "degeneration"), the disintegration of humanity and the decline of our traditional lifeworld apathetically without resistance, or to draft strategies to defend against them at an early stage, and to act now. To postpone appropriate activities until later would be dangerous. This book intends to encourage considerations of this kind.

6

"Against the Tide" is also concerned with **positive aspects** as well. In principle, none of the twenty critics wants to obstruct or reverse the digital development. Each of them regards the social change caused by digitalization as unstoppable and irreversible. Some authors even look into the future with confidence. For example, someone who develops "strategies against digital stultification" also has to regard an improved form of dealing with networked computers as being possible. Two university teachers even believe that specific risks of digitalization can be minimised through social reform. Other authors issue advice for an improved life in the digitalised world. And a well-known educationalist is even developing a detailed programme for "a different approach" in education that enables people "(to) remain equal to technical civilization". The intention not only to diagnose weaknesses of the digital system but also to do something actively to overcome them can also be seen.

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Note: If quoted literature is shown only in brackets as a year with or without a page number, e.g. (2011) or (2011, p. 33), this always refers to the author to whom the chapter is dedicated.

1 The heretic: Joseph Weizenbaum

Against the dominance of instrumental reason

Biographical background

Joseph Weizenbaum attended the Luisenstädtische Realgymnasium in Berlin. In 1936, his family was driven out of Germany by the National Socialist dictators and settled in the USA. He went to high school in Detroit. His subsequent university education was aligned to research into computer engineering. He began a mathematics degree at Wayne State University in Detroit, and was awarded a Bachelor's degree in 1948 and a Master's degree in 1950. While still studying, he participated as an assistant in the construction of a computer. After graduation, he worked in the same faculty as a scientific assistant in the planning and development of a mainframe computer. From 1952 he was employed by General Electric Corporation (GEC), where he worked for 11 years as a systems engineer in the Computer Development Laboratory. Among other things, he worked here on the development of the first computerized banking system. In 1963 he began his career at the Massachusetts Institute of Technology (MIT), initially as an associate professor in the Department for Computer Science, and from 1970 as a full professor. Here he collaborated in the development of a time sharing operating system (MAC), as well as in the ARPA network project, a predecessor of the Internet. With his "Eliza" project he tried out first steps in the field of conversational computing in natural speech. He retired in 1988. In 1996 he returned to Berlin, where he died aged 85.

Weizenbaum's work comprised ten books and 15 important academic papers. With some of his books, even the title tells us something about the intended critique. 1987*: "On course for the iceberg, or the miracle will save us, says the computer expert";* 1990: *"Are computers the better people?"* (A debate with Klaus Haefner); 1991: *"On course for the iceberg. The responsibility of the individual under the dictatorship of technology"*; 1993: *"Who makes up computer myths? Progress in the great error"*; 2001: *"Computer power and society"*; 2003: *"War is the enemy – the scientist's responsibility"*; and 2006: *"Where are they, the islands of reason in the cyber river?"* (with Gunna Wendt). In addition, in 2008 he published an essay on the *"Social and Political Impact of the Long-term History of Computing"*. Here he dealt with the moral responsibility of science. (Sources: Brunstein & Oberquelle, 2003) Gymnasium Laurentianum, 2003).

Motivation

Weizenbaum was a rebel. Indications of this could be seen in his childhood, when he was shocked to experience his Jewish father talking disparagingly about Yiddish-speaking Eastern European Jewish immigrants, and when he experienced discrimination against black Americans after settling in the USA. According to his own words, the seeds were sown here for his subsequent open resistance to blatant infringements of the commandments of humanity. These seeds germinated when he saw the abnormal euphoria with which his colleagues at MIT worked in all seriousness on making an artificial human. He regarded this as nonsense and megalomania and rebelled. In his opinion, this plan robbed us of our humanity. His outrage increased totally during the Vietnam War. He thought that immoral criminal mass murder was taking place there with computer-

controlled technology. He reported about technologists who were even aiming at constructing robot soldiers. Just how strong and deep his revolt against the overestimation of the computer by his colleagues was can be seen in a remark he made three years before his death. Had he known at the beginning of his career what he knew now, he would have preferred not to have joined this branch (Stoyan, 2007). The rejection of his colleagues' naive faith in progress was an important motive for his revolt.

Weizenbaum's critique of computer technology was then triggered by a shock. In the years 1964 to 1966 he had developed the Eliza program at MIT, with which the user could "communicate" with the computer in natural speech. At the same time, Weizenbaum simulated in the software psychotherapeutic conversations in the style of Carl Rogers. Although it was a rather simple program, it caused a sensation and became known very quickly everywhere. Caught up in computer euphoria, users and many people at the time believed it was now possible to carry out a therapeutic conversation, and the efforts to develop an artificial intelligence had achieved their first successes. Although Weizenbaum himself regarded the program as unpretentious, it became a "national toy". This amazed him, but also made him afraid as well**.** Many people, even practising psychiatrists were among them, believed patients could be given psychotherapy automatically. He was shocked when he noticed how unusually deeply and emotionally users and the public reacted to the new, alleged capability of the computer. They even ascribed human characteristics to it. He was irritated most of all by those colleagues who assumed that the problem of how computers can understand natural speech was now solved, and the project of language recognition by the computer could now be developed further.

However, in retrospect the Eliza program finds great recognition. A specialist colleague still refers to it today as a "stroke of genius" and "a milestone in the development of AI" (Brauer, 2003, p. 42), which established Weizenbaum's international fame. But the latter was concerned above all about the effect that his program had on people. Although he himself had been involved up to then as an experienced expert in the development of the computer, and that at the world-famous MIT, and had been its eloquent protagonist, he now had misgivings. From now on he fought a lone battle against the unreflecting enthusiasm for the computer. In the following years he subjected it to a severe and fundamental critique in his book *"Computer Power and Human Reason"*. This is generally regarded as his most important critique.

His reading discloses a further motive that is more important for its effect and that is based on a general undesirable development, which, however, is reflected particularly clearly in the computer. Because of his epistemological approach, he advocates the opinion that natural sciences and technology are not aligned to the needs of people. Responsibility for research and application lapses, if reason is replaced by calculation. He criticises furiously how scientists and technologists take part in perfecting technical systems, for example, without assessing the consequences and even being aware of their responsibility. As a pacifist, he often refers here to the development of digital weapons systems. His most important critique and all his subsequent writings are insofar clearly ethically motivated.

Foundations of his critique

First approaches.

Weizenbaum's early work is particularly remarkable for his criticism of digitalization because it was done long before the general onset of Internet use in the mid-1990s. His first critical essay appeared as long ago as 1972 and his most important book two years later. His warnings and demands are still valid today, even after nearly four decades. This is because Weizenbaum criticized general scientific and societal trends that are still effective, even to a greater extent. In some way they are even timeless.

"*Nightmare Computer"* is the title of Weizenbaum's first article in the Hamburg weekly *Die Zeit* in 1972. Shortly after, it appeared under the title *"On the Impact of Computers on Society"* in the well-reputed specialist journal Science. In it, he diagnosed a "serious intellectual crisis". Under the impression made by the computer's accomplishments, "academics, industrialists and journalists" were increasingly involved with the question whether the human brain was also simply a "machine made flesh". Simply contemplating this question, said Weizenbaum, threatened "people's freedom", their "dignity" and their "autonomy". From this time on, defending against this threat was to become his concern over more than three decades.

The author claims that the question whether our brain was a "machine made flesh" resulted from the spreading "technical mentality". He perceives how this "has an undermining effect on human self-conception". It causes people to expect the right answers from the "omniscient" computer. He sees dangers if, for example, the Pentagon lets large computer systems influence decision-making during the management of the Vietnam war, without people being aware of the foundations of the rules that had been used years before for the programming. In this way, responsibility is transferred in part to the machine. Weizenbaum raises objections to this. A computer is nothing without a program. Success, or failure, may therefore not be ascribed to the computer but to the people who program it. For this reason, the latter often bore great responsibility, which should lead them to display "great respect" and "humility". Such an attitude would be expected of computer scientists as well, if, according to Weizenbaum, they possessed the "tradition of scholarship and criticism" of established sciences. Important points of criticism, which occupied Weizenbaum throughout his life, are already being sounded here (1972).

"Computer Power and Human Reason" (1976) is the title of his major work, which is regarded as the classical computer critique. The most important objective is named in the title of his book. He wishes to show how "judgement" changes to "calculation", which then leads to the "impotence of reason", as the title of the German version of his book states. Weizenbaum sees undesirable developments behind this, such as the mystification of the computer, the holding fast of many scientists to scientism, persistent technocratic thinking, and unreflected faith in technology.

Humans are not machines. It is true that the computer can carry out some intelligent functions, an approach that is being developed further by AI experts, but "a clear line" must be drawn between the machine's intelligence and that of humans, because humans are autonomous and develop personally. In addition, for example, a computer can simply not comprise or create something like "meaning".

The general objective of his critical considerations becomes clear through his remark that he is not a computer critic, because the computer does not know what to do with criticism. What he is doing is criticising people, who use computers. He is therefore a social critic (avs/dpa, 2008). In the introduction he mentions two main theses, which he wants to establish in this book: (1) Humans are not machines. (2) "There are certain tasks which computers should not be made to do, independent of whether computers can be made to do them." (1976, p. X).

He substantiates the demand not to use computers for certain tasks as follows: Not every aspect of human thought can be traced back to calculable formulae. In addition, in the interpersonal sphere there are functions that should not be programmed: "interpersonal respect, understanding and love" (1976, p. 269). The "automatic recognition of human speech" as well should not be pursued further without careful prior considerations (1976, p. 270). In spite of all progress, in the end he considers a general solution to be impossible, because language is always only understood within a context that cannot be formalised in its diverseness. In 2003 he illustrated the inadequacy of machines by quoting a short story by Ernest Hemingway that consists solely of six words: "For sale, baby shoes, never used" (Forsch, 2009). No computer can recognise the sadness that is expressed with these words. There were therefore essential differences between thinking people and thinking machines (1978, p. 352).

Weizenbaum established himself as an internationally recognised critic with this book, which has been translated into many languages. The ninth edition of which appeared in 1994.

The dominance of science.

Weizenbaum is of the opinion that the introduction and use of the computer has tempted man "to an ever more highly rational view of his society and an ever more rationalistic image of himself" (1978, p. 11). The "unfettered march of science and technology" (1978, p. 11) was behind this. Even though he researches in the scientific field himself, Weizenbaum has become one of its convinced critics. His main argument is that science has only an abstract, restricted image of reality. The effect of the computer on people and society, for example, is much more comprehensive than scientists can understand and control. In contrast to many traditional systems of thought, which assume that people are autonomous, in science "logical formalism" dominates. "In short, they convert truth to probability" (1978, p. 12). In spite of this "they claim to say how things actually are and must necessarily be" (1976, p. 12).

In particular the fourth chapter in his book, which deals in great detail with the "compulsive programmer" (1976, p. 111), shows just how important this problem is for Weizenbaum. Here he means hackers, a type of person that has developed in computer centres all over the world. Their distinguishing feature: they use computers not as a means to an end, because working with computers is an end in itself, and are subject to a compulsion, an urge, that causes them to work on computer for as long as possible. The hacker wants to develop grandiose, but illusionary, program systems, works feverishly and does not work on anything else at all. He wants to impose his will on the computer and is disappointed when errors occur, for which he always finds explanations within the system. He does not use any knowledge other than knowledge of computers and works without any theories in a very limited field.

Weizenbaum then surprises us by putting the compulsive programmer alongside the compulsive gambler in a casino. For the latter, gambling is the most important thing in life, everything revolves around it. He stays at the tables for as long as this is somehow possible. He is convinced that he can impose his will on the ball in the middle of the roulette wheel, and thinks that he is smarter than all other gamblers. If he loses, he always has new explanations and thinks that he can definitely reach his goal in the future.

Weizenbaum uses these two manifestations of human activity as metaphors for the work of scientists and technicians. Very similar modes of behaviour can be verified among them. They, too, are subjectively sure that they are on the right path. They, too, think that their special way of working must lead to the goal. They, too, are convinced that unsolved problems can definitely be solved in the future. And they, too, remain within their system of concepts and do not generally take any other knowledge into account. Like compulsive programmers, for whom human life is represented as a program, they believe "that every aspect of life and nature can finally be explained in exclusively scientific terms" (1976, p. 126).

Trenchantly and sarcastically, Weizenbaum expresses his great scepticism by means of a parable. This involves a drunk who has lost his key in the middle of the night and is desperately searching for it on all fours under the street light. A policeman comes along and starts to help him and asks where he lost the key. The drunk slurs: "Over there, on the corner". The policeman then asks him: "Well why are you looking here?" – "Because you can see better here". Weizenbaum's comment: "That is the way science proceeds too" (1976, p. 127).

Is science value-neutral? Many computer scientists regard the computer purely as a work appliance and therefore as value-free. Weizenbaum is firmly of another opinion in this. He says that there is no science and technology that can be operated without reference to people and society, both in planning and in the application of results. There has never been a branch of research that developed totally independently of historical situations. Scientists could not therefore believe that they pursued only scientific goals, that is, they took part in "pure" science. It is rather the case that they had to have to keep an eye on the consequences and side effects of their research results, and even consider their possible further development. The idea of science as value-free was also insofar illusory because the choice of their topics was already a value judgement.

This applied as well to the designers of "rescue helicopters", which in reality were used by the military in developing countries as "tools of mass murder". This applied as well for developments in the computer field, where experts calculate the flight paths of cruise missiles and taught them how to "see", which meant they could find their targets independently. They thought they had simply solved a scientific-technical problem, whereas they "[serve] death" (1984, p. 19) in this way. And the computer is also one of the "tools of death" (1984, p. 21).

Weizenbaum's colleagues at MIT, and their students as well, believed that their work does not contain any reference to the respective political situation. They disregarded the purposes of their work. This is why we can understand Weizenbaum's requirement that scientists should accept responsibility for their actions, and his call for a computer ethic and science ethic. However, scientists at MIT ignored this call.

Military use. As probably the only computer expert to do so, Weizenbaum has stressed again and again in talks and speeches just how much military interests are behind the development and further development of the computer. "It is simply a fact that the computer was born in war and that almost all research into and development of the computer was and still is supported almost exclusively by the military " (Weizenbaum & Wendt, 2006, p. 9). The computer was therefore not originally intended to serve the welfare of humankind. He wanted to point this out as a pacifist. For him, the computer is a child of the Korean war and the Cold War. He regards the computer in the very first place as an "instrument of the military" and thus as an "instrument of mass murder" (Weizenbaum & Wendt, 2006, p. 18). Computer research has been financed to a great part by the Pentagon, including at his own university. The main purpose was to enable space travel and to control ballistic missiles. A radical miniaturisation of computers would be been required for this that perhaps might not have been necessary for civilian purposes. He finds: "The development of the computer does not follow any interest in invention or discovery, but only targets formulated by the military. This also applies if the commercially useful application was thought up by industry" (1990, p. 125).

Instrumental reason. Science and technology have enabled people to accumulate enormous power. But: the power "has itself been converted into impotence" (1976, p. 258). Weizenbaum explains this change by reminding us of the highly engineered and computerized world of work. Previously subjectively experienced, demanding, holistic, occupational activities are changed into extremely simple work practices. However, the associated monotonous limitation is not accepted without complaint by employees. They had the feeling that they had become part of a mechanical process, objects. The same is experienced by doctors, for whom high tech, and in particular modern computerisation, has usurped important phases of their work, which has led to a narrowing, or even loss, of the so important contact with patients. The latter then feel themselves merely as "passive objects" (1976, p. 259) that are treated medically. The price that had to be paid for the growth in power was increased dependency and impotence.

Weizenbaum is of the opinion that it was "the overriding obligation of man, including men of science, to exempt life itself from the madness of treating everything as an object" **(**1976, p. 260**).** While rationalism could claim to have been responsible for the great victory over ignorance "… on closer examination, this victory too can be seen as an Orwellian triumph of an even higher ignorance: what we have gained is a new conformism, which permits us to say anything that can be said in the functional languages of instrumental reason", whereby "God, grace or morality" may not be mentioned (1976, p. 261). However, ethical questions are blanked out, which is naturally precarious if technical actions could influence the whole planet and the future of the human race was at risk. But even worse, ethical postulates were regarded in the field of science as "inherently subversive and anti-scientific, even anti-intellectual" (1976, p. 264). Those who refer to them are held up to ridicule. Science robbed itself of the possibility "to be guided by any authentically human standards" (1976, p. 266). It realised the "dehumanization of man". "An individual is dehumanized whenever he is treated as less than a whole person." (1976, p. 266).

Because of his principles, Weizenbaum opposes the use of computer in an experiment to link an animal's brain with a computer. It was just as wrong, even immoral, if human needs were satisfied with a computer. He is therefore against all experiments in which

human functions are to be replaced. In our time, the victory of instrumental reason has not led to the rise of a feeling for the goodness of a moral act.

The Internet

Most of the books that Weizenbaum published after moving to Berlin are transcripts of his interviews. They interpret and illustrate above all ideas of his main work. The subject "Internet" is no longer dealt with systematically in them. This probably expresses at his age a certain distance from the latest developments of the computer. Interestingly, he confessed never to have had a mobile phone.

All the same, in 2003 he published the book *"On Acting in the Net. Dimensions of Globalization"* with Omar Akbar and Anne Helfensteller, in which the authors examine the dialectics of technical and social systems (Weizenbaum, Akbar & Helfensteller, 2002). In the beginning, they put the importance of the Internet more precisely, by saying it stands for "new forms of communication of war, data exchange for monitoring and controlling complex and remote interconnections – [in] medicine, politics, journalism and entertainment". They are always aligned here above all towards the social consequences of the Internet. Technical and social processes overlap each other, and in doing so change "traditional relationships and modes of behaviour". However, "even with all the smart social technology the social function…" is "displaced, suppressed, simply overlooked." Weizenbaum and his co-authors see illusionary or ideological dressing up here as well. Technical qualities did not of themselves create desirable social changes, as many adherents of the Internet believe. The Internet is not of itself democratic, open, and horizontal; it can also be hierarchical, closed and vertical. Here, the social should determine the technical. A blanket criticism of the Internet is contained in the question: "Is the Internet really more than a military arrangement of complex communications that can also be entertaining?"

Weizenbaum also commented on this subject in his essay *"The Information Society is an Illusion"* (Heise, 2005), which he wrote three years before his death. Here he criticized the Internet starkly as follows: "We have the Internet, we have the search engine Google, we have the illusion that the complete knowledge of humanity is available to us. But no computer can provide actual information to people. It is the work of interpretation in the mind that makes information out of the characters that computers show". The masses of information that the Internet has ready arouse his anger. He says: "The Internet is a 'scrap heap' and tempts people to overestimate themselves". And: "The Internet is a huge dunghill, but one in which small treasures and pearls can be found" (Heise, 2005). Finally, as far as the Internet as a learning aid is concerned, Weizenbaum rumbles grimly: "Entering something … in a search engine and printing the result out is the opposite of education" (FAZ, 2008).

In these judgements as well we can feel Weizenbaum's disdain for blind belief in progress and how sceptically he regards the Internet.

Reception

In 1972, the Hamburg weekly *Die Zeit* illustrated the first critical article by Weizenbaum published in Germany with a caricature of Don Quixote battling windmills. In one way it was appropriate for Weizenbaum, because Don Quixote, this self-appointed "knight", also wanted to fight for peace, justice and love and to be a protector of the poor, but in this

parody he pursued phantasms and suffered one defeat after another. Weizenbaum, however, fought against a very real world of academic opponents and against the zeitgeist and was successful in the end.

His central book, published in 1976, quickly became internationally known and had a broad impact. His conversion from a respected and admired Artificial Intelligence expert to a computer critic must have surprised his colleagues at the MIT and disappointed enthusiastic computer freaks with their faith in progress all over the world. His MIT colleagues reacted to his "reckoning" with scientists and technologists by ostracising him and holding him up to ridicule. He was called a "computer critic, Luddite and nest befouler" (Stiehl, 2003, p. 12). But the vilifiers did not have it that easy with him. Weizenbaum's criticism was not just simply said, not written quickly in a journalistic style with a deadly pen, but was presented on 280 closely printed pages. His theses and findings are then given in great detail with academic meticulousness, carefully substantiated, vouched for exactly and explained knowledgeably. This did not remain without effect among experts in the departments of computer science or informatics that were established everywhere in the following decades. In fact, on his new journey Weizenbaum found friends and colleagues among computer scientists who found that his criticism was certainly justified and took it over. Klaus Kornwachs (2009), the technical philosopher, called Weizenbaum "one of the first critics of unreflected computer use" and, thirty-three years after it first appeared, described his book as a "current example of a technology critique with an ethical motivation" that "… is built on a factually substantiated insider's view of the technology that is to be criticized " (Kornwachs, 2009, p. 39).

One proof of his success is the great number of visiting professorships and lecture invitations. The setting up of special work areas in informatics departments can also be referred to here; significantly, these were given names such as "Informatics and Society" or "Contextual Informatics". In addition, information scientists have already developed "methods of contextualisation" (cf. Keil-Slawik, 2003, p. 20). Probably even more significant are combinations of information scientists who want to realise Weizenbaum's concepts of informatics related to people: the "Forum Informatiker für Frieden und Verantwortung" in Germany and the USA, and the foundation of FORBIT, a science shop for informatics, which shows participants how digital research can be carried out with regard to those affected (cf. Barthel, 2003).

Finally, Weizenbaum's success can also be seen in the large number of the honours he was awarded. He is not only a member of the New York Academy of Sciences and the European Academy of Sciences, he was also awarded four honorary doctorates, including from the Departments of Informatics at the universities of Bremen and Hamburg. His work on the development of social responsibility among information scientists was honoured on five occasions. He was given the Award for Social Leadership and Excellence in Human Values and Computing of the Southern Connecticut State University, the First IFIP WG-9.2 Namur award of the specialist group 9.2 Social Accountability of the International Federation for Information Processing, the prize awarded by department 8 "Informatics and Society" of the Informatics Society at the department 8 specialist conference "Informatics cui bono?", and the FIFF prize for his life's work from the "Forum Informatikerinnen und Informatiker für Frieden und gesellschaftliche Verantwortung". In addition to this he was honoured for his work to strengthen the relationships between technology and society with the Grand Cross of the Federal Republic of Germany.

Weizenbaum was appreciated and honoured by the scientific community both for his excellent work in the field of computer science and no less convincingly by information scientists who work towards the connection between informatics and society. In the light of these honours, Weizenbaum appears to us as "father", teacher and mentor of a modern generation of information scientists who are open to social questions – and not at all as a Don Quixote.

Comments

We can only appreciate Joseph Weizenbaum suitably if we recognise him as a special person and know something about his personality. As a "computer guru" he was a free, independent spirit, and as a world-famous scientist he was characterized by his epistemological view. As a rationalist he criticized naïve trust in the future; as a humanist he deplored the unconsidered technologization of our life; as a pacifist he disapproved the use of the computer for military purposes. As a philanthropist he regarded the idea of socialism as "reasonable". At the same time he had a sense of humour, told amusing anecdotes and liked to laugh. In an obituary by Gero von Randow (2008) he is described as someone who was sometimes grumpy and flew into a fury, but otherwise remained a "stimulating, deeply friendly, sympathetic debater". He observed what people did wringing his hands and greatly disappointed. It is true that that optimism drove him to many successful activities in his working life, but at the same time he cleaved to a sceptical view of the world. The title of his book *"On Course for the Iceberg"* shows the great extent to which he was concerned, and this is seen even more in his resigned call, shortly before his death: "The world is a madhouse. At the same time, the knowledge that man has achieved up to now could make it into a paradise" (Heise, 2008).

He was contrasted to most of his departmental colleagues at MIT because of his "tremendous personal courage" (Floyd, 2003, p. 30), which enabled him to regard some of their fundamental convictions and methods of working as utterly wrong, and to proclaim this again and again. These not only made him their sharpest critic but, in their eyes, even a heretic and renegade. He referred to himself in this way as well. This transition changed not only Weizenbaum's attitude to science but also his self-conception as an academic teacher and his life as a whole.

As someone who leaves man in the centre of things, he saw the man-machine relationship differently from his colleagues. He demanded a people-centred computer science. He saw how people all over the world were damaged by technology, in particular when more and more are living in poverty and misery as a consequence of computerisation.

Those affected in western industrial countries attracted his attention, whereby he may have had typecasters in mind, whose occupation has disappeared, or car workers, who complain about increased control by computers. These observations turned him into a serious warner and moraliser. But he was not a Luddite in the traditional sense of the word, because his criticism went deeper – into the centre of the person whose autonomy he wanted to restore.

Weizenbaum's critique is unusually attractive because, unlike many others, he really understood what he was writing and talking about. Because of his special academic career, and in particular his research at MIT, he was incomparably competent. Even after his death he is still regarded as one of the knowledgeable experts in computer science with the

longest scientific experience. Because of this, his critical considerations have particular substance. The philosopher Lewis Mumford describes his special case thus: "[S]ometimes it does make a difference if a member of the scientific establishment says a few things that humanities scholars have been proclaiming loudly for generations" (1978, p. 10).

In addition, Weizenbaum's critique impresses for the following reasons: his thought, research and actions are multidisciplinary and related to society. He expresses his thoughts and insights clearly, unambiguously and convincingly, in a combative manner and with staying power. He provides us with an example of reformist zeal, indomitable perseverance and deep-rooted humane thought. He battles against the mythologization of the computer and promotes its rational use. Like no other scientists, he struggles against the "imperialism of instrumental reason" (1978, p. 337), because he has a holistic view of people and always takes the social context into consideration.

Weizenbaum also impresses through the variety of his themes. The information scientist Wilfried Brauer from the Technische Universität Munich says on this that he differs "from other computer, AI or social critics through the enormous scope of everything to which he devotes his attention" (Brauer, 2003, p. 47). In fact, his criticism is not concentrated on single serious finding but on a broad band of undesirable developments. For example, he bemoans not only the faith in progress of computer researchers but also the doubtful qualitative progress of many computer applications, the massive support for computer research by the military, the attempts to cover up social ills through the introduction of the computer without investigating their causes, the reckless and disrespectful disregard for organically grown cultural values that were created over centuries, the dissolution of the classical education system and, finally, the structural change of the existing social setup in favour of a society in which "a small technical elite" is confronted with "the great mass of the unqualified".

Joseph Weizenbaum is a critic of digitalization who has achieved extra-ordinary things thanks to his enormous competence, his international renown, his great effect in the media and his decades of influence as a public intellectual, speaker, teacher, mentor, organizer, and as a science and cultural critic. As a classical writer, he is in first place in the group of all critics of digitalization.

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2 The concerned critic: Juan Luis Cebrián

Lighting "the tiny flame of critical doubt"

Juan Luis Cebrián, a Spanish author, media expert and leading newspaper journalist, became known internationally through his engagement for the Club of Rome.

Biographical background

Cebrián was born in Madrid in 1944. He studied philosophy and literature at the Universidad Complutense in Madrid and graduated from the State School of Journalism in Madrid. He is a founder member of the magazine Cuadernos para el Dialogo, and became a managing editor of the newspaper Pueblo. From 1976 – after the political changeover – he became editor-in-chief of the daily newspaper El Pais, which is published by the Francoist unified trade union, and of the liberal-conservative daily Informationes. He was involved in the development of a large media group, which works in 26 countries. From 1996 to 1998 he was chair of the International Press Institute. He is married and has two daughters.

Cebrián is the author of 18 books, the latest being *"El Fundamentalismo Democratico"* (2004) and *"El pianista en el burdel"* (2009). His English-language publications include *"Red Doll"(1988)* and the essay collection *"The Press and Main Street" (1988)*. He became known internationally as the author of the report *"The Effect of the New Media on Society"* to the Club of Rome and the subsequent book *"Im Netz – die hypnotisierte Gesellschaft"* (1999) (In the Network – the hypnotised society).

Cebrián has received many awards: he is a member of Spain's Royal Academy; in 1980 he was honoured by the World Press Review (New York) as the "International Director of the Year"; in 1987 he received the Freedom of Information Medal from the F. D. Roosevelt Four Freedoms Foundation; he is a Knight of Arts and Letters in France, and in 1996 he became a member of the Club of Rome. (Sources: Munzinger, no year; Executive Profile 2011, Speedy Look, no year)

Motivation

As a member of the Club of Rome, Juan Luis Cebrián is imbued by the spirit and the major objectives of this international organisation. Its members include known industrialists, economists and personalities from public life from many countries. The Club concerns itself in the global exchange of ideas with problems of the future of humanity. It enables and promotes relevant scientific research. In 1972, it aroused international attention with studies on the "limits of growth". Their concern and responsibility for the future lead members to deal with questions of young people and their training and education in the 21st century. For this reason, in the 1990s they commissioned scientists throughout the world to research into the effects of the Internet.

Main features of the criticism

At the start of his book *"Im Netz – die hypnotisierte Gesellschaft"* (1999) (In the Network – the hypnotised society), Juan Luis Cebrián informs readers that as the author he bears the sole responsibility for the written contents, but that they are the "fruit of joint efforts", whereby he was referring to members of the Club of Rome and many leading specialists

who had discussed the subject "How should the new media change society?". Cebrián submitted the report in October 1997 in Washington DC, where it was discussed by about 140 participants from 38 countries. Insofar, the following pages reproduce not Cebrián's opinions exclusively, because they are based in the main on the results of many expert discussions. Participants were concerned above all about the consequences of the "virtual revolution".

The book reflects the moods that prevailed at this early point in time among the public, but also among scientists and politicians. With regard to digital technology, there were both great expectations and grave concerns, and even fears. For this reason, the book highlights the great achievements of information technology and praises the advantages of digitalization, which were already clearly visible, but at the same time it does not suppress their undesired consequences. Clearly, Cebrián tends to judge many outcomes sceptically. The title makes this obvious, because it refers to a society that is in general "hypnotised" by digital media. Even with all the enthusiasm for the new media he hopes to kindle "at least a small flame of critical doubt" (p. 45). He wants provide readers with a catalogue containing not just questions, but also "warnings about the future of the world".

In detail, the text of this book is informed by an amazing number of critical remarks, references and expectations. The following are just some of these:

- It is true that "digitalization promotes greater simplicity and precision" – but "at the cost of certain nuances" (p. 50).
- The interactions of millions of people that the Internet enables run into difficulties. If societies display national, social and cultural differences, an intercultural communication of this nature could eliminate the value system of the respective society and replace it with chaos (p. 77).
- The Internet's "completely disorganized growth model" is in conflict with the principles of law and order (p. 77).
- Because there is no order "in the informal chaos of the information highways", the disorientation of the participants can increase "through to paroxysm" (p. 81).
- The "glut of information" increases uncertainty, because information is offered in a disorderly and confusing manner (p. 82).
- It is not apparent to participants whether the information is true and credible (p. 82).
- Searching for data and interaction require an "immeasurable amount of time", which many people do not have (p. 90).
- The computer's monitor screen shines brightly into the user's face and retina, which "generates a truly hypnotic effect" (p. 95).
- The computer is intended for individuals, which is logical in western countries, but is faced with difficulties in African countries because of the type of society found there (p. 92).
- The navigator in virtual space is "a lonely traveller", even if he "is not aware of this himself" (p. 95).

- Work with a computer encourages "a type of self-oblivion" and a "shutting of oneself off from the immediate surroundings" (p. 95).
- The user is "tied" to the computer and "dependent" on it (95). He behaves like a heroin addict who claims to be able to stop taking the drug at any time, but is not capable of doing this (p. 96).
- Users become alienated from their families and become isolated (p. 100).
- In the virtual world users are not caused to take over responsibility (p. 101).
- "The effort that has to be applied to achieve certain things, and perception of time as collecting experiences – neither is compatible with the Internet …" (p. 101).
- Key companies, for example Google and Apple, can achieve "global monopolies" with the help of the Internet (p. 105).
- The gap between rich and poor is "being widened to an alarming extent" by owning and not owning computers and access to the Internet (digital divide) (p. 117).
- The openness of the networks and this borderless structure gives criminal associations and groups new opportunities for crime (p. 121).
- Criminals exploit different laws in individual countries for their purposes (p. 127).
- The private sphere is not protected at all in the Internet, but tends to be flouted (p. 130).
- The Internet enables those in power, and makes it easy for them, to turn our world into a "surveillance state" (p. 131). Orwell's dystopian visions could be realised in this way (p. 132).
- New facilities for controlling the workplace could arise (p. 132).
- Home shopping leads users into isolation. Social interaction in real space is dissolved (p. 151).

Reception

Jürgen Turek (1999) writes that the author has dealt with a new multi-facetted subject and in doing so analysed "risks and advantages" of digitalization as well. Social, economic and political aspects in particular were also taken into account. Frank Rosenbauer (1999) praises Cebrián because he wrote the book for all those for whom the Internet is "intransparent and new". However, this "collection of essays" was less exciting to read "than might be expected from the author as a journalist". *Amazon* (1999) writes: because the spread of the Internet causes many anxieties, and it is not known whether they are artificially "conjured up" or actually founded on fact, the author helps to differentiate between them. In particular, he shows where the "risks and chances" of digitalization are found. *Pro Zukunft* (2000) thinks that it is still too early to answer the "fundamental question" of whether we have become more humane as a result of technologization. On the contrary it is not too early to ask this question. Cebrián undertook this task by examining the "chances and risks" of information technology.

It is very obvious that Cebrián's book was noticed in many places, but nearly all reviewers limit themselves to brief comments on the contents, without evaluating them.

All the same, all discussions of the book also refer to the treatment of the risks and dangers of digitalization. There is obviously an increased public interest in this.

Comments

Juan Luis Cebrián and the international experts brought together by the Club of Rome criticized unwanted consequences of digitalization in amazing detail and from many aspects, and they did this at a relatively early date, because the Internet did not really appear on most private users' radar until around 1995. Some of the prophesied undesirable developments have in fact since occurred, e.g. controls of employees at the workplace, the violation of the private sphere, the use by criminal gangs, and the creation of huge monopolies that dominate the Internet globally. Cebrián is successful in his objective, namely to arouse "critical doubts" among his readers, by illuminating many innovations both from a positive side and from a negative side. In this way, his criticism becomes a design principle for his description of the consequences of digitalization. This description is presented in generally understandable language, and in fact without using special informatics terminology, with its many abbreviations, or lapsing into the idiosyncratic specialist jargon of computer and Internet experts. As a writer and a journalist, he is able to make himself understandable to a wide public.

Along with disadvantages that are now widely known and discussed, which we can agree to spontaneously because they go without saying, the author also addresses negative peculiarities that have not yet been discussed. It may be that he registers them because of his sensitivities as an author: users "locking themselves away" from their immediate environment, their "self-absorption", their "dependency" on the computer, and their special hypnotic mental state. Even though these characterizations are interesting and apposite, because they betray psychological empathy, the question still has to be asked whether these observations are perhaps applicable only to the initial phases of work with the computer, when the fascination of the computer starts to develop particularly clearly. However, the observed modes of behaviour appear to become weaker and to be displaced in everyday life by business-like concentrated attention. Avid users would even deny these reactions. Readers of a book, it might be countered, display basically similar modes of behaviour, and this tends to be evaluated positively and not negatively. However, it cannot be seen yet how users will lose once pervasive computing has established itself, because the computer will then have entered our everyday world. It will then be used constantly but hardly be noticed any more.

Juan Luis Cebrián has taken up a considerable position in the ranks of critics of digitalization, because he has made himself the interpreter of a large number of international experts and has laid a solid foundation for later critiques of digitalization with his book. At the end of the twentieth century, the global publicity for his many critical objections was a contribution to the development of a differentiated attitude to digitalization.

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3 The nonconformist: Jaron Lanier

The focus is always on people

Jaron Lanier, the American computer scientist, digital visionary, inventor, musician, film director, consultant and author, was born in New York in 1960. He is regarded as a pioneer of the Internet, an acknowledged virtual reality and networking expert, and as a theoretician and mastermind of the digital future. He lives in Berkeley, California.

Biographical background

This multitalented expert has had an unusual career. After dropping out of high school he was able to study mathematics at New Mexico State University. He then taught informatics at Columbia University, Yale and Dartmouth College. At the beginning of the 1990s he published his visions of a digital culture. Even at this early stage he prophesied the revolutionary changes that the Internet would lead to for the economy and culture. After this he took part in the development of the Internet. For example, he became director of the National Tele-Immersion Initiative (NTII), a project that enables people who live at different geographical locations to cooperate in real time in a virtual room, and in such a way that they have the impression that they are working together in a physical room. He coined the term "virtual reality" in this context. He also developed the first avatar. From 1990 to 1994 he managed a company that developed and marketed virtual reality applications, and was involved in the foundation of the Institute for Evolution and Brain, which is located at the universities of Harvard and Paris.

Lanier's essay *On Digital Maoism* (2006) in which he describes the dangers of a "new online collectivism" set off a lively discussion in which numerous experts took part. He became known as a star author of the computer magazine "Wired" and worked on new projects together with universities and Silicon Valley. He has become generally well known to the public with two books *"Information is an Alienated Experience"*, 2006; *"You are Not a Gadget. A Manifesto"*, (2010a) as well as with a series of talks, interviews and essays. He is a "scholar-at-large" for the Microsoft Corporation and "scholar-in-residence" at the Center for Entrepreneurship and Technology of the University of California in Berkeley. In 2006, the New Jersey Institute of Technology awarded Lanier an honorary Doctor of Science. (Sources: Lanier, no year; Encyclopedia, 2004).

Motivation

This author's critique is derived from his feeling of dissatisfaction and disappointment. He deplores just how far the Internet has moved away from its beginnings. He and other pioneers were idealists and had the Internet planned as a utopian experiment. There are above all three points that are not to his liking: the increasing commercialisation, the dominance of large Internet companies and specific concepts and attitudes of the extropians, those radical utopians in the US high-tech underground. The latter have committed themselves, among other things, to the "infinite search for progress", to "biological and neural enhancement" and want to cross over the limits of mankind in order to achieve a state of "transhuman" (More, 1996). For Lanier, the Internet is "a singular and anti-individualistic apparatus of cloud computing and reasoning by 'hive

mind'" (Wallace-Wells, 2010), that disrupts or prevents the development of the person and robs people of the possibility of personhood. His anger about these and other developments has led Lanier to abandon his original strong affirmative attitude and to offer criticism, even fierce criticism.

Foundations of his criticism

The title of his book *"You Are Not a Gadget. A Manifesto"*, which was published in 2010, signalled this author's intention quite clearly. He wants to assure readers that they are by no means technical appliances, but people. He is concerned about people retaining and defending their personhood in spite of all absorption by computers and the Internet. These theses are substantiated in the first three chapters of this book, which are devoted above all to criticism.

The focus of all this author's critical considerations is always the person. In chapter one, this computer technologist does not start with the representation of technical situations but, quite unusually, with the “person”. He wants to know what makes him a person. He confesses that he is unable to answer this question with a superficial formula. For him, the person is "a quest, a mystery, a leap of faith" (2010a, p. 5). In this way he reveals an insight that is unusual for a computer expert with a scientific background. Lanier needs the recourse to the person in order to be able to prove in detail by means of many examples how it is damaged and in the end destroyed as the core of human existence as a result of the increasing digitalization.

Some of his arguments follow. Seeing, hearing and remembering are greatly enhanced with the help of the computers and the network. The new structures that this creates change the way in which people see themselves and the world. Computer technologists were enabled in this way to manipulate peoples' cognitive experience directly. This procedure is intensified further through an ominous development. When software is developed, successful ways of presentation were frequently locked in, and then remained the same for ever. Program decisions are then only made if they fit into the framework of these locked-in presentations. For this reason, experience has shown that programmers chose contents that are easy to understand, politically correct or fashionable. Peoples' thoughts and actions were influenced in this way as well. Ideas were reduced or constricted, and "the unfathomable penumbra of meaning that distinguishes a word in natural language from a command in a computer program” (2010a, p. 10) is truncated. The result is simplification and flattening. In addition, "anonymous blog comments, vapid video pranks, and lightweight mashups" have become rampant. Individually, these may be trivial and harmless, but seen as a whole they have reduced face-to-face conversation (2010a, p. 4).

Lanier turns to an individual's fate in digitalization in the second chapter as well. He describes the "apocalypse" of his "self-abdication", in order to settle accounts with those AI enthusiasts and Silicon Valley dreamers who believe and expect with chiliastic fervour that computers will very soon be more intelligent than people, and will outstrip them and even make them superfluous. Here Lanier takes up a position against these "cybernetic totalists". Their method is to explain and demand that information is free and can exist of itself. They have even imagined that this free information is real, alive and can in fact develop itself further. However, in Lanier's opinion it is people who are real, but not information. The bits in a hard disk may contain information, but this does not in fact become information until someone with a cultural background interacts with it (2010a, p. 28).

Lanier also brusquely rejects the notion that a large number of users linked through the Internet can be more intelligent than an individual. He says: "Emphasizing the crowd means deemphasizing the individual humans in the design of society, and when you ask people not to be people, they revert to mob like behaviors" (2010a, p. 19). Looking back, he finds for the present: "Online culture is […] strongly biased towards an antihuman thinking." (2010a, p. 22).

Above all, Lanier criticizes the concept that developments are moving in the direction of super-computers and super-robots that will have an autonomous super-intelligence independent of people. Disciples of such concepts believed that the Internet could be alive as a whole and change into a superhuman being. In this context they expect the rise of an extremely powerful Artificial Intelligence and believe that the world can be grasped as a whole as a computerized process, whereby people are merely subprocesses. People in these circles believe that if the computer were to become even more powerful in future, its consciousness could be revealed and could even change into something like a personality. Following this, they would develop from humans into super-humans (cf. Wallace-Wells, 2010).

In chapter three Lanier deals with a fantasy product from "cybernetic totalists" that goes even beyond the imaginary world of super-computers and super-robots – the noosphere. What is meant with this term is a global technological brain that consists of all human brains that are linked together in the Internet. He attacks Kevin Kelly (2006), who suggests in this context that all the books in world be compiled into a single book. He argues that this means that the output of the individual author is lost. The individual author has no priority in this technological culture. The result is the flattening of expression and the creation of a "global mush" (2010a, p. 47) that consists of fragments. Lanier detests these objectives.

Special points of criticism

The following topics are obviously important to the author: the correct concept of information; the fallacy that a machine can think; the overestimation of Artificial Intelligence, the character of "mass culture"; the assumption that many participants together are more intelligent than each individual (swarm intelligence); the weakness of Wikipedia as a work of reference; the prevalence of advertising; and, finally, the character of "totalitarian cybernetic culture". He deals with these points in his most recent book *"You Are Not a Gadget. A Manifesto"*. On 17 January 2010 the Frankfurter Allgemeine Sonntagszeitung printed a longer extract from this book in a German translation. The following paraphrased or quoted statements are taken from this extract and from two interviews with Lanier (Holtel & Buck, 2006; Mejias, 2010).

- Information is not free and not alive "as cybernetic totalists love to think" (2010a, p. 28).
- "Information is alienated experience." "[…], stored information might cause experience to be revealed if it is prodded in the right way." (2010a, p. 29).
- The Internet supports the coming into being of a mental monoculture. This means that users get into thought templates, which makes them easier to manipulate (Holtel & Buck, 2006).
- The Internet is a system "in which people are intended to lose their identities and become part of a new mass media" (Holtel & Buck, 2006).

- The Internet works "with a type of collective understanding … – similar to a beehive" (2010b, p. 128).
- Machines are not intelligent: "People degrade themselves in order to make machines seem smart all the time." (2010, p. 32).
- "I worry about the vision that only the whole, the collective is real and important – but not the individual person. That was the mistake made by all totalitarian ideologies, from the Nazis through Pol Pot to the Islamists. […] The individual rapidly becomes a victim of the mob; (Blech & von Bredow, 2006).
- The concept of the frequently invoked "swarm intelligence" (hive mind) is on the wrong track. The idea behind this is that "if only as many as possible do the same thing something fantastic would be the result. The truth is that it is always individuals or small groups that produce creative masterpieces." (Holtel & Buck 2006).
- Swarm intelligence is only suitable for determining statistics or possible election results, but not for generating and presenting new knowledge. Swarm intelligence does not disseminate truths, but merely the average opinion of an anonymous mass. The assumption that in the Internet "the collective (was) wiser and more important […] than the individual" is "an inhuman heretic belief", which leads to an "inhuman digital Maoism". Political apprehensions are behind this attitude, because a way of thinking according to which the collective, but not the individual, is real has already led in the past to "social and political devastation" (Blech & von Bredow, 2010).
- Wikipedia is an ambiguous enterprise, because it always offers only the average of opinions and the authors of articles are not named. They withdraw from responsibility because, like Graffiti sprayers, they are "too cowardly to show their faces". If someone has been represented completely incorrectly "he cannot readily obtain a hearing". The individual quickly becomes a "victim of the mob". "I regard the danger of Wiki lynch justice as very real. In the world of Wikipedia, truth is determined by those who are most obsessed" (Blech & von Bredow, 2010).
- "The ideology of Web 2.0 promotes radical freedom on the surface of the web, but the freedom, ironically, is more for machines than for people."(2010, p. 3).
- A "central error of current digital culture is to chop up information from different sources so finely that in the end all that is left is a single global mush" (2010b, p. 129).
- From a neuroscientific aspect, search engines are "nothing but trash". They are unable to understand what is being searched for. Semantics or logic cannot be shown technologically (Mejias, 2010).
- The Internet "values information more than the individuals supplying it". – "In this way, we have robbed people of their dignity." (2010b, p. 129).
- Advertising was frowned on when people started to experiment with the Internet. Since then, advertising in the Internet culture has moved "into the focal point of the human universe". It is absurd to see how little bother this causes. "If advertising becomes the hub of civilization around which everything revolves, it is really sinister" (2010b, p. 229).

- The "totalitarian cybernetic culture" functions like a new religion. Accordingly, many of its protagonists are aiming for a digital life after death. For example, Ray Kurzweil, an important visionary of Artificial Intelligence, wishes that "the great global computer cloud will mop up the contents of our brains so that we can live for ever in virtual reality." This new religion is not simply the expression of the image of humanity of a small subculture. In Lanier's opinion, with the increasing use of computers the ideas of computer freaks would become "increasingly part of the cultural mainstream". "And these ideas as majority culture? This will be a gruesome world!" (Blech & von Bredow, 2006).

Reception

The original edition of Lanier's book *"You Are Not a Gadget. A Manifesto"* (2010a) won almost excited approval from two leading international newspapers. *The New York Times* said it was "lucid, powerful and persuasive" (Kakutani, 2010), and the London Times described it as "poetic and prophetic, this could be the most important book of the year (Amazon, 2010). *The Times Higher Education* opinioned: "A remarkable book punctuated by expansive ideas ... For those who wish to read to think, and read to transform, *You Are Not a Gadget* is a book to begin the 2010s" (Amazon, 2010). *Encyclopaedia Britannica* counts Lanier among the 300 greatest inventors. Douglas Rushkoff wrote: "This is the single most important book yet written about our increasingly digital world. It will be remembered either as the manifesto that rescued humanity from the brink of extinction, or as the last cogent missive from an obsolete species" (Rushkoff, 2010).

This book was received positively in Germany as well. Hubert Spiegel (2010) declares: "Lanier's call for a direct humanism is a call for digital emancipation". Heinrich Wefing (2010) sees in Lanier a "defender of freedom". The Tagespost (2010) commends: "Lanier exposes superbly the hope for fulfilment of metaphysical desires through ever higher meta-levels of digital representation. And he succeeds in this because people are something special for him that must not become a machine." And Bernd Graff (2010) notes that Lanier is pleading for a new social contract "that compresses the cyberworld back into a reasonable size".

Comments

Lanier's critique is deserving of special consideration because it comes from the mouth of an internationally known protagonist of computer technology and a pioneer of Internet culture. Anyone who, like him, has seen the development of the Internet from the beginning, senses unexpected changes more precisely than a newcomer and is more able to judge them. Blatantly damaging changes are quicker to cause him to resist. Lanier's critique is unusual because stinging attacks such as his are rarely experienced from other well-known representatives of computer science. It is pugnaciously aggressive when he inveighs. For example, because of Wikipedia's deficiencies he calls out in an interview: "That's exactly the reason why I'm making a row" (Blech & von Bredow, 2006). His criticism is courageous because the author must expect protests from many Internet protagonists, which isolates him. In fact, he is regarded as "the first major apostate of the Internet era" (Wallace-Wells, 2010). His criticism is independent, because it is also expressed by a person who is used through his previous affinity with the ideals of hippy culture (Agger, 2010) to standing outside the mainstream and to expressing criticism of society from there. It is spontaneous, also because the creative

multitalented Lanier has artistic sides. At the same time, in parts it plumbs the depths and has an almost suggestive power to persuade and convince.

We will have to concur with the critical points put forward by this author with regard to the semi-religious projections of a "singularity". However, it is more than likely that it is only a highbrow minority of experts who dwell on ideas like this. His critique of the tendency to detect something like life and even personality in the networked computer is completely acceptable, but will not concern the many users who simply see it as a tool. The beautiful formulation that information is "alienated experience" supplements the long familiar decision on the principle difference between information and knowledge. Even the prosaic assessment of the possibilities of Artificial Intelligence is widely shared, but not by all AI researchers. We are really pleased to read how the author stigmatizes the efforts of those people who talk about "swarm intelligence" and the "wisdom of the masses", and how he pillories without pity the poor quality of the anonymous blog commentators and the banal, vacuous amateur videos. Most users will agree in full with his criticism of the prevalence of advertising in the Internet.

Is Lanier as critic a pessimist or optimist? It is impossible to avoid highlighting his generally pessimist view of the future digitalization of society. In the foreword of his book *"You Are Not a Gadget. A Manifesto"* he addresses the readers and explains to them that his new text will be read mostly by "non-persons", even by "automatons". Readers of the future would namely belong to a "stupefied mob" and no longer act as individuals (2010a, IX). This results in the conviction that the intensively advanced digitalization of communication will not only flatten out the general level, but will also liquidate people's cores – their personalities. The author's culture pessimistic side becomes blatantly obvious. His critique goes even deeper in his essay *"On Digital Maoism"*. Here he deals with the "wisdom of the masses". This is regarded as a good idea, but will have a terrible effect for many people. The problem was not less than one of change away from individual understanding and towards "swarm intelligence". This change was fundamental because it decisively changes our conception of who we are. This means: we are becoming witnesses of the creation of a new type of "person". Lanier's apprehensions touch on anthropological aspects here.

On the other hand, Lanier also has a decidedly optimistic attitude to digitalization. He says, "I am still positive in outlook and cherubic in nature". (Lanier, no year a). He is not a Luddite or an enemy of technology. Quite the opposite. He loves and praises the Internet that he criticizes. His criticisms are directed solely against undesirable developments. He even makes suggestions as to how users' situations can be improved. These include a piece of advice for software designers: "There are aspects to all these software designs that could be retained more humanistically" (2010a, p. 21).

However, the way in which Lanier substantiates and presents his criticism has to be commented on. In many cases he is selective and thinks spontaneously. His indignant judgements are stimulating, but not always carefully substantiated – much less presented systematically. There is no comprehensive, theoretically based critical interpretation and representation of his critique. On the other hand, his collage of interesting brief texts rich of ideas is certainly stimulating.

His target group is problematic as well. He appears above all to address a computer culture elite and not the huge army of users all over the world. This led to the reviewer

of the National Post to the verdict that, in the end, Lanier's critique is "a special type of snobbery". Lanier believed in the individual genius and the creativity of the individual. He was therefore "a romantic snob" (Agger, 2010). There is something in this judgement, because Lanier hardly mentions the democratizing tendencies of the further developing Internet. But it also fits in with Lanier's remark that the Internet changed normal, reasonable people into a "mob" (Lanier, 2010b).

Jaron Lanier is convincing critic of digitalization. He has a powerful and energetic effect on readers. He draws attention to the weakness of digitalization that protagonists and users usually put up without complaint: Wikipedia, swarm intelligence, the destruction of the individual, advertising, the religious character of many digital future visions, digital totalitarianism. However, his motto: "You are not a gadget" characterizes him above all as a defender of the individual. He wants to protect the latter from damage and destruction. Insofar, in a special way he is a humanist among critics of digitalization.

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4 The individualist: Bill Joy

On the ethical responsibility of Internet technicians

William Nelson Joy, the outstanding and widely known US software developer, was born in Detroit in 1954.

Biographical background

Joy's parents, William Joy and Ruth Nelson were both teachers, and he grew up in rural Michigan. He was a precocious child, was able to read by the age of three, and he also skipped a year in school. He was a studious pupil, inquisitive for knowledge, and liked to withdraw into the world of books. In High School he attended an electronics course, among others. His favourite subject was maths, which led his teacher to provide him with extracurricular support in this subject.

Joy studied electrical engineering at the University of Michigan and was awarded a bachelor's degree. He then continued his studies in electrical engineering and informatics at the University of California in Berkeley. Here he played a significant part in the Berkeley Software Distribution. He developed three projects (C-Shell, Editor VI and TCP/IP). The latter made him well-known. Following this, he was sometimes referred to as the "Edison of the Internet". In 1982, together with three colleagues he founded Sun Microsystems, where he played a leading role in the development of the following technologies: SPARK, Solaris (Sun OS), Java and Jini. He ended this work in 2003. Many of his developments will stand the test of time. (Sources: Joy, no year).

Motivation

In his essay *"Why the future doesn't need us"* (2000) Bill Joy professes that, when developing new technologies, he was interested from the start in their "ethical dimensions". Initially, he had thought that barely solvable ethical problems were found above all in the field of military research, but not in his sector, namely the development of efficient and reliable software. It was not until he encountered Ray Kurzweil (1990), the author of *"The Age of Spiritual Machines"*, and a computer expert he respected, that he started to reconsider his opinion. Kurzweil had claimed that we would become "robots ourselves" if technological developments continued to accelerate as rapidly as up to now. People and computers would then merge with one another. These perceptions caused Joy unease. His reading of authors such as Theodore Kaczynski (1995), the Neo-Luddite and "Unabomber", and Hans Moravec, the futuristic robot expert, deepened this unease still further. Moravec (1999) wrote the book *"Robot: Mere Machines to Transcendent Mind"* (1999). Joy recognised that such developments would not only change people's lives radically, but would possibly expose them to new, unknown dangers. These dangers could be increased enormously, in particular through the inclusion of genetic engineering, robot engineering and nano technology. His unease then developed into resistance.

Joy discussed the problem he had recognized with his researcher colleagues. However, they did not reject Kurzweil's prophecies as mere futuristic speculations, and did not criticize them either, but stared blithely and optimistically into this technological future and regarded it as realizable. In spite of the recognizable dangers, many of his

colleagues did not behave like responsible-minded adults but thoughtlessly, like unsupervised children. For this reason, in a lecture on the subject of nanotechnology in 1989 he stated: "We can't simply do our science and not worry about these ethical issues." (2000a). His feeling of responsibility told him that we must not surrender to this technological revolution in a feeling of blind optimism regarding progress, but must take account of moral and ethical aspects from the start.

Joy's critique developed further based on his antipathy towards the Internet experts in Silicon Valley, who, in his opinion, are "practically obsessed" and chased after even higher profits. He distanced himself from them, moved far away from them to Aspen in the Rocky Mountains and said about himself: "I think beyond today, about far-off things, develop strategies for the new millennium" (Blumencron, von Müller & Steingart, 2000). This attitude is derived from his scepticism towards the US economic system, in which above all short-term profit maximising is important, and money is the only benchmark for success. Even when he was still a child, the tendency towards ethically based behaviour was germinating in him. He enjoyed watching Roddenberry's original Star Trek series, which impressed him particularly because its vision of the future had been "strongly characterized by moral values". When watching this series, Joy found "not robots, but people with ethical responsibility dominated this future, and I made this dream my own" (2000).

When Joy was asked in the framework of an oral history survey how he wished to be remembered in 50 years, and what his legacy for the digital revolution was, he replied: "Well, if I was remembered as having done a few things I really wanted to do […] and things mattered in the end […] and did it in an honest and ethical and dignified way, which is not always the way people in our industry have been behaving recently. There is so much money around, it's clouding a lot of people's ethics, I think" (Morrow, 1999). Here, the actual motive that caused Joy to criticize thoughtless and insensate technological progress again becomes clear.

Main points of his critique

Given the incredible power of these new technologies, shouldn't we be asking how we can best coexist with them? And if our own extinction is a likely, or even possible, outcome of our technological development, shouldn't we proceed with great caution? (Joy, 2000a). Bill Joy sees dangers that may arise as early as the next decade because of the rapid further development of information technology and of the above-mentioned new major technologies of the 21st century. At present, we are taking the very first steps to comprehending the promises, but also the grave dangers, of these technologies. We must carefully explore what kind of a future they will bring to us. Undesirable developments in these new territories could harm and suppress us as a species.

Present dangers

In an interview with the German weekly *Die Zeit* (2001) Bill Joy said the following on some of the risks of digitalization:

The private sphere was becoming more transparent. The use of credit cards and mobile phones made it easy for operators to draw up electronic profiles of users. These were already being used in business transactions. They could turn into a monitoring instrument. Certain "individual rights" would then "no longer be self-evident". Sensitive

databases were not sufficiently protected. For example, anyone could access the genome sequence of the smallpox virus. It would be possible to create a virus from this that could lead to a catastrophe. The Californian "smart dust" project was disquieting. This is a wireless network of small microelectromechanical sensors that can register light, heat or vibrations. For example, hundreds of these sensors could be distributed around a hospital, to monitor temperature, humidity and movements of people. In wartime, they could be used to monitor the enemy's movements or trace poisons. If this technology were used in everyday life, people would in principle have no chance of protecting their private sphere. Confidential conversations would no longer be possible. We would lose the right to privacy and confidentiality.

Future dangers

Even the title of Bill Joy's essay *"Why the future doesn't need us"* arouses our interest and fears. Already put into the right mood through science fiction films, futuristic TV programmes and books, the reader suspects that supercomputers or super-robots could in fact be in a position to replace people in future. If we read Joy's essay further, we can find these assumptions being more than confirmed. Basically, the author is concerned, as it were, to shock and awe people who have not yet heard of such dangers. He shows them how great the danger is to the life on earth that they have become used – not through digitalization alone, but also through innovations of genetic engineering, nanotechnologies and robot engineering, which all presuppose information technology.

In his opinion, we will in fact have to expect the existence of "intelligent robots and forms of artificial life" in twenty to forty years. These could be dangerous if, as experts prophesy, they were actually more intelligent than people, and were superior to them anyway, and were to regenerate themselves and multiply. Because he knows through his own researches and software designs just how quickly a minor fault can lead to unforeseeable consequences with very complex digital systems, he fears that these new complex technologies could also spin out of control unexpectedly. If this happened, they would cause an unimaginable amount of damage, in contrast to most technologies up to now. In this way, they would in the end make us into "an endangered species".

In order to lend more weight to his apprehensions, Joy argues as follows:

(1) He himself used to think that Kurzweil's prophecies were mere science fiction. However, in talks with other well-known Internet researchers he had changed his opinion. Apparently, there could be something real there after all.

(2) In the 20th century technologies had already caused extremely threatening situations. In particular, technologies on which nuclear, chemical and biological weapons of mass destruction are based had led us latently or factually to the edge of destruction and devastation. The nuclear arms race between the USA and the Soviet Union during the Cold War had forced the world to expect the possibility of a global catastrophe. However, Joy is convinced that the three new technologies could expose us to new, completely different and still unknown dangers with a much greater scope.

(3) In complex technological systems there are "many interactions and feedback processes". Minor random changes can trigger "chain reactions" that no one had thought about beforehand.

(4) We are already exposed to grave dangers today that we will have to deal with: cloning living beings, including human embryos, genetic modification of plants and pollution of air and water.

(5) Moore's law states that the number of transistors that can be placed inexpensively on an integrated circuit doubles every two years, which improves computer performance correspondingly. Moore's prophecies have proved to be correct in the last decades. However, if this development continues, and accelerates as well, in a few decades we can expect computers that provide qualitative performances that are hardly imaginable today.

(6) Dolly, the cloned sheep, caused serious confusion. The procedure has increased our consciousness for "profound ethical and moral questions". When the three new technologies are applied, moral aspects of this kind would have to be taken into account to an even greater extent.

(7) If anything can go wrong, it will (Murphy's Law). However, it must be said that with the application of the new technologies undesirable developments could have much worse consequences than before. The worst case would occur if attempts were not made to prevent it.

Because of the above unforeseeable dangers for people and their lives, Bill Joy proposes the following: scientists taking part in such dangerous projects should limit or even abandon their researches in order to prevent a possible catastrophe. We should develop a new philosophy that helps us to recognise in the many new technological developments what it means "to be a person", "what life is" and "who we are" (Lossau, 2001).

Reception

With his essay Bill Joy aroused enormous attention because he got to the heart of the matter with those who were still imbued with blithe optimism with regard to progress. On 21 January 2000, just a few months before the essay appeared, President Clinton had declared that nanotechnology, in combination with genetic engineering and computer technology, was the key technology of the 21st century. With this statement he addressed Americans' new frontier mentality, and kindled new confidence and trust in technological progress. In this situation Bill Joy's warning should have fallen on deaf ears, but the opposite was the case: many people took him seriously. His message was welcomed – in the USA and all over the world. This is probably due to the fact that, as the architect of the Java and Jini software systems, Bill Joy belongs to the elite of computer experts and enjoys great respect.

Katrina Heron, editor-in-chief of *Wired*, the leading computer magazine, reports that the public reacted unusually. Just a few hours after the essay appeared, she received a surprisingly large number of comments from readers, with over 85 coming in after just a few days. These were published in the next issue of the magazine (Heron, 2000). The following judgements were found among them:

Alex Vella (engineer) regards the essay as the "most profound, thought-provoking document in recent history." Mel Schwarz, physics professor and Noble prize-winner, writes: "The problems are real and are probably more serious and closer at hand than most of us imagine". Stuart Johnston, a technical author, thinks: "For the first time, someone has pulled

together the strands of 21st century science and science ethics and starkly illuminated the risk of pursuing knowledge at all costs."

However, there were other readers who doubted that Bill Joy's proposals are realisable. The radiologist Otto Kunst believes that existing knowledge cannot be removed from the research process. For the author Robert C. Baker the dangerous new technologies are "profit-driven" and the pursuit of riches was "sacrosanct". Michio Kaku, the renowned US physicist, thinks that Bill Joy was exaggerating when he warned about intelligent computers, if he believed that in just ten years there could be "replicating nanorobots". As a physicist he was better equipped to assess the limits of technology (Scriba & Traufetter, 2000). And Microsoft CEO Steve Ballmer is unable to do anything other than to regard Joy's opinions on the dangerous nature of future robots as "weird" (Kerbusk & Steingart, 2000).

Opinions were divided in Germany as well. *The Frankfurter Allgemeine Zeitung* (FAZ) published the German version of his essay *"Gadget. Warum die Zukunft uns nicht braucht"* in its features section, and welcomed Bill Joy as a "herald of truth". Frank Schirrmacher, the newspaper's co-publisher, went so far as to comment: "We have to take science fiction seriously, because it influenced people like Bill Joy" (Schirrmacher, 2000). In contrast, the newspaper Die Welt criticized him severely. Under the headline *"Why the world does not need Bill Joy"* the reviewer calls him Dr Strangelove and claims Joy could be awarded the title "Cassandra of the year". His essay was "a poor text", whose "we're all doomed pathos" was to be rejected. His prophesies came from the "realm of bad fantasy" and we were being exposed to "pessimistic science fiction" (Kreitling, 2000).

Whether we agree wholly, or partly, hesitantly or without reservation to one of these judgements, the essay has had a significant effect in that it sparked the discussion on possible dangers of the new technologies in all responsible areas of society in the USA and round the world. Even President Clinton discussed the subject in his inner circle. Joy has thus partly overcome "the shameful short-sightedness of society". In addition, the essay appeared as the title article in Wired, the leading specialist computer and Internet journal, after the magazine had for many years published only optimistic articles on the progress of digitalization. This is significant, and signals initial attempts at rethinking.

Comments

As a critic of digitalization, Bill Joy has a special position because he brings moral and ethical arguments into the discussion in digital research like no one else, and demands responsible actions from planners, designers and users. This is unusual in his circle, if we disregard the much deeper and just as singular example of Joseph Weizenbaum.

Bill Joy refused to become infected by the blind enthusiasm for the prophesied incredible progress of digital technologies, but remains calm. Unlike his colleagues, he does not stay within the confines of his specialist field, where "the fever of innovations keeps them prisoner", but looks over the fence. Uneasily, and in part even shocked, he tests dramatic innovations with regard to their consequences for people and their lives. In doing this he is confronted with existential problems.

This can, and must, be said in order to face down those who dismiss Joy's warnings simply as "pessimistic science fiction", but themselves face radical digital changes impassively or complacently. The possible risks on the use of the three new technologies make a realistic

consideration necessary. Bill Joy himself has said: "My warnings here are not pessimism, but realism".

Joy's concern for the future fate of humankind is genuine, and insofar justified because he is a globally respected computer expert who sees through the possibilities of digital development sooner and more thoroughly than others. The momentousness of his critique is highlighted by a reviewer in the London Times, who compared Joy's essay with the letter that Albert Einstein wrote to President Roosevelt in 1939, to warn him of the possibility of the atom bomb.

At the same time, many readers will be put off by ideas and wordings that appear exaggerated, which, although they were taken over from Kurzweil and other authors, are put forward as if Joy shares their opinions, because he does in fact warn about the dangers they may possibly trigger. There is talk of a "blending" of humans and computers, and of computers with almost human consciousness. And it is prophesied that people driven out by computers will have no way out other than journeying into space. Joy distances himself explicitly from such extravagant prophecies. He writes, "It seems to me to be more likely that a robot will be nothing like a person according to our way of thinking, and that 'being human' will not be lost in this way." As far as settling space is concerned, Joy is concerned above all with the "moral implication" that would be connected to our leaving earth behind.

Joy's proposal that digital technology projects, or those involving the three new key technologies, that appear dangerous should be limited or cancelled must be regarded with scepticism. Even if there is resistance, anything that can be invented and developed will, in the end, be realised – to the benefit or detriment of the human species. At least, this is what we can see from a glance at the history of science. Unfortunately, the essay does not enlighten us as to how deeply rooted the moral attitude actually is in this author.

Bill Joy has succeeded in causing a sensation in the computer world with a single essay and to spark off an intensive discussion in the USA and many other countries on the future of digitalization. He calls a halt to senseless enthusiasm for technological progress and draws attention insistently to the existential problems of digitalization in the life of our children and grandchildren. Joy differs from most of his professional colleagues because he has in mind an ethos of scientific research, and is concerned with this in his own work. He has made a special contribution to the critique of digitalization and in doing this has shown himself, like Weizenbaum, to be a science critic.

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5 The activist: Don Tapscott

Virtual space – "a place of confusion, uncertainty, catastrophes and threats"

Don Tapscott, a globally known authority in the field of digitalization, is a best-selling author, consultant and Adjunct Professor of Management at the University of Toronto.

Biographical background

Don Tapscott was born in 1947. He holds a Bachelor's degree in Psychology and Statistics and a Master's in Education from the University of Alberta. Tapscott is the founder and president of the Alliance for Converging Technologies, a consultancy in Toronto that works together with executives of leading companies in order to understand better through joint research and analyses how companies can become more competitive through digital economy. He is also the founder and chair of N-Genera Insight, a consulting and software company in the field of management in Austin, Texas, and a Fellow of the World Economic Forum.

Tapscott examines the impact of the Internet revolution on industrial companies, individuals and society. He became globally famous through his book *"Grown Up Digital: How the Net Generation is Changing Your World"* (2008). Here he shows how digital natives and digital immigrants react differently to the challenges of the Internet. He had already dealt with the subject in 1997 in his book *"Growing up Digital: The Rise of the Net Generation"*.

In 2006, together with Anthony D. Williams, he published *"Wikinomics: How Mass Collaboration Changes Everything"* (2007 in German: *"Wikonomics: Die Revolution im Netz").* In 2007, the latter book was awarded the title of the bestselling management book in the USA and was translated into 26 languages. Of the 13 books he has written, sometimes with a co-author, three more will be mentioned. They show just how early his researches in the field of IT started. They are the bestsellers *"Paradigm Shift: The New Promise of Information Technology"* (1992), *"Digital Economy: Promise and Peril in the Age of Networked Intelligence"* (1995) (1996 in German: *"Die digitale Revolution").*

Don Tapscott has twice been awarded an honorary doctorate, in 2001 by the University of Alberta and in 2006 by Trent University. He is married to Ana Lopez and has two children. (Sources: Leigh, 2011; Tapscott, 2011; Tapscott, no year; Medienboard Berlin-Brandenburg, no year).

Motivation

We have to imagine Don Tapscott in the first place as a convinced and energetic protagonist of digitalization, who wants to prophesy and promote with the zeal of a missionary the revolutionary change that IT is to bring about, above all in the economy. In order to be successful in this he unfolds a series of activities: he founds consultancies, teaches at university, writes books, gives keynote addresses and ensures publicity in the press as well. He aims for public recognition and business success. He says of himself that he leads "a consistent life guided by principles" (Twitter 21.10, 2010). In all this he is an optimist, who is enthusiastic about his mission.

Main features of his critique

Don Tapscott was invited by the Club of Rome to write the foreword to the report that was prepared by groups of international experts and published by Juan Luis Cebrián under the title *"Im Netz – die hypnotisierte Gesellschaft"* (1999) (see Chapter 2). At the time, Tapscott was already a leading expert in the field of the effects of digitalization on companies and society. He was sometimes referred to as the "guru of the digital economy". His foreword was 30 pages long and dealt with the "hopes and dangers of digital technology". He devoted the first eight pages to the "hopes" and the remaining 17 pages to the "dangers".

His hopes: digital networks could provide the economic basis for the "global creation of wealth". A fundamental change to our business practices could take place, because these networks enable "information, transactions and communications" between people at the speed of light. Digitalization could bring about new "added value and market leadership". There will be structural changes in the education system, because, for example, digital networks can be used for continuing education. The health system will become cheaper and better through the use of digital networks. And in addition, the Internet will enable closer cooperation between scientists. These hopes are based on the coming "networking of human intelligence" and on the creation of a "higher level of thought and knowledge – and perhaps even of an 'interlinked' consciousness". Tapscott expects an era of the "networked human intellect: an era of great hopes and unthought-of possibilities".

However, at the same time he also sees a time of dangers approaching. Established economic and social systems will be profoundly changed, which, from the standpoint of the guardians of tradition, is naturally seen as a danger. For him, digitalization is by no means one option among others, rather it forces an adjustment, not only because the change brought about by the Internet is violent and multifaceted, but also because persons and institutions that do not get involved with this change remain disadvantaged and are left with nothing in the competitive struggle. Individually, the negative consequences of digitalization vary greatly:

- Digital technology changes the "governments" and the "social institutions" of a country (1999, p. 22).
- The new media change the way in which we "do business", "how we work, learn, play and even how we think" (p. 22).
- Even fewer people than ever before will share in riches (p. 24).
- The human right to privacy is being eroded in such a way "that it makes us shiver" (p. 25).
- Fundamental civil rights and liberties are undermined (p. 22).
- Social cohesion is dissolving (p. 22).
- The economy is confronted with great problems, because traditional "laws, structures, norm and plans" are unsuitable for a digital economy (p. 22).
- There is a new dividing line through the population: "the digital divide" (p. 24).
- Virtual space will become "a place of confusion, uncertainty, catastrophes and threats" (p. 22).

According to the author, we do not yet know where the digital journey is leading us. Even with earlier important media, such as printing, the telephone, the automobile, the inventors did not even guess what immense effects these new technical media would actually have. What consequences on a corresponding scale are we faced with on digitalization? It is true that the first digital structures are being created in economic life. But we are encountering "more questions than answers" (p. 24) in this area. In addition, many articles and information programmes do not describe the digital future as actually rosy. There is a fear that digitalization could lead to "unemployment, torpor and the destruction of the private sphere" (p. 24). Will technical constraints, "technical imperatives", prevent us from shaping digitalization responsible and for the welfare of humankind? (p. 24).

Don Tapscott sees the following problems in the development of a digitalized society for which we are responsible:

- We have to deal with peoples' fears of becoming unemployed as a consequence of the use of the new technology (p. 24).
- Overcoming the separation between "the haves and the have-nots". Because digitalization is widening the gap between rich and poor, we must all devote our attention to this problem (p. 24).
- The lack of new basic economic knowledge makes it difficult to integrate people in digitalized work processes (p. 25).
- There is no effective protection of the private sphere (p. 22).
- The blurring of the border between work and leisure may have unforeseen consequences for the conduct of life (p. 26).
- The effects on family life cannot be seen as yet (p. 26).
- It is difficult to organize protection of children from pornography, paedophiles and images glamorizing violence (p. 27).
- The role of trade unions in the digital restructuring of the economy has still not yet been fully clarified (p. 29).
- The reaction of governments and nation states to the creation of "virtual communities, administrations and states" is still completely uncertain and can lead to critical situations (p. 29).
- Considerable resistance must be expected, because the paradigm change brought about by digitalization causes "upheaval, conflict, disarray and uncertainty" (p. 31).
- Revolutionary innovations will trigger a general management crisis in companies, because the traditional "business mentality" is losing ground, and the traditional hierarchical values system will be weakened (p. 32).
- Conflicts are foreseeable when the generation of digital natives is established in the employment market and takes part in social life (p. 34).
- In the face of these problems, Tapscott asks himself with concern: "Will this smaller world that we leave to our children be a better one?" (p. 22).

Growing up digital

In his book *"Growing up Digital. The Rise of the Net-Generation"* (1998) Tapscott celebrates the generation of those who grew up with the Internet as children, and discovers comparatively little cause for criticism. All the same, the over 400 pages of this book do contain some places in which the author deals irrefutable disadvantages of digitalization.

(1) Tapscott describes the danger of the data flood under the title *"Cyber Drownings and the End of Surfing"* (1998, p. 31). His dramatizing wording signals how serious he judges this phenomenon to be.

(2) One chapter is headed: *"Problems in Paradise"*. Here Tapscott explains the extent to which "children are exposed in the Internet to damaging and unpleasant dangers" (1998, p. 8). He is thinking here about children who play tricks on others, who use their parents' credit cards to make major purchases, watch porn videos or acquire experience much too soon with cybersex.

(3) He dedicates a longer chapter to the problem of the digital divide between those who live with the Internet and those who live without (1998, p. 11). A "two-class society" is being created. He even goes so far to refer to "information apartheid" in order to characterize looming social conflicts even more sharply. He explains to the experts who hope that with time the digital divide will be narrowed that his researches had proved the exact opposite. The divide was becoming greater and greater. Here he has in mind, on the one hand, those children who live below the poverty level, which affects a quarter of all children under 6 in the USA; on the other hand, he has in mind those people in developing countries who do not have a telephone. The lack of information through the Internet makes it more difficult for them to improve their living conditions. "Because they are technological have-nots, they become have-nots in general." (1998, p. 12).

(4) Four basic conflicts are being created between adults and the adolescent Internet generation (1989, p. 48). Adults feel "uneasy" because of the Internet, while those who grew up with it embrace it. Adults avoid the Internet, whereas it is of central importance for the Internet generation. Old media and digital media do not fit together. The effect of the digital revolution on young people displeases adults.

(5) A generational war – "the digital revolution" – could break out between members of the Internet generation and those who were born decades earlier and lived without the Internet (1998, p. 50).

However, observations like these by no means determine the book's overall attitude, which is certainly positive and even defined by an exuberant optimism.

"Grown up Digital"

This optimism is increased further in the book *"Grown up Digital"*, which Don Tapscott wrote eleven years later. In it he describes how the digital natives have now grown up and are growing into the world of life and employment as changed persons (Tapscott, 2008).

In the introduction, the author describes first of all "the dark side" (p. 3) of the Internet generation, which has become familiar through complaints from frustrated parents and employers. According to this, members of this generation are in reality stupider than children of earlier generations, slaves to television and incapable of social bonding. They do not take part in sport, are losing their sense of shame, cannot cope with their

independence, steal, bully their friends in the Internet, are brutal, have no ethical convictions, tend towards narcissism and do not read newspapers. However, Tapscott refuses to accept this depressing image of the Internet generation. With research funds in the amount of USD 4 million and a large staff, he intends to show through a large-scale scientific examination that this negative image of the Internet generation is false.

In the interpretation of his research findings his indestructible optimism appears again. He paints a picture of this generation in glowing colours and praises their characteristics. It is interesting to name the criteria that Tapscott uses to characterize members of the Internet generation, because they show how strongly and comprehensively this author wants to provide evidence of already existing changes to peoples' behaviour and how an excessively positive point of view and an exaggerated belief in progress can become damages in themselves here. He applies the following eight criteria ("net gen norms"): freedom, customization, scrutiny, integrity, collaboration, entertainment, speed and innovation.

According to this, members of the Internet generation ("net geners") are characterized by the following peculiarities:

- They demand the **freedom** to choose themselves where and when they work. They use their technology to escape from regulated hours of work in traditional offices. In addition, they are involved in integrating their life in the family and in their social environment into that of working life. (p. 74)
- They have developed a marked tendency to **adaptation**. They do not use digital products that they acquire for the planned purposes, but change them in accordance with their own needs. (p. 77)
- A generation of "**exact checkers**" has grown up with them, which has learnt through its long experiences in the Internet to differentiate confidently between fact and fiction. (p. 79)
- **Integrity** is important for them. They think people must "be honest, considerate, transparent and loyal when carrying out their obligations" (p. 82). In comparison with earlier generations they prove to be "more tolerant and even wiser" (p. 84).
- They are prepared to **collaborate** actively, and are used to doing this because they are members of a "relationship generation" (p. 89), which has learned to work together with others in chat groups through emails and share files (p. 89).
- They have a penchant for **play and entertainment**. Work is also fun for them (p. 92). Both forms of activity are about to be merged into a single activity, because "Net Geners believe in enjoying what they do for a living" (p. 92).
- They are characterized by **speed of action** and expect replies to the emails by return. They are irritated and annoyed if members of their peer group delay doing this. This haste leads many to assume that their careers must develop quickly. However, not a few suffer from overload and just want to be left alone. They are then tempted to switch their mobiles and computers off, but do not do this because they are afraid that this will cause them to miss an important message. (p. 93)
- They are enthusiastic about **innovations** and always want the latest and best digital product (p. 94). They do not want to slog away in the same old bureaucracies as their

> parents, but prefer workplaces that are creative and innovative. They have developed a completely new "culture of invention" (p. 95).

Just how important Tapscott regards these "eight net gen norms" for the further development of society can be seen in the final sentence of this chapter. Here he assures his readers: "If you understand these 'norms', you are able to change your company, school, university, government or family" (p. 96). With his book Tapscott creates an atmosphere that motivates readers and brings them to follow him into his promising digital world off-handedly and without thought, and in doing so to blank out grave disadvantages.

Reception

There were no reactions referring directly to his contribution that referred to the "hopes and dangers" of digital technology described by Tapscott, which were published as the foreword of a major report to the Club of Rome (Cebrián, 1998). However, the critical points listed there are also dealt with in two of his earlier books: *"Growing up Digital"* (1998), in which the author describes the arrival of a new generation of persons who had already dealt with networked computers in childhood, and in the follow-up study published ten years later, *"Grown Up Digital"* (2008), in which he shows how members of this generation differ from older users and how they are starting to change the world of work and to transform our culture. *"Growing up Digital"* is still apparently being noticed, as 68 books quoted it. (Amazon, 2000).

The second book (2008) is given both a positive and a critical reception. *McGraw Hill* is able to quote enthusiastic press reviewers on the cover. "… *Grown up Digital* has been selected as a 2008 best business book of the year by the *Economist*." *The New York Times* regards it as a "must-read" for everyone born before 1977. "If you understand the Net Generation, you will understand the future." *Business Week* judges: "Fascinating, insightful, data-rich analysis with broad implications." *The Economist* thinks Tapscott paints "a portrait of a generation that is entertaining, optimistic and convincing". *The Wall Street Journal* praises "the optimistic view of how humans are evolving to engage with technology." And for Nicholas Negroponte from MIT the book is "the first guide to the land of the Net Generation that should be read both by visitors and residents alike."

On the other hand, there are negative criticisms as well – mainly for methodological reasons. For example, Dworschak (2010) described the author as a "would-be visionary", who preferred to base his arguments on individual cases of young Internet users, instead of arranging substantiated surveys. These individual observations do not tell us much about the whole generation. More recent research provided a completely different picture. According to this, young people preferred the real world to the digital world. Other critics object to the construct "Internet generation". Mark Bullen et al. (2011) find: "Generation is not the issue". Wu (2009) criticized: "The book treats this generation as a single block; they are all well-educated, western leaning, capitalism supporting, environmentally conscious individuals. Such stereotyping does not take into account the fact that any generation is made up of diverse people, with different backgrounds, needs and ambitions". German experts asked whether it was possible to speak of a "net generation" in the first place and make it the central theme of a book, because there was no such generation. Jörg Wittkewitz (2009) also doubted the existence of a net generation. And Rolf Schulmeister (2009) reasons that the concept of the net generation is not viable. It is true that the en face plausibility of the image that Tapscott has created for the net generation is fascinating, but "most of the observations

cannot be reconciled with a generalization covering a complete generation". In addition, he condemns as "transgressions" Tapscott's findings that members of the Net generation "are particularly tolerant of ethnic minorities" and that they are "more intelligent and cleverer" than members of earlier generations.

Comments

In his foreword to Cebrián's book *"Im Netz: Die hypnotisierte Gesellschaft"*, Don Tapscott named ten different dangers of digitalization in just a few printed pages, all of which are real and threaten the common good. Because of his exact knowledge of the new possibilities of the computer and, even more, his intuitions with regard to future effects of the Internet, he had a sharper eye than others for the impending far-reaching change. In a remarkable way, he has seen through the complex occurrence of the beginnings of digitalization and correctly prophesied them. This can easily be confirmed in a period of fifteen years, now that we have experienced how Obama's election was supported through the Internet and how effectively political demonstrations can be organized there. In addition, it has been shown how hesitantly companies and schools act in coping with the pedagogical paradigm change. We have experienced how digitalization of production has in fact made the rich even richer, and how privacy is abused when it is a matter of controlling employees and secretly pursuing commercial interests. We have seen how the basic right to intellectual property has been undermined and flouted, how family ties are dissolved when members linger in front of a computer for hours and stop taking part in traditional family life, and we can comprehend just how far-reaching and complex the change is that a company has to go through on the road to digitalization. With his last two prophecies, Tapscott expressed the inmost thoughts of those who dread the change: the world is entering a phase of confusion, uncertainty and catastrophes. And: worries about whether we will leave our children a better world because of the digitalization of our life are much more depressing today than at the end of the last century.

The successful description of the "time of dangers" leads us to include Don Tapscott in the series of critics of digitalization presented here. However, there is one difficulty that we have to mention at this point: the role of a "critic of digitalization" does not at all match the image of this author that we were able to gather from his later work. In the latter he appears as a full-blown Internet apologist, as such a staunch, convinced and even enthusiastic protagonist of digitalization that we are unable to imagine him any longer as a critic. He seems rather to be someone who rejects the critical arguments of others and even refers to them derogatorily as cynicisms. He likes to deny actual faults and weaknesses of digitalization, or to explain them away. In his extensive œuvre this foreword is therefore something unusual, special and surprising. We experience here how the optimistic and practically uncompromising proponent of computer use deals for a change relatively orderly and in detail with criticisms of digitalization. Obviously, at that time Tapscott was still able to name the downsides of digitalization, because four years previously he published the book *"Digital Economy – Promise and Peril in the Age of Networked Intelligence"* (1997). Here he had already conjured up the danger of isolation of uses, the loss of privacy and the digital divide.

Can Don Tapscott's deviation from his other positive behaviour be explained? The invitation to write the foreword to a report for the Club of Rome was naturally an honour for him and an opportunity to reach a global public. On the other hand, the Club of Rome reports were to

be understood more as a warning than as a promise, because the aim of the Club of Rome is to point out the overexploitation of nature internationally and to plead for a "liveable and sustainable future for humanity". For this reason, Tapscott was unable to take on solely the role of a "cheerleader" for the case of digitalization, although this corresponded more to his mentality. It is this circumstance that we have to thank for his extraordinary critique of digitalization.

We cannot criticize the optimism of an author who is ardent about his mission. But we can do this because of his exaggerated confidence in the growing "Internet generation" that he celebrates. What Tapscott attributes to it in the *chapter "Power to the Children?"* (pp. 33-38) in his foreword is bewildering and appears grossly exaggerated: a "new and fresh mentality"; a "new way of doing business"; readiness to use all new facilities for learning; "the capability to give the democratic process a new direction"; "rejection of racism and sexism", which were allegedly "alien and unacceptable" to this generation. Tapscott even goes so far as to say that members of this generation were prepared to share the prosperity that they create as a result of digitalization with others. He was carried away by wishful thinking here. Even his optimistic dictum: "If you understand this Internet generation, you understand the future as well" appears to us to go too far and to be too sweeping. There are also gross methodological defects, because the 80 million people described as members of the new Internet generation in the USA cannot be stated generally to have such precisely described characteristics (cf. Schulmeister, 2009).

Don Tapscott is an author for whom a systematic critique of digitalization is not in the foreground. He is more of a passionate, well-disposed and unusually active proponent of digitalization. However, what he in fact criticizes in some places is characterized by particular expertise, perspective and farsightedness. In places he also points to the dangers of digitalization, which is perceived globally because of his great publicity. Insofar, his is an important voice as well with regard to the critique of digitalization.

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6 The traditionalist: David Franklin Noble

A struggle against the "automation of higher education"

David F. Noble, a US historian of technology, was born New York City in 1945 and died in Toronto in 2010.

Biographical background

Noble began his researches at the Massachusetts Institute of Technology (MIT), continued them at the Smithsonian Institute and then taught at the Department of Social and Political Thought at York University in Toronto. In the beginning, this researcher occupied himself with the question of how science and technology brought about the rise of corporate capitalism *("America by Design"*, 1977). He then wrote a social history of industrial automation (*"Forces of Production"*, 1984). Later on, he criticized the myth of progress (*"Smash Machines, Not People!"*, 1985). There followed an illustration of the Christian-clerical culture of Western natural sciences (*"A World Without Women"*, 1992). A year later he defended the Luddites (*"Progress Without People"*, 1993). Following this, he researched into the connection between people's religiosity and their inventive talents (*"The Religion of Technology"*, 1997). His book on the automation of higher education (*"Digital Diploma Mills"*) was published in 2001, and triggered a lively discussion. His last book was concerned with the emergence and eclipse of the biblical mythology of the Promised Land and its influence on Western culture (*"Beyond the Promised Land"*, 2005).

As the titles of these nine books show, we have before us a critical spirit par excellence, a man who made criticism into his main business, and is prepared to make personal sacrifices as well. Because his criticism tended towards a left-wing pint of view, this led to difficulties and to serious adverse effects on the continuation of his academic career. He had to leave MIT because he was not given tenure, and subsequently had to give up his position at the Smithsonian Institute. An invitation from Harvey Mudd College to give an official speech there was withdrawn because it was found that he was an opponent of technology. At York University his statements were even referred to as "inimical to science" and "anti-intellectual".

As a university teacher he criticized above all the universities. He criticized that "second division" universities were forced to carry out business-friendly polices because of a shortage of funds, which subordinated the original task of the university to the interests of industry. Universities did not use high tech to improve teaching, but to intensify controls over students and to expropriate the intellectual output of outstanding colleagues. The latter, for example, was the case, when recordings of lectures by academic "superstars" were used to replace lectures of average pretensions. (Sources: Toronto Star, 2010; Rancourt, 2010).

Motivation

It is very obvious that personal characteristics predestined this author from the start to display a fundamentally critical attitude. In an obituary, Denis Rancourt, a colleague and friend, characterized him as follows: "He was very vehement, vibrant, intense". "He was very energetic and exciting to be around in terms of all the ideas." (Morrow, 2010). We find that he is aggressive, provocative and belligerent in his writings. He takes

personal pleasure in not mincing his words, and regards himself as being affirmed if he swims alone and doggedly against the current – even if he has to put up with existential disadvantages as a result. In one obituary he was even apostrophized as an "activist and academic gadfly" (Anlakh, 2010).

This emotional basic attitude is permeated by an anticapitalist affect. Outrage at injustice is his actual motor here. As someone on the left of the political spectrum he has attitudes, criteria and thought patterns from the field of social criticism, and all he has to do is to update them when he approaches the subject of digitalization. In addition, he derives further impulses from his fundamental knowledge and insights from the field of technical history.

Main features of his critique

Two themes are taken from Noble's wide-ranging work: his critique of technology and his view on the automation of the university.

Critique of technology

As Noble's critique of digitalization is part of his general critique of technology, it is illuminating, and necessary for an understanding of the subsequent elucidations, to take a look at this first of all. His main interest is not directed as much at the development of the technology as such but mainly at its negative consequences and social ramifications. He became famous above all with his book *"Forces of Production: The Social History of Automated Production"* (1984). In it, he stresses that automation played a worrying role in society. We cannot simply see it as embodying technological progress, but must also look at the societal processes that it triggers and in which the social conflicts inherent in technology are staged.

In his book *"Progress without People: In Defence of Luddism"* (1993) he deals with the 19th century Luddites. Their behaviour had been thoroughly rational, because at the time they were unable to lend weight to their wage demands in any other way, as the right to strike did not exist and there was no collective bargaining. In his book *"The Religion of Technology: The Divinity of Man and the Spirit of Invention"* (1997) he holds the view that religion and technology are not opposites, but had influenced each other historically (cf. Stalder, 1998). Not only rational decisions were decisive in modern industrial production but religious attitudes and transcendental beliefs as well, which he regards as dangerous.

In the second part of this book he deals as examples with four modern technological projects: nuclear weapons, space travel, artificial intelligence and genetic engineering. Although a nuclear war would mean the end of the world, work on this project is still going on. Travel to the moon has a religious motive for him, because it represents an attempt to leave the earth in order to enter paradise physically as well. One of the astronauts read from the Bible from the moon, which viewers all over the world were able to experience on their TV screens. He regarded artificial intelligence and artificial life as the pointless effort to create something that was superior to humans. Researchers wanted here to develop life from dead material, in other words to be creators of life. And genetic engineers want in addition to perfect this life both physically and morally. This was not unassuming or humble science that was attempting to extend our knowledge gradually, but arrogant hubris with overweening salutary pretensions. One

of the directors of the artificial intelligence project, Francis Collins, has described genetic engineering as the most important project that humans have ever begun.

According to Noble, technology is profoundly interwoven with religious motives. He asks himself why otherwise it fulfils the promise of a better life so ambiguously. But there is more and he goes on to argue: "On a deeper cultural level these technologies are not aimed at satisfying human needs, at bottom, they have never intended to do this. On the contrary they strove to transcend people's concerns about their lives. In such an ideological context and inspired more by prophets than by profit, neither the needs of mortals nor the continued existence of the earth on which they live plays a part. The religion of technology 'can rightly be considered as a danger'." (1997a, p. 206; quoted in Stalder, 1998).

The Automation of Higher Education

A main theme of his critique is the changes that modern electronic technology, including the computer and the Internet, has forced on universities. Admittedly, the really great digital developments were still in their infancy at that time. However, Noble recognized this exactly and described it in his book *"Digital Diploma Mills: The Automation of Higher Education"* (2001).

Even the title of this book is grossly polemic, because the expression "diploma mills" recalls earlier campaigns against fraudulent, sometimes even criminal, correspondence schools in the 20th century. This title is therefore at the same time a declaration of war against modern distance teaching and learning. In the book, Noble proves to be a strident opponent the automation of academic teaching, in particular of online learning. The following are some of his arguments:

- Companies that want to sell the technology for teaching and learning purposes see online education as a new means to make quick profits. Their computerized teaching methods were developed first for the military. But now, as the owners of these companies hope for, university teaching is to take place generally and later on totally in this way (2001a, p. 5).
- University administrations support this transformation, because they want to give their institutions a modern, future-oriented image. They are in favour of computer-based education, in order to reduce their own work and the costs of operating the university, because then fewer university teachers and fewer classrooms are needed. However, all this undermines the autonomy and independence of university teachers (2001a, p. 6).
- Furthermore, the automation of universities is promoted by those techno freaks and Internet fanatics who regard computers as a panacea, because they like playing with them. They are pushing themselves into the vanguard of those who allegedly want to improve university education, namely "without real evidence of increases in productivity and without an actual demand – neither from students nor from university teachers" (2001a, p. 6).
- The application of technology such as this lengthens working hours and intensifies work, because university teachers have to struggle day and night to keep up with computer developments. In addition, they have to answer students' questions via chat rooms, virtual consulting hours and emails (2001a, p. 8).

- If courses are offered online, university administrations acquire more direct control over the work of university teachers than ever before and "the opportunity for exact checks, monitoring, reglementation, disciplining and even censoring increases dramatically" (2001a, p. 8).
- Once a course is completed with regard to teaching technology, developers lose their intellectual property rights because their instructional design is handed over to the machine and made available to the administration. The university can employ less highly educated and therefore cheaper staff to give the course. Even more: it can "peddle" the pre-packaged course and sell it to other universities, for example (2001a, p. 8).
- Once a department has developed its courses as "courseware", further teaching services by its university teachers are no longer required, they are redundant. When they leave the university, it retains possession of their work (2001a, p. 9).
- Sceptical departments rightly claim that university teaching cannot be automated at all. In spite of this, universities are automated anyway, no matter how great the loss of didactic quality is (2001a, p. 9).
- "The new automating of university education robs those teaching there of their knowledge and abilities, of the control over their professional activities, of the product of their labours and, in the end, of their livelihoods" (2001a, p. 9).
- At American universities there is a conflict between university administrations with their countless commercial partners, on the one hand, and students and university teachers, whose interaction is the main business of education, on the other. Students and university teachers were not able to contribute to the introduction of the new technology, which is initiated, promoted and politically enforced by major technology companies (2001a, p. 1).

Noble stresses that this is not speculation, and he reports on a long strike at his university that ended with a contract between the university teachers and the administration that gave them back the complete power of control over their own teaching. All in all, he draws the following conclusion: "Universities are not simply being subjected to a technological change. Behind this change, and camouflaged by technology, lies another change: the commercialization of university education. Here, as elsewhere, technology is only a means to an end and a soothing mantle" (2001a, p. 3).

Reception

David Noble's activities, and his writings, did not meet with any great response in Europe. It is true that his name is still found in treatises on the history of US technology, that his article on the Luddites was honoured in 2009 in a course at the Technische Universität Darmstadt, and that some of his books have been translated into German, but a search for reviews and appraisals is in vain. It appears that there were no obituaries in Europe following his early death in 2010.

However, in the USA there are detailed reviews of his books. *"Digital Diploma Mills: The Automation of Higher Education"* in particular met with great interest. Ralph Nader (2003), the internationally known consumer protection lawyer, found: *"Digital Diploma Mills* is a wake-up call to millions of teachers, students, and parents about the battle over an

underpublicized but big assault on quality education and intellectual freedom." And he reported just how exactly Noble described the automation of academic teaching, what this meant for academic freedom and civil rights, and the extent to which it deformed research, curricula and teaching. Mary Burgan (2003), the General Secretary of the American Association of University Professors, praised Noble for how precisely he reflected the state of mind of university teachers. She writes: "David Noble's critique of technology has never been more forceful – or more usable for faculty – than in his writing on distance education. This collection of his ideas is a succinct and brilliantly pointed antidote to cyber hype. Most of all, its force derives from a passionate attachment to the notion of education as a vital human compact between individual, in-the-flesh students and teachers." William Scheuermann (2003), the President of the United University Professions, regards the book as "a penetrating analysis of how the marriage between new technologies and the corporate search for profits shapes what happens in the classrooms of higher learning. This is essential reading not only for those who care about the pursuit of truth in an autonomous academy, but for all who are concerned with the growing corporate encroachments in virtually every sphere of our existence".

Floyd Olive (2002) sees one of the strengths of this book in the way in which Noble places the contemporary automation of teaching at universities in relation to American correspondence schools of the 19th and 20th centuries, which he regards as precursors of the present development. "Anyone who's been even mildly sceptical of the academy's eagerness to lend a mystical aura to all things computerized will enjoy Noble's criticism of the blind faith in technology to reduce workloads, improve instruction, and generally bring the university to a technological par with private industry." According to him "computer technology has been one of the most effective viruses for carrying the ideology of private industry – speed, efficiency and rapid obsolescence – into the university". Noble dislikes distance learning because he feels "it robs the educational process of the vital component of unmediated personal interaction".

Comments

David Noble achieves particular effects by using mechanization and automation from the industrial sector as a foil for an analysis of digitalized teaching. In doing this, he is not interested in either technical details or in overriding problem fields. His view remains restricted. He is concerned above all to show the damage that the automation of teaching causes to people and that it impacts academic teaching. Just as he defends the 19th century Luddites, he is on the side of university teachers who are losing their autonomy, responsibility and dignity through mechanization, who are being alienated, marginalized and finally substituted in the teaching process, and who, in the end, may even lose their livelihoods. He also laments the fate of those less-qualified tutors and adjuncts that look after computerized courses, but work only on the basis of temporary contracts and therefore have a lower professional status, are badly paid, usually overburdened with work and can also be easily replaced. His sympathy for the early Luddites may have caused him to approve and support the two-month strike against the automation of university teaching by university teachers at his own university.

Noble's critique is particularly cutting and consistent with regard to teaching at universities. He announces his attitudes self-confidently from the eminent position of a recognized teacher and talks of the "technological tapeworm in the university's bowels".

At the same time, he struggles like a partisan in the middle of a superior force of the differently minded. Undeterred he braces himself against the spirit of the age and in particular against the digitalization hype. Many of his figures of thought are familiar in other contexts, but their strict application to the digitalized world is particularly effective.

We can see the concern for humanity behind his stringent critique. He complains that, historically speaking, machines are once again being used to replace workers. Automation robs teaching and learning at universities of its vitality and of the personal interaction that cannot be imparted through media. Personal contacts between teachers and learners were at the centre of the educational process. Reciprocal appreciation and confirmation were necessary for the formation of identity. This was why it was important to make social interaction the dominant factor from which the quality of university teaching is derived. Seen from this aspect, it is understandable why he strictly rejects digitalized learning environments, online learning and computer-supported distance education.

There is an even stronger motive behind the emphasis on personal communication. Noble not only regards the automation of natural teaching and learning behaviour as absolutely wrong, but also denounces the associated commercialization. This is not to be understood in a superficial sense. What he means is that commercialization damages and destroys the traditional structures of academic activities (Olive, 2002). The conversion of teaching into a commodity and its "hawking" was the actual threat and the real scandal. The ideology of the industrial economy was now marching into the university (Olive, 2002). His arguments are emphasized again and again by this objection.

When we read his representation we get the nightmarish feeling that Noble is basically right with his fundamental critique of the current transformation of university teaching, in particular because things have certainly developed in the way he criticized in the past few years. In reality, Noble is mourning a university teaching that was possible, appropriate and successful in the past under different societal situations, but is no longer sustainable at present for other reasons. Noble takes just one point out of the complex occurrences of social change and from the global changes to education systems, a point that is particularly interesting for him as a historian of mechanization and automation and focuses on it. This author will, of course, not mention the advantages of digitalization and weigh them against the disadvantages that are shown. This is not to be expected from a critic of his calibre. However, it would be advantageous for the matter if he had a broader horizon and understood the signs of the times and the challenges of the future. If he were able to realize just how inappropriate teaching based on an elitist concept is today, and how important the range and further development of mass education is now in our global world, he would see what innovative educational and training problems we are faced with, problems that can no longer be solved solely by using the mode of classroom and seminar teaching.

If Noble knew the fate of millions of ambitious young people in Asian countries who find an entry to higher education by means of computer-supported distance teaching at open universities, an entry that they would have been denied by other means, his critique of technologically imparted university teaching would be milder. If he could realize that the concept of elitist university teaching is having to be complemented more and more by mass higher education, and was able to understand how our life as a whole is no longer possible without mechanization and digitalization, he might be prepared to take something back. The digitalization of university teaching is just one part of a

massive irreversibly process of change, which is changing not just our environment but us as humans as well. If he were able to understand such comprehensive and continuing developments, his critique would have been less apodictic and more in perspective.

David Noble is characterized by his active critique, continued over decades, of the mechanization and commercialization that is becoming increasingly prevalent. He reaches a high point with his complaint about the "automation" and commercialization of university teaching. Here he is concerned above all with the consequences for teachers, with their social security, but also with their identity and dignity. He is without equal in the absoluteness, single-mindedness and stringency of his critique. In a particularly important field of digitalization he proves to be a militant and decidedly conservative critic, whose unique impact is remarkable to a great extent.

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7 The polemicist: Aric Sigman

Social Networking Harms Your Health!

Aric Sigman, the well-known biologist, psychologist and author, was born and educated in the USA and has lived in Britain for many years.

Biographical background

Sigman's scientific engagement can be seen from the number of memberships he holds: Associate Fellow of the British Psychological Society, Fellow of the Society of Biology and Fellow of the Royal Society of Medicine. The Science Council awarded him the professional qualification of Chartered Scientist. He has become widely known through his participation in Department of Health projects, numerous seminars, and his public lectures, including in schools for parents and students as well as on television (BBC 1) and radio (Radio 4). Above all, he has published several books, in which he has taken up a critical standpoint on acute societal problems.

His essay *"Well Connected? The Biological Implication of Social Networking"* (2009a) and his prize-winning book *"Remotely Controlled: How Television is Damaging Our Lives – and What We Can Do About It"* (2005) brought a new aspect into the discussion on digitalization. This author is concerned above all about the biological effects of television and networking. Following the reactions to these publications he was invited to give a lecture in the Houses of Parliament. (Source: Celebrity Speakers, no year).

Motivation

Why does Sigman grapple with the problem of digitalization as a biologist and psychologist? The reasons behind this are unusual personal experiences. In an interview on the periphery of the International EDUCA Conference in Berlin in 2009 he reported on his travels to remote countries (OEB, 2009). On his trips to Bhutan, Mali, Borneo, Tonga, Myanmar, Laos, Burkina Faso and Cambodia, he noticed the great impact the introduction of electronic media had directly on the behaviour of people and their communities in these long isolated countries. Everywhere, teachers, doctors, police officers and parents registered a dramatic change.

In addition, he was able to experience from his own children how their behaviour changed subtly after watching videos. For example, they started to laugh differently. In the end, a new generation of medical studies has been presented in recent years that dealt with the wellbeing and health of children – in contrast to pedagogical, psychological and media studies, which examined the technologies of the media with regard to the question of how children interact with them. These medical studies had a good research design and were not financed by sponsors who were interested in their findings. Their conclusion: using electronic media causes physiological changes. Above all younger children are affected, namely depending on the time from which they started to play with these media or to learn with them (2009).

When we experience Aric Sigman in discussions on screen we see a scientist who enjoys provoking by exaggerating and loves bitter altercations. However, the actual, and

deeper, motive for his work is to warn his listeners or readers about the previously practically unseen risks of the Internet, and to attract attention as a herald of disaster and in this way to kindle public debates.

Main features of his critique

The starting point for the discussions about Sigman's warnings is his report on the findings of 16 scientific studies on the effects of reduced social contact: *"Well Connected. The Biological Implications of Social Networking"* (2009a). In this report he describes the situation that troubles him as follows: "Britain's disinclination for togetherness is only equalled by her veneration of communicating through new technologies". – "Whether in or out of the home, more people of all ages in the UK are physically or socially disengaged from the people around them because they are wearing earphones, talking or texting on a mobile telephone, or using a laptop or Blackberry" (2009). Supported by applicable special studies on this use of media, in his report Sigman even draws attention to the possibility of genetic and immunological changes, and addresses negative effects on sleep patterns, and even increased morbidity and mortality. At first glance, the article, which appeared in the journal of the Institute of Biology, looks like a sober research report. In reality, the author wanted it to be understood as a "one-sided provocative feature article for the biologists", in order to arouse their interest for the new phenomenon of people's reduced real interactivity.

Sigman's basic thesis is: social networking not only leads people into isolation and solitariness, it also makes them ill. On 19 February 2009, a BBC broadcast on the subject "Online networking harms health" propagated in detail the following opinions of the author (BBC, 2009):

- Websites such as Facebook were intended initially to enrich people's social lives, but end with their separation.
- Social networking supplants the times in which people talk with friends, neighbours and members of their own family and socialize. It causes younger children to have less social interaction, and this is just in those development phases in which they experience the greatest physiological, emotional and social development that characterizes them for life.
- The lack of personal interaction can have biological effects. A great number of medical and physiological studies indicate a strong relationship between the lack of non-virtual social interactions and changes to the immune system, genes, hormone levels and mental functions. This may lead to increased health problems, including such "serious (diseases) such as cancer, strokes, cardiac problems and dementia" and shorten life.
- Since the introduction of electronic media in 1987, and the great increase in their use, the number of hours used in Great Britain for personal, direct communication has been dramatically reduced, and this can be seen in the following graph:

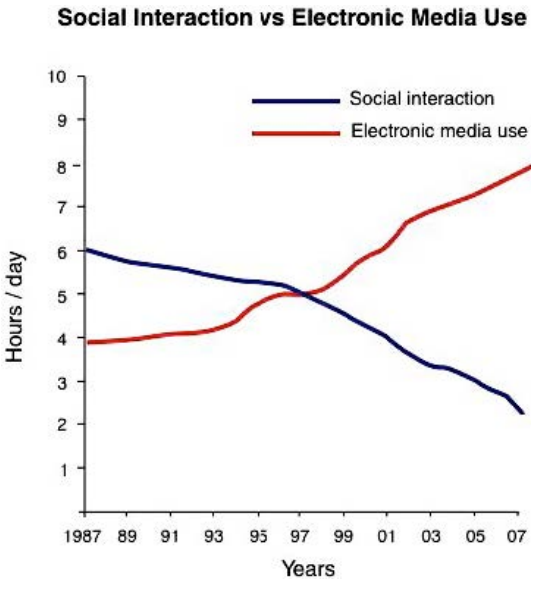

Figure 1. Hours per day of face-to-face social interaction declines as use of electronic media increases. (Sigman 2009b, 14-20). Institute of Biology.

- "Social networking is intended to embellish our social life, but what we find is very different. The tail is wagging the dog. These tools do not enrich us, they are tools that supplant".
- Personal interaction has an effect on the body, which is not the case with writing emails. An "evolutionary mechanism" probably plays a part here (BBC, 2009).

Sigman speculates about where these changes will lead and warns his contemporaries against increasing periods of digital communication still further at the expense of direct communication.

Reception

Thirteen readers of the BBC's One-Minute World News wrote on the BBC News Website on the subject "Online Networking Harms Health" (BBC, 2009). There was an equal balance between concurring and adverse reaction from all over the world. However, the users who do not share Sigman's fears with regard to harm to health are each in a special situation. These are a wheelchair user, a person living far away from home, an immigrant, a person living in a small village, and a single parent confined to the house. They all praise the advantages of networking.

Sigman also received approval from persons who do not mention restrictions of this kind in their lives. But these also include a woman confined full-time to a wheelchair who feels that, in spite of her networking, she has to leave the house to meet people: "I am a full-time wheelchair user and use social networking sites as it is not so easy for me to get out and meet people. However, I do agree with Dr Sigman and I am often aware of the need to get out and meet people rather than just type away to whoever chooses to read. I also think

the quality of communication is affected; it's all gossip and silly comments, hardly anything of substance. Much better is talking to a good friend in confidence, in private, face to face. It's more productive and in the long run more meaningful and good for well-being." (Ellis, 2009). Travis (2009) agrees most definitely with Sigman: "Just a week ago I switched off my Facebook account for just this reason. These sites claim greater social networking, but all it really creates are more distractions for people, more isolation in front of their computers, more escapism, and a false sense of relationships with other people. People do not interact with each other properly, becoming more isolated and so more depressed." Only one contributor expressed scepticism with regard to the possible health consequences of networking claimed by Sigman: he regards them as "pretty farfetched" **(**Orndorff, 2009). These reactions are based on the individual experiences of users.

In contrast, reactions from networked learning experts look completely different, as it turned out drastically at the EDUCA conference in Berlin in 2009 (Educa, 2009). Here there was a heated debate between Aric Sigman and Donald Clark, the original founder of the Epic Group, a then leading company in the e-Learning market. Clark attacked Sigman's claim that the increasing use of technology and social software impaired students' understanding and undermined the benefits of traditional learning methods. He described Sigman's opinion as "nonsense" and claimed the exact opposite, namely "that it improved students' minds and enhanced the benefits of traditional education" (Clark, 2009). However, Clark did not substantiate his claim, but pointed out to the public Sigman's general methodological weaknesses, and even referred to his work as unscientific and a deliberate deception. In a subsequent blog he denounced Sigman's cherry picking. What he meant here was that Sigman includes only those research findings that confirm his thesis. And he accused him of being part of a "parents industry" that aroused fears, even going so far as to call him a "raving madman" (Clark, 2009).

Sigman's ideas were also sharply criticized in the UK media, in particular after the Daily Mail (2009) headlines *"How using Facebook could raise your risk of cancer"* and the Institute of Biology published Sigman's scientific report *"Decline in Face-to-Face Contact Linked to Biological Changes in Humans As Social Networking Increases"* (2009b) in the journal Biology. There followed a television discussion on BBC2 (Goldacre, 2009) between Aric Sigman and Ben Goldacre, the author of the book *"Bad Science"* (2009). Goldacre disputed Sigman's positions, as well as those of Baroness Greenfield, because each of them put forward substantiated assumptions as scientific statements.

Comments

Aric Sigman differs from other critics of digitalization because he insists on the biological effects of online networking, which leaves him only a narrow field for his arguments. His critique is focussed on this point. He laments that the time that people communicate with each other directly and in real time is being drastically reduced as a result of computer sessions that are getting out of hand. He was already known to the public because of his successful book on the damage caused to children by television, *"Well Connected?"* (Sigman, 2009a), and his advocacy for more authority in bringing up the "spoilt generation" (Sigman, 2009c). His fears about the harm to health caused by networking sparked renewed public interest. His opinions probably also experience a response because he is a member of leading public scientific biology institutions in the UK.

However, this critic's effect is impaired by provocative exaggeration. For the rest of his life he will be remembered because of the headline in the Daily Mail (2009): *"Facebook causes Cancer"*. This was based on Sigman's opinion that a lack of personal interaction could bring about biological changes, which themselves led to serious, life-shortening diseases. This outlook naturally arouses anxiety and apprehension and leads us to regard him as an alarmist.

Sigman is eloquent and a rapid talker. However, his effect is limited when he defends his positions heatedly and vehemently. He is then not prepared to deviate one iota from his sweeping projections. As a result, a certain intransigence in arguments makes itself felt. Because of his assertive, almost aggressive, tone of voice, his critique finds little positive response.

Aric Sigman is involved only selectively and marginally with the criticism of digitalization. However, he is the only critic to enrich the debate through biological and medical arguments that, as he indicates, are based on special researches. He attracts attention through his imbalance, and fans fear with his overstated warnings. It appears reasonable to include him in the row of critics of digitalization because of his great publicity as well.

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8 The alarmist: Andrew Keen

Web 2.0 is destroying our culture!

Andrew Keen, an Anglo-American media entrepreneur, journalist and author, was born in London in 1960. He found international recognition and acceptance as a result of his book *"The Cult of the Amateur: How the Internet is Killing Our Culture"* (2007). He now lives with his family in Berkeley, California.

Biographical background

Keen studied at London University, where he was awarded a bachelor's degree in history. He continued his studies at Sarajevo University and the University of California and concluded them with a master's degree in political science. He then taught at Tufts, Northeastern and Massachusetts universities. He started his business career in 1995 in Silicon Valley by establishing Audiocafe.com, an Internet music company that developed into a well-known company in that era of Internet pioneers. He produced the MB5 2000 Media Show, advised media companies and invested in newly-founded Internet firms. After his company closed down, he worked for five media companies and founded AfterTV in 2005. As a sought-after debater, Keen appeared in five American TV shows and in radio and TV shows in many other countries. He published columns in leading newspapers in the UK, the Netherlands and Belgium. In addition, his ideas and insights on media and the Internet can be read in his blog *The Great Seduction*. Keen's book *"The Cult of the Amateur: How the Internet is Killing our Culture"* (2007) was an immediate success and was translated into twelve languages, including German. (Sources: Keen, no year; Macmillan, no year).

Motivation

"I've spent the last two years observing the Web 2.0 revolution, and I'm dismayed by what I have seen" (2007, p. 15). Disappointment, anger, outrage and concern are apparently the author's motives. He is disappointed, because the great expectations that he nursed on the introduction of Web 2.0 were not fulfilled in Internet reality. More people were to participate in the truth, he was promised regarding 2.0, "more depth of information" will be accessible, "global perspective" will determine work, and access to "more unbiased opinion from dispassionate observers" will be enabled. He judged angrily: "But this is all a smokescreen. What the Web 2.0 revolution is really delivering is superficial observations of the world around us rather than deep analysis, shrill opinion rather than considered judgment" (2008, p. 16). The information society will be changed through the Internet into the sheer clamour of 100 million bloggers, all of whom are talking about themselves (2008, p. 16). Outraged, he asks: "What happens, you might ask, when ignorance meets egoism meets bad taste meets mob rule?" (2008, p. 9). And he shows concern when he conjures up cultural decline as a consequence of the enormous spread of Web 2.0 and calls time on a development that he regards as false and dangerous. We get to know the author as a furious man who is determined to revolt passionately against the Web 2.0 revolution.

Main features of his critique

Keen's polemic has aimed at the extensive spread and intensive use of those forms of digital communication in the Internet that were summarized under the label Web 2.0. These networks have become incredibly popular in just a few years. However, Keen shows the serious consequences that such a new "digital revolution" must bring in its wake – for our economy, our cultural life and our moral integrity. The main thrust of his attack is directed at the extremely large and steadily growing group of "amateurs", who, according to Keen, are enabled by Web 2.0 to take part in the general digital discourse mostly rudimentarily and uninformed. They read and write statements and commentaries, edit and review other people's texts, publish their own texts, images and videos, discuss with partners, and take part in discussion groups. There have never been possibilities for participation of this kind for everyman, but now they are used millions of times on a huge scale. However, the activities of these amateurs are crowding well-educated and experienced gatekeepers in the corresponding cultural institutions to the margins, because "our cultural gatekeepers, as professional critics, journalists, moviemakers, and other purveyors of expert information are being replaced" (2008, p. 16)

This has already lead to serious consequences in several areas of cultural life, because well-trained and experienced experts are losing their jobs as a result of this development and remain unemployed. For example, savings are being made in important long-standing newspapers, publishers are getting into unforeseen difficulties and the film industry could even be heading towards its demise. Keen sees a threat to our culture in this, by which he means the culture that we in fact owe to those professional authors, film makers, musicians and journalists and, let us not forget, to conventional media as well.

Keen also detects effects that go into greater depth, including "the consequences of a flattening of culture" (2008, p. 2). Because user-generated free content is being disseminated on a huge scale, the line between professional and amateur products is becoming hazy. Content published in the Internet is often also from anonymous authors, which is why its credibility leaves much to be desired. The traditional striving for authenticity and truth is enfeebled by this, and, in the end, will be lost. He laments how truth is being blurred, distorted and dissolved. What is particularly sinister is when Web 2.0 tools are abused for anonymous disinformation, for concealed advertising, to defame others, for extremist political propaganda. Corresponding blogs and videos are without doubt able to manipulate political opinions and can thus acquire great societal relevance. Finally, it is completely unacceptable how Web 2.0 even facilitates criminal acts, including enticement to take part in games of chance, disseminate child pornography, but also the secret control over our lives and breaches of the privacy of each individual.

To obtain a pre-taste of such a culture, Keen recommends his readers to immerse themselves in the "speeding**,** freewheeling, unchecked culture of today’s blogosphere" (2008, p. 19).

The "cult of the amateur"

"The Cult of the Amateur" is the title of a book that was published in 2007. It refers to a phenomenon that shows us how quickly technical media can bring about social change, and apparently without the controlling instance from traditional cultural institutions. Internet users are aware of the new activities enabled by Web 2.0, often through their own experiences, but, in general, they lack the overview to notice how a completely new user class is arising from among them: the "amateurs". But Keen draws attention to them by

characterizing them in an idiosyncratic and drastic manner. He warns in particular against the consequences to society of such activities. Because of the central importance of these amateurs in this author's ideas, they will be discussed in greater detail here.

In our fast-moving times, Web 2.0 is still a relatively new development. It was first planned and discussed in California in 2004 by Silicon Valley utopians and, as we have seen, has been able to push itself ahead amazingly quickly. Keen talks of a "Web 2.0 revolution" in order to show how serious the change in the behaviour of Internet users brought about by Web 2.0 is. One important aspect of this radical change: the new tools enable users to go onto the Web with written, photographed or filmed material, or with compiled and mixed music and in this way to publish. The Web 2.0 revolution thus has created an enormous field of action for amateurs and dilettantes. They now had the opportunity to be creative, and to proclaim this publicly. In this way, the time had come for millions of amateurs. A phenomenon that was completely new in the history of humanity.

However, it is just here that Keen sees a danger for important areas of our culture. His critique is solidified in the title of the German edition of his book, which is even more polemical than the original, translated back into English it is "The Day of the Bunglers" (2007a). It is important to Keen to characterize the work of millions of users who are active as amateurs in the fields referred to, as an original and constitutive ingredient of Web 2.0 culture.

Millions of amateurs have now been active digitally in the Internet, complains Keen. At the same time, he is irritated by the public response to this process. The work of these amateurs is not only welcomed and approved by most users, but is supported by a downright "cult of the amateur". The "noble amateur", as distinguished from the expert, is "celebrated, even revered" (2008, p. 37). This cult had socio-political relevance in the USA because it arose from specific intellectual tendencies that were already in existence. In an interview with *Frankfurter Allgemeine Zeitung.Net* on 21.02.2009, Keen believed that we had to deal with a "radical democratization and general levelling of creative processes"(Hannemann, 2009). This would lead to the demise of traditional culture. According to the author, texts, photos, videos and music titles placed by amateurs in the Internet had to be of inferior quality because the creators were usually lacking in talent, training and experience. At all events, they could not be compared with the creations of professional writers, film makers, journalists and musicians. The general "cult of the amateur" and the atmosphere of political correctness that can be felt everywhere benefited such activities by users and protected them from criticism.

The author claims that the ideology of the amateur played a part from the very beginning in the development of Web 2.0, in other words, in its creation phase. He reports on a conversation that he had in 2004 with a friend of Tim O'Reilly, the creator of Web 2.0. The friend expected a "democratization of the dictatorship specialist knowledge" from the innovation that was under discussion at the time. Keen asserts that this concept is nothing to laugh about. "I believe it lies at the heart of Web 2.0's cultural revolution and threatens to turn our intellectual traditions and institutions upside down" (2008, p. 36). What is behind it unconsciously is something like the "triumph of innocence over experience, of romanticism over the common sense wisdom of the Enlightenment (2008, p. 36).

Keen sees the consequences of this democratization of cultural efforts as follows: "By empowering the amateur, we are undermining the authority of the experts who contribute

to a national resource like the Encyclopaedia Britannica" **(**2008, p. 44). And: "What the Web 2.0 gives us is an infinitely fragmented culture in which we are hopelessly lost as to how to focus our attention and spend our limited time" (2008, p. 60).

Entrapment in lies and deception

By means of a large number of examples, Keen shows how little trust can be had in information from the Internet, because it is anything but true or even authentic. "The major part of so-called 'knowledge' in the Internet", he says, "is banal and hardly reliable" (Hannemann, 2009). What makes the question of the correctness and truthfulness of the information appear problematic was the anonymity of the authors. Entries in the Internet were "not reviewed, not checked, not managed, not regulated". This creates an atmosphere in which it is much easier than offline to disinform, mislead, lie and deceive. Keen refers here to spectacular cases, all of which he documents exactly, which lend credibility to his own attacks.

Some of these cases of abuse are mentioned here in order to provide an impression of the type and effect of these cases. In many cases, advertising is concealed behind messages on Facebook or MySpace that appear to be personal. Stakeholder groups attempt systematically with contributions to the blogosphere to generate moods, to popularize opinions, to publish errors as the truth, and even to rewrite history. In time of elections, anonymous amateurs published reports and videos damaging to the reputation of rival candidates.

The following is a particularly serious case: in an eight-minute long video on 9/11 produced by three young amateurs it is claimed that the catastrophic attack on the World Trade Center was planned and executed by President Bush himself. The events were accordingly grotesque. This video received ten million hits. This is disinformation on a major scale, and caused huge damage in several aspects.

A very sneaky deception is practised in the "pump and dump" game. In this game, fraudsters buy low-value shares, hype them in enormous numbers of spam emails and encourage users to take the opportunity to buy these shares. Once this results in the share price rising, they sell their own shares at a huge profit. In this case, the Internet is abused not only to spread untruths but also to defraud, and on a large scale.

A technology freak published an advert in which he said he was looking for people to take part in a virtual one-night stand and asked respondents to enclose a nude photo of themselves with their applications. He received 186 applications, all of which he placed on the Internet, together with the nude photos. Keen's comment on this was: "With the click of Fortuny’s mouse, reputations were destroyed, careers ruined, marriages and families shattered, all for a pretty prank" (2008, p. 71).

The story of author Amy Tan is also typical. She reports on how false information on her life was spread anonymously on the Internet and propagated over time from there. In the end, this information even appeared in her official biography, which meant that a completely false portrait of her appeared. "With no one to step in and question the veracity of information in the digital world, mistakes, lies, and rumours multiply like germs" (2008, p. 74).

Criticism of Google

Andrew Keen makes fun of how Larry Page, Google's co-founder, eulogizes the "ultimative search engine" that is being developed at full speed: "It would understand everything in the world. It would understand everything you ask it and give you back the exact right thing instantly" (2008, p. 183). Keen is concerned above all about its enormous possibilities for control that result from billions of stored search questions. He quotes Nigel Gilbert from the university of Surrey, who comments on this search engine: "I fear that we are waking up to a surveillance society that is already all around us" (2008, p. 181). It was a world without privacy and a world "in which individuals are turned inside out" (2008, p. 182).

For Keen, there is no secure knowledge in this Google world. What kind of "knowledge" could be created if it was developed solely from questions from users and if the information that is most highly valued is the information that receives the most queries? Basically, what is happening here is that a vote is taken on knowledge. Anything that is exceptional, marginal and still unknown does not have a chance. The answers of the search engine can therefore be "neither true nor reliable", […] but "simply popular" (Bethge 2012, p. 127). For Keen, Google is therefore only "the modern version of the ancient Greek oracle (2008 p. 183).

Signs of cultural decline

To characterize further effects of Web 2.0 Keen refers to a large number of examples. Instead of the established, venerable and reliable Encyclopaedia Britannica, Wikipedia is used in the Internet today, a reference work developed by amateurs whose articles are not checked by any editors. In spite of this, Time termed its inventors "pioneers of Internet egalitarianism".

The blogosphere has become an attraction for amateur journalists. Twelve million bloggers dabbled here in the art of writing. But they are nothing more than "anonymous self-referential writers who spread gossip" (2008, p. 57). Favourite subjects are rumours, UFO sightings and conspiracy theories. Embarrassing photos of celebrities were readily added (2008, p. 59). The resonance that the idea of amateur journalism has found in US society was shown not only in the large number of those who take part, but also the success of the book *"We the Media: Grassroots Journalism by the People for the People"* (Gillmor, 2007). Not only was "substandard journalism" published on the Internet, but also "literary attempts" – unseen and unedited and therefore without regard to their quality. In this way, the "embarrassing efforts of hundreds of thousands of […] amateurish authors" (2008, p. 56) are published.

Typical for the situation shown here is also Kevin Kelly's vision of the "end of the book". In 2006 he published a manifesto in the New York Times Magazine in which he demanded that every single book in the world should be published in the Internet. Not only could they be amended continuously there (the "liquid library"), but also linked, allocated and annotated. Copyright, according to Keen, would fall by the wayside. What is particularly sinister: individual pages could be reduced and compiled with many snippets of other books into a new book by being remixed. For Kelly, this would lead to a "community of ideas"; for Keen "it foretells the death of culture" (2008, p. 57).

He describes how, in the music business Beck, and the Barenaked Ladies, both encourage their fans to "personalize" their music by writing their own lyrics and producing their own electronic mixes. There were amateurs who are developing radio or television programmes, podcast shows or video blogs. Amateurs were even already in the process of penetrating the worlds of fashion and advertising. Keen names several international groups that work with "consumer-generated" advertising material, as well as four companies that have their customers produce advertising spots for television.

As a consequence of the introduction of Web 2.0 Keen sees only a "flattening of culture" (2008, p. 2). He castigates above all the insipidness and absurdity of YouTube contents. The swapped contents reflected "most banal interests" (2008, p. 6) and "shameless self-admiration" (2008, p. 7). The Internet, in his opinion, was changing culture into cacophony. Users were exposed to a harangue with expressions that belittled and insulted.

This text shows blatantly obviously the extent which a furious critic sees our traditional endangered by Web 2.0 (2008, p. 15).

Reception

In the very first pages of his book Keen admits that he has already met with a divided response at many of his talks throughout the world. While it was true that he had received the approval of those institutions whose sales had suffered heavy losses through the Internet, he had had to deal with a large number of critics, in particular after his book was published. "I was instantaneously attacked from all directions" (2008, p. XVI). One of his friends even prophesied that because of his book he would "become one of the most hated people on the Internet" (2008, p. XV). As can be seen from the range of opinions in reviews and blogs, there are still very different reactions at present, above all because Andrew Keen's strained lamentations polarize. Keen describes the situation drastically as follows: some called out "hosanna" and called him their Martin Luther, who wanted to bring about a reformation of the Internet (Guardian), others saw in him "L'Antichrist de la Silicon Valley" (Libération). Still others went further and cried "crucify him!" For many people he is a Luddite enemy of progress, who grossly simplifies and argues shamelessly, even stubbornly (2008, p. xvi). As a whole, Keen differentiates between two groups of critics: young users who have been familiar with the Internet since childhood and are therefore hostile, and Americans, who do not like their belief in progress and technology being criticized by an Englishman (Hannemann, 2009).

The paperback edition of his book presents eleven accolades for the *"Cult of the Amateur"* in its first three pages. Ralph Steadman (*Observer*) writes: "That’s the best thing we have read over the year". Luke Johnson (*Management Today)* admires "his bravery in arguing against the vociferous IT crowd". The *New York Times* regarded it as "a shrewdly argued jeremiad against the digerati effort to dethrone cultural and political gatekeepers and replace experts by the wisdom of the crowd". And Jonathan Last of *The Weekly Standard* takes the view that Andrew Keen is a brilliant, witty, classically educated techno scold.

The Hamburg weekly *Der Spiegel* describes Keen's book as a "very well-regarded 200-page polemic" (Hornig, 2007). In contrast, Tim O’Reilly, the inventor of the Internet, is naturally of a completely different opinion. He claims to be unable to find "any substance at all in (Keen's) clamouring" (WP, 2010). The rejection of an anonymous blogger is even more forceful. He regards Keen's book as the "poorly written manifesto of a bruised loser"

and ends his criticism with the words: "I am sorry man, but you are just a huge cry-baby trying to sell a book".

On a more serious note, one critic complained that Keen was right in many general questions, but not when details of complex problems were discussed. Furthermore, Keen had made mistakes and misinterpretations when talking on factual matters. Martin Oetting (2008) has discussed these judgements. In doing so, he points to the irony of his self-presentation as an "educated and experienced expert" and as a member of the guild of "adepts"; with these slips Keen proved himself to be a counterexample to his thesis of the authority of experts.

Comments

Andrew Keen is a passionate critic, who is able with his keen intellect to detect a serious undesirable development of digitalization and to describe it eloquently with plausible arguments. With his critique of Web 2.0 activities he has drawn the public's attention to a profound change in our culture that most people did not notice as such. Because he describes himself as a polemicist (2007a, p. 9), references to positive sides of digitalization, or balanced judgements, are not be expected from him. And we should not complain either about biting and provocative wording. Keen's opponents are on the one hand the "Silicon Valley utopians", the technology fanatics and the "uncritical protagonists of the Internet", and on the other a huge phalanx of mainly young Web 2.0 enthusiasts in most countries of the world, including, above all, the "amateurs" that he so despises.

Keen writes simply and convincingly. He understands how to get his readers on his side. In doing this, he is not afraid to use derogatory words and other coarse expressions. For example, he calls amateurs "idiots", "lightweights", "mob", even the "digital mob" (2008, p. XIX), or "apes" (2008, p. 15), or mocks them by apostrophizing them as "noble amateurs" (2008, p. 35). He uses the literary devices of exaggeration, disparagement and irony. The compunctionless use of sweeping statements is part of this as well. For example, when he states, "the Web 2.0 revolution is corrupting young people across the world" and "MySpace and Facebook are creating a youth culture or digital narcissism" (2008, p. XIII), when he regards the Web 2.0 world generally as "an extraordinary popular illusion" and claims, "[w]ith Web 2.0, the madness is about the crowd falling in love with itself" (2008, p. 96), he obtains his arguments through obvious exaggeration, acerbity and satirical penetrating power. In an interview with *Spiegel Online* he explains his methods as follows: "You have to throw hand grenades first to get the public's attention" (Soukup, 2009).

Two further characteristics of his polemic: in places, it sounds as if you were reading a lampoon or listening to a jeremiad. His controversial, challenging diction, his aggressive attitude and his uncritical one-sidedness stand for the former; and the plaintive tone, which one blogger even went so far as to call "whiny", characterizes the latter. Furthermore, knowledge of his career is important to understand this critic. Originally, he himself was an Internet pioneer in Silicon Valley. However, later on he turned away from his colleagues there. He is therefore an apostate, defector or renegade. Renegades often put forward their new opinions with particularly great vehemence and vigour. This may be the cause of the special nature of his critique, the frequently exaggerated acerbity of his judgements and his unyieldingness.

Polemic can be regarded as an attack without objective arguments. However, this description does not apply to Andrew Keen. Over 245 pages he has meticulously unfurled a great number of facts and circumstances, substantiated them and provided scientific evidence for them. For this reason, his book became a treasure chest for critics. Readers of these passages get to know another facet of this author: he is not only a considerable and implacable polemicist, but also a talented and experienced journalist. This is how he sees himself as well, because he likes to tell readers that a Finnish teacher assured him that he was someone who "is raising serious cultural and ethical questions about this YouTube generation" and "before it's too late" at that (2008, p. XV). He arouses his readers' interest with the aid of polemic, but then forces them to take note of and think about incredible, undesired and dangerous developments in the Internet. In doing this he lets himself be guided by his feeling for journalistic effect. This is where Keen's undoubted merits are found. His book brings abuses home to us, deplores them and warns about their consequences.

What they in fact involve are forceful, even disturbing examples of Internet abuse, examples which, according to Keen, may lead to the decay of art, culture and society as a consequence. His method is based on general journalistic experience, which teaches that bad news sells better than good news. The large number of negative situations and developments that he describes show not only the seriousness of his intentions, but also encourages our own reflections. His book can be read with great interest – if only because the "calculated optimism" that generally dominates this clique is boring, as an anonymous blogger remarked. Problems are touched on here, addressed and lamented that are normally overlooked, whether unintentionally or intentionally. This is definitely a benefit.

Andrew Keen champions his firm and provocative opinions persistently and tenaciously. He never departs from his points of view, neither in writing nor in talks. This steadfastness would under normal circumstances be regarded positively, in particular with a polemicist, but in television discussions his unconditional adherence to positions is sometimes seen as blinkered. Above all when criticisms come from all sides he quickly creates the impression that he has become "obsessed" by his cause, or even has a "one-track mind". Something of this intenseness permeates the whole of his book.

Keen discloses a positive and conciliatory attitude in passing at just two places. He assures readers that: "I'm neither antitechnology nor antiprogress" (2008, p. 184). And he confesses that he wrote his book, naturally, with the help of a PC, and acknowledges: "Digital technology has become an inescapable part of 21st century life" (2008, p. 185).

In addition, he indicates how difficulties caused by Web 2.0 might be overcome. Traditional media should get more involved with digitalization, but at the same time retain traditional cultural values and standards. Naturally, copyright must be enforced again. His view into the future tends to be optimistic. In five to ten years, he prophesies, the "cult of the amateur" will no longer exist. Its place will be taken by "a Web 3.0 shaped by experts" (NetZeitung, 2010).

Readers remark on Keen's subtextual elitist way of thinking. This implies that our culture is carried solely by a class of experts who were educated conventionally at university, and of course he includes himself here. He displays an attitude here that may no longer be displayed today. It is bound up with his instinctive rejection, contempt even, for all others, but above all for those "amateurs" in the Web, who he sometimes refers to patronizingly as "mob" as well. What is revealing is the dreadful tone in which Keen then talks sweepingly about "amateurs". Simply because he has found many trivial statements and useless contents in the

blogosphere, he thinks that everything was written "for idiots, by idiots" (Fuller, 2008). This is not only situation-related abuse, not only the deliberately chosen rhetorical device of the polemicist or pamphleteer, but reveals a consistent attitude with political undertones. He decries namely the democratization of the Internet, opposes the equalization of creative processes and holds forth in favour of the preferential position of experts. Naturally, this arouses emotional reactions. When reading the book, one of the chided amateurs "felt that (he) wanted to throw Keen's book at the wall" (Bugden, 2007). Another one of his victims felt himself disregarded as a member of the lower classes and sees in him "a classic sort of British reactionary" (Buxton, 2007).

Many people enjoy reading Keen's book *"The Cult of the Amateur"*. We can enjoy his verve and satirical acerbity. However, his overstated dismissal, complete repudiation and harsh criticism of amateurs' handling of the Internet remain questionable. People who have recognized the new possibilities that the Internet offers for the self-education of millions of people to more activity, individuality, autonomy and creativity, would like to put forward objective reservations. The opportunity for self-education is a valuable good. Something happens spontaneously in the Internet that teachers and adult educationalists have strived unsuccessfully to achieve for over a century: autonomous learning.

Andrew Keen has drawn our attention vehemently to serious disadvantages of the Web 2.0 culture and the dangers emanating from it. In doing this, he proceeded with satirical overstatement, coarse words and arrant invective, but this probably led in fact to his success in the media. His firm opinions are not only taken up by those who agree with him. They are also perceived by the huge numbers of those who oppose him indignantly and angrily, and then come to grips with his views in this way. His publications, lectures and, not least, his own continuously updated blogs and tweets have made his critical opinions internationally known. He has presented a great number of idiosyncratic critical points, most of which do in fact merit consideration. Even his opponents benefit, if they relativize their often naïve and enthusiastic positions with the help of this book.

In spite of his conservative adherence to the cultural tasks of traditional media, in spite of his efforts to maintain the status quo with regard to the social role of experts, in spite of his cruel contempt for the amateurs among users, Keen's contribution must be regarded as enormously noteworthy for the critique of digitalization. Idiosyncratically and stubbornly he has added a special theme, and one that is hardly touched on by others, to the large and much differentiated area of critiques of digitalization. This is a real gain.

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9 The dystopist: Susan Greenfield

Dire Visions

Susan Adele Greenfield, Baroness Greenfield, the internationally highly esteemed brain researcher and holder of many awards, Professor of Pharmacology and writer, was born in London in 1950 and lives in Great Britain. The *Guardian* regards her as "one of the most influential women in the world" (Redford, 2004).

Biographical background

Susan Greenfield's father was an electrician and her mother was a dancer, and she grew up in London. She attended private school before going to university. She studied philosophy and psychology at St Hilda's College in Oxford, but obtained a doctorate for her pharmacological studies. She then continued her postdoctoral studies at several universities, including the Collège de France and the University of La Jolla in the USA. After teaching at Gresham College in London she became Professor of Pharmacology at Lincoln College, Oxford in 1996. Her special research field is the physiology of the brain, in particular with regard to Alzheimer's and Parkinson's diseases, and to the problem of the way in which the brain generates consciousness. Because she has gathered experience in both the biochemical and the electrophysiological field, she was able to carry out multidisciplinary research.

She has published six books. Her book *"The Human Brain: A Guided Tour"* (1997) and nine popular scientific works became bestsellers. Through radio broadcasts, television appearances and interviews she has contributed to popularizing her field and to the understanding of her science. The list of her honours is impressive: she is a CBE and a member of France's Legion of Honour. She was raised to the House of Lords with the title of Baroness. In addition, she has founded three bio-tech companies.

From 1998 to 2010 she was director of the Royal Institution of Great Britain, the country's most prestigious research academy. At present, she is chancellor of Heriot-Watt University in Edinburgh. The Swiss weekly journal *Weltwoche* (2007) describes her as the "female superstar of British science". (Sources: Greenfield, no year; Redford, 2004).

Motivation

"But beyond any frustration I feel is concern about the future our screen culture might create. - We cannot turn back the clock, but the threat is growing because technology is becoming more seductive and powerful. We must start facing up not only the impact that computers are having on ourselves and our children – but also to the wider implications their use will have for our society in the future." (Greenfield, 2009, p. 5).

This confession explains why a researcher like Susan Greenfield, who is established and accepted to such a great extent, has entered the field of futuristic speculation, which for many is suspect. She is concerned because as a brain researcher she is able to acquire more exact perceptions of possible dangers than the person in the street, who will probably be affected by the prophesied changes to human life, but does not suspect, let alone know, anything at present. She wants to stop her contemporaries from entering

this new technological world "like sleepwalkers", and then complaining loudly, when it is too late, about unforeseen undesirable developments (2008, p. 2). In the end, she is concerned with maintaining humanity, which could be threatened by possible technical developments in the future in a way that is still scarcely imaginable. Behind all this is the author's tendency to want to enlighten her contemporaries. She wants to pass on to the largest possible group of laypersons some things from her research and findings. This is not just about brain research in the narrow sense, but also about an understanding of science in the first place.

Main features of her critique

Two of Susan Greenfield's many books are concerned with the possible future of people in the 21st century: *"Tomorrow's People: How 21st Century Technology is Changing the Way We Think and Feel"* (2003) and *"The Quest for Identity in the 21st Century"* (2008). These books describe how the interaction of modern biotechnology, nano-technology and information technology could change people. With these two books the writer warns about the possible consequences of a digitalization that is for ever being optimized and perfected. The technical impacts that can be expected in the next decades could change people enormously. If we had an opportunity to observe them today we would not recognize them.

She uses a broad brush to paint the way of life that she prophesies for our descendants: everyone is healthy and mentally active into old age, everyone reveres the same lifestyle; everyone behaves passively and lets themselves be stimulated sensorially; sex and procreation are completely separate things; babies no longer develop in a natural way but in artificial uteruses. People have a different attitude to life and display different types of behaviour. Things that have characterized our lives up to now will have disappeared: growing up as a child in a nuclear family, becoming parents, or even grandparents, having to cope with the unexpected, with illnesses and the infirmities of age. People will lead lives in which active individuality and an ego mean less (2003, p. 146).

This disconcerting background must be kept in mind when we have to consider possible consequences of digitalization in future.

Neurophysiological aspects

It is natural that this neurologist's main interest is the human brain. She asks herself how years of using networked computers will affect the brain. Her answer is logical and unsettling: the brain will be changed, and thus people as well. How much? They will begin to think and feel in a different way. To substantiate this, she points to the great "adaptive capacity" (plasticity) of brain cells. With their short and long branches they react to a whole scale of minimum and maximum irritations. Such reactions are part of a constant dialogue between the brain and the environment. The growth and withering of the dendrites is a procedure that stretches over a whole life and can be individualized on the basis of experiences with people and objects. The brain reflects personal experiences with great accuracy. There is a great deal of scientific evidence for this.

If a person grows up into a new and completely different environment, which is already the case at present, in which he is surrounded by mobile phones, the Internet, film channels around the clock, chat rooms, online shopping and virtual reality, this has a correspondingly specific effect. Here, different stimuli to those in the real environment have an effect on the

brain and change it in a new way. There are particularly sensitive periods in which changes caused to the brain in this way can be dramatic. This is the case above all for the period of childhood. According to the author, this already verifiable process will be intensified in just a few decades, namely in consequence of the enormously increased technization of information and the increased virtuality of life. This, in turn, could change the attitude of our descendants to life and their way of thinking and feeling much more fundamentally and more momentously than happens today. Along with benefits that we can scarcely imagine today, this will probably also bring serious disadvantages.

Specific forecasts

1. The close interactive attachment to the computer could, for example, lead to the loss of our "isolated private inner world" (2003, p. 167). In addition, attention spans will be shortened drastically and our ancestors' cognitive capacity to tell stories and to listen to them over a longer period will be lost. The sense of the past and the future could dissolve. "Perhaps, in the future, humanity will be rooted incessantly in the here and now" (2003, p. 167).

2. The influence of parents on their children for the stimulation of the brain will probably be reduced, but that of virtual reality will increase. If this should be the case at some time, children will be different and behave differently to children today (2003, p. 162). They might then be exposed increasingly to dangers.

3. Many parents and teachers are of the opinion that virtual relationships to others lack body language. Susan Greenfield adds to this opinion with two references that state it more precisely. She thinks that a computer cannot transmit the sensitivity of the human voice - and perhaps the pheromones wither, that is, those molecules that we give off and that our opposite number perceive subconsciously as an odour (2009, p. 3).

4. The subsequent complete digitalization of life could cause increase health risks. Even now there are indications of a correlation between the increase in cases of autism and the prevalence of virtual relationships. According to Susan Greenfield, the increase in diagnoses of attention deficiency and hyperactivity disorders may also be connected with this. There is probably a correlation between the enormous increase in computer use and the corresponding strong growth in the sales figures for relevant medication. These developments would be aggravated in a fully digitalized world. The authoress proposes that this suspected correlation be researched today (2008, p. 4).

Her conclusion: if we will be living in a few decades to an increasing and comprehensive extent in a cyberworld, given everything that we know today we will have to reckon with people who have changed greatly. Because of a differently programmed brain they will not only think, feel and act differently, but also have a different world view (2003, p. 162).

Psychological aspects

Susan Greenfield sees some problematic consequences of digitalization in this area: the domination of the image, the sensory pauperization of interaction, the difficulty to understand one's own emotions, the dangers of cyberflirting, the restrictions on human reproduction and serious risks to health.

Specific predictions

1. In consequence of the linearity and the increased work with free associations in hypertext style, users have above all experiences from visual media. These are in stark contrast to words, which impart ideas. People will develop a new visual sensuality and learn to manipulate images in the same way that we can do with words. Learning will then be effected through experience, and not so much through thought processes. However, this is a serious disadvantage (2003, p. 172).
2. The ongoing replacement of real interactions by digitally enabled dialogues could have serious consequences. Communication partners will no longer learn to understand their own emotions and the feelings of other people (2003, p. 176).
3. Cyberflirting will probably be much more popular than today, because it simulates closeness and can be exciting. But serious consequences must be reckoned with for the development of identity. Young adults will then like to pretend they are different people, and will be instructed in how to do this through highly-developed software. However, this prevents the formation of a person's own identity, which can only be acquired through dealing with real partners (2003, p. 171).
4. As a consequence of cyberflirting we will probably find ourselves in future in a society without "real courtship that has characterized Western society for centuries with all the traditional angst, fun, plotting and suspense". In future, this will be replaced by more restful activity in front of a computer, in which individual participants will, it is true, be less vulnerable, but also less satisfied (2003, p. 171).
5. What will happen to the kiss in the digitalized future? The author rejects a kissing machine installed on the computer, because it would only enable disappointing experiences. In this context, however, she poses what is "certainly the most important question", namely, whether there will be any human demand for this activity in a digitalized world. "We could instead all end up as though autistic, unable to empathize with anyone else, locked into a remote and numbing isolation" (2003, p. 63).
6. Cyberculture will have serious consequences for health. Extreme situations could lead to an increase in psychiatric disorders.

Pedagogical aspects

In the field of education the author makes predictions that once again, in a different way, show how deep the change could be that is caused by advanced digitalization. She approaches the subject from several sides and devotes a whole chapter to it in her book *"Tomorrow's People"* (2003). This chapter is entitled tellingly: "Education: What will we need to learn?" Some selected critical references are repeated below that refer above all to the influence of digital learning environments on children and young adults. Here as well, pedagogical difficulties that can already be seen are projected into the future and intensified. The focus of the author's arguments is on children's brains, the necessary adjustment to a constantly changing environment, the probable retreat by children and young people from the stress of communicating face to face, and the resulting lack of real social experiences. As far as learning in the narrow sense is concerned, she draws our attention to an insurmountable difficulty: the excessive flood of facts that prevents the development of thought, for example in the form of reflection, imagination and creativity.

Specific predictions

1. Even now, many parents and teacher complain in unison that children spend too much time in front of the screen, exercise too little and start up inappropriate relationships, through Facebook, for example. But these were not the actual dangers. Much of the effect of the computer on the child's brain goes much deeper and is far more serious (cf. Murphy, 2009).

2. The influence of electronic toys ("smart toys") is already enormous and could become even greater in future. Children learn with them to deal interactively with a complex and constantly changing environment. However, toys of this kind can also have a negative effect on young children for the following reason: "It appears that children have to learn a series of routines with which they get to know an unchanging, inherently consistent group of faces, values and rules. However, if they experience at a very early age that everything and anything around them can change, whether as an appearance or in context, and namely be pressing a button, or even by calling out, how can they start to get to know reality? In the future toys will routinely be as truly ‘ignorant’ as a new-born, but slowly learn from experience" (2003, p. 164).

3. Intensive and constantly continued playing with the computer has a special effect beyond this. Children experience just how submissive the electronic toy is to them, whereas encounters with other children in the real world can be vexatious. For this reason, they might increasingly avoid such encounters and prefer to deal with a cyber society that obeys them (2003, p. 164).

4. At present it is not possible to assess whether the digital learning environment as a whole will be advantageous or disadvantageous for leaning. Brains wired in this new way will probably be able to process cognitive processes faster, but what will happen to reflection and imagination (2003, p. 169)?

5. The tidal waves of facts with which young people are inundated when using their computers is another problem. Even though rapid access to most facts is a great advantage, the decisive question for development and education question of how young people of future generations will deal with this is also important. It is not so much a question of deciding which facts we need for learning and which are not necessary, but how we think (2003, p. 165). Facts taken by themselves are unimportant. Their importance arises from the connection with other facts (2003, p. 158). Our children and grandchildren will probably be able to find facts, to circumnavigate our globe and to integrate with it on-screen faster and with more authority than we are able to. But they will never take the time to compile these facts in such a way that the result is, according to the present way of thinking, something like comprehension - in the best case, creative ideas (2003, p. 174).

6. Learning as we know it could disappear in favour of free association in the framework of hypertexts (2003, p. 172). The stock of unambiguous and accepted knowledge would be reduced here (2003, p. 166).

7. The children of the future will probably never feel the need, or be willing, to come out of the sterile world that opens up at the touch of the keypad and to confront the more emotional experiences in a garden, on the street or in a park (2003, p. 175).

8. There is no future for traditional schools and universities. These institutions will lose their significance (2003, p. 175).

Sociological aspects

The authoress concentrates here on the impact of digitalization on communication and users' identities. She devotes a book to the second theme: *"The Quest for Identity in the 21st Century"* (2008). Here she investigates the question of how the human brain can be "personalized" through the great increase in unique cell connections, and how an individual is formed finally through personal experiences. The brain's enormous plasticity also makes it receptive for undesirable and damaging influences. However, this is to be expected in the 21st century as a result of the increase in technization and virtuality. People will then become mere receivers of a constant flow of stimuli. In this they will become habituated to the typical two-dimensional constraint. They will then have only a reduced attention span and will no longer be able to distinguish the real from the virtual with any certainty. Above all, they will lose their individual internal mental world. And what would by the worst possible case: inhabitants of the future cyber world could regress to the childhood stage and not develop any more individuality.

In an article for the *Daily Mail* Susan Greenfield dealt with the problem of Facebook dependency (2009). She sees a danger in this already, because long-term relationships are not created with this virtual communication method and participants forget how to feel empathy and to understand the consequences of their actions. In addition, this dependency could change our thinking and feeling. This danger must be taken very seriously, because nothing could be more important than the intellect and the psyche of the next generation (2009).

Specific predictions

1. Millions of individuals log on in order to enter into friendships on screen, including half of the children and young people between the ages of 8 and 17. Important human needs can be satisfied here, e.g. the feeling of belonging and of being accepted. But this process of continuous self-affirmation also has a negative aspect: participants will become less and less willing to expose themselves to the stress involved in face-to-face conversations.

2. Offline conversations harbour dangers because answers cannot be thought over beforehand. Future generations may perhaps recoil from real interactions because of the disorderliness, unpredictability and the necessary personal involvement. Facebook addicts would then not learn and train the social competences that they need in the real world. Their capacity to carry on a conversation and develop and maintain relationships will be impaired by this. Real interpersonal relationships could be damaged in this way.

3. Attention spans could be changed radically. If a brain is exposed constantly to a world of action and reaction and rapid image changes, it will become used to it.

4. It might be an advantage to examine whether the almost total immersion of our culture in the technology of the screen in the last ten years is connected to the threefold increase in the same period for prescriptions for Ritalin, a drug used to treat attention deficiency hyperactivity disorders.

5. A remarkable peculiarity of young brains in the 21st century is the clear preference for the here and now, whereby the consequences are ignored. In real life, however, we have to learn to assess the consequences of our own actions.
6. The capacity for empathy cannot be acquired through screen friendships.
7. The current increase in autism may be the result of improvements in diagnoses. However, there should also be an examination of whether it is connected to the increase in screen relationships. People with autism feel at home in the cyber world. This should make us think.
8. There are people who have a damaged cerebral cortex that is restricted in its activities. For this reason, their behaviour ranges from unconcerned to reckless, they are easily distracted and have a short attention span. By the middle of this century, our brains may be infantilized because of the dependency on the computer, which will make itself felt through a short attention span, incapacity for empathy and an uncertain identity (2009).

Virtual identity

Susan Greenfield's greatest concern is with regard to the self-perception of future generations. It looks as if their understanding of who and what they are may be damaged by rapidly advancing information and communication technology. This would naturally impair the formation of their personas. In her book *"The Quest for Identity in the 21st Century"* Susan Greenfield explains these circumstances as follows: our identity is our brain. Its enormous plasticity reacts to all our experiences by linking the neurones to each other in a specific and personal way. The digital revolution is bringing about a serious change to the human environment. However, this could twist our brains. Human identity would be eroded in a way that earlier generations had never regarded as being possible.

The authoress describes three typical characteristics of identity: "somebody", "anybody" and "nobody". "Somebody" stands for individualism, "anybody" stands for collectivism and collective fundamentalism, and "nobody" stands for the lack of self, the lack of individuality and personality. She suspects that the third version is generated by life in front of a screen, a process that will be intensified in the future. These considerations were caused by behaviour of children in the present who are exposed to hyper-stimulation. She thinks that when children are glued to a computer screen for hours on end, lose themselves in games, play with their identity in the Internet by pretending to be other people, including persons of the opposite sex, and enjoy being linked in the Web to an extremely large number of "friends", these are new types of experiences that are already ploughing furrows in their brains. The author speculates what consequences this behaviour will have on the identity of these cyber persons in a few decades.

As an antidote she recommends the formation of a fourth identity type: the "Eureka" mentality of the creative person, and she provides recommendations for promoting these persons.

Specific predictions

1. The identity of young people will be at stake. There are users who place all their private thoughts and feelings on the Internet so that everyone can see and take note of them. They then start to think differently about themselves and to have a different idea of themselves (2009).
2. With teenagers of the future introspection and concern about their own identity will probably increase (2003, p. 170). In a future cyber family it will be very important for young people, and at the same time, more difficult than ever before, to take decisions themselves and to develop their own value system. Parental influence will decrease and the concept of a constant and unambiguous individual self will be attenuated or even die out (2003, p. 171).
3. People will no longer have clearly outlined and steady relationships with other people. Traditional relationships with other in real time and real locations would atrophy. This would lead to a debilitation of individuality (2003, p. 41).
4. In the second half of the 21st century individual personal characteristics will probably liquefy and be indeterminate, at a point at which robots will be integrated in households. This will have repercussions for people's self-conception and for their lifestyles.
5. The development of personality could also be determined by the following peculiarities: everything that takes place in their environment is recorded and stored: their facial expression, their preferences, their way of speaking and their dealing with their cyber friends, and even the impressions they leave on seats. These people will then probably no longer express any private thoughts, because they are part of a larger network - "a mere nodal point in a thinking, conscious system that has left individual thinking long behind it" (2003, p. 43).
6. Our identity traditionally develops through social interactions in the family, with friends, in groups. But will the people of the future be able to do this? If virtual friends replace friends made of flesh and blood, people will no longer be able to learn social sensibility and social intercourse (2003, p. 43).
7. The identity of people in the future will also be influenced by the image they have of themselves and of the experiences that they gather with reality "out there". They will perceive this reality differently to us. The difference between artificial systems and people will become blurred (2003, p. 44).
8. The collective atmosphere in the world of work could change. Increasing passivity would lead to the loss of professional identity, as well as to the decline in self-esteem and the sense of self (2003, p. 100).
9. The digital revolution robs people of their individual initiative, their capability to think without the help of the computer and their sense of self (2003, p. 100).
10. In the future, products based on information could trigger or suppress emotions by manipulating the brain directly, like drugs, but not wanted, inconspicuously and with greater precision. If this happened, the relevance of self-fulfilment and status would disappear. The concept of "self" will be obsolete. People would then no longer search for their sense of purpose, but would give up completely and devote themselves solely to the passive reception of sensory impressions by interacting with the ebb and flow of all inputs and outputs of all participants in the cyber world (2003, p. 111).

Reception

Particularly important is the great response that Susan Greenfield's warnings triggered after her speech in the House of Lords. She touched a nerve here and set off a global discussion. She "touched off a firestorm that is still smouldering" (*Neuronarrative, 2009***).** The neurologist Robert Burton (2009) wrote that he agreed "very much" with Susan Greenfield's comments. Maggie Jackson (2009), a columnist at the *Boston Globe*, does not "agree with all that she said about virtual social relations, but she's right to raise these fears. Only through well-reasoned public discussion and careful research can we begin to understand the impact of digital life on our social relations and on our cognition". And she added: "Lady Greenfield is right: we need to grow up and take a more mature approach to our tech tools".

In contrast, in the *Guardian* Mark Vernon (2009) disputed the harmfulness of social networking by simply claiming Facebook was not a neuroscience but was based on common sense. Methodological criticisms were also expressed. Simon Ings (2008) recognizes in Susan Greenfield two persons: the widely known social expert, and the brain researcher. The social expert was generous with content, mediocre in presentation, and went scarcely more in depth than the usual third-rate critiques of the subject. In contrast, as a neuroscientist she communicates her original research findings with broad strokes. In her books, the authoress attempted to turn these two persons into one, but this does not work. This methodological defect naturally affects the punch and validity of the critique of digitalization. Her severest critic, Ben Goldacre, the author of *"Bad Science"*, takes the same line. In his opinion, Susan Greenfield abuses her position as professor and as Director of the Royal Institution of Great Britain, in order to lend more weight to her "speculations and prejudices" (Goldacre, 2009).

Comments

Susan Greenfield's critique of digitalization is of a particular type because it is exercised from the standpoint of a brain researcher, and as such develops new themes, arguments and aspects for discussion. Because of this, she sees more than others, and in a special way. Her analytical power enables her to show a large number of undesirable and dangerous consequences of digitalization within what is really a narrow observation field that is restricted with regard to disciplines. In addition, she possesses an ability that is not often found among academics of her calibre, namely to illustrate complex scientific findings in simple language. Even more: she can write grippingly and fascinate her readers. She exerts her influence through openness, directness and self-confidence. Her writings and interviews also have the nimbus of a brilliant, successful, recognised researcher who has won many awards.

Susan Greenfield can be criticized for her predictions regarding the near future, because they are only informed assumptions, projections and in part speculations as well, in which, taken by themselves, a relevant critique of digitalization cannot be seen. However, at the same time her book must also be seen as "a desperate and deadly serious plea for freedom of thought, free will, and hence the nature of individuality" (2003, p. XII), which she sees as being under threat and wishes to see maintained in the future as well. Her critique starts from *current* weaknesses and undesirable developments of digitalization. Visible undesirable effects can be made to appear more dangerous. But even if we involve ourselves with her prophecies and warnings, they are not merely haphazard futuristic

intellectual games. Firstly, she starts from the insights of her science, neurophysiology, and, secondly, she reflects on her warnings academically - with references to experts from all over the world.

Some critical remarks have to be made. For example, there are no references to scientists from other disciplines who have dealt in detail in particular with the subjects of communication and identity from other aspects. Their future visions appear sometimes to the disinterested reader to be overstated, in particular when they lead to the emergence of a gruesome and chilling image. The author herself talks about a "nightmare scenario" (2008, p. 3). She confronts us with a human image that is completely foreign to us, because it lacks important characteristics that define it: identity, personality, individuality, creativity. For this reason Dave Clements (2003) criticized her book *"Tomorrow's People"* as well as "profoundly anti-human in outlook".

Susan Greenfield once said that she likes "to do everything to excess" (Duncan, 2003). Although she communicates the most alarming concepts in a tone of scientific neutrality and academic sobriety, the question arises of whether she also has fun here thinking through and communicating recognizable undesirable developments "to excess". However, it is the changes described in this way that in part virtually repel people of traditional origins. She would definitely have achieved her goal of warning people about the future undesirable consequences of digitalization.

At the same time, Greenfield's critical strategy has to be considered. Dave Clements (2003) characterizes her conception of the technological future as a "dystopia". Thomas More described Utopia as a perfect world, but Susan Greenfield basically presents the opposite of this, by painting the horrors of a possible digital future in bold colours. Her critique of digitalization can therefore be understood as a current, bitter and singular contribution to social and cultural criticism.

However, behind her critique and her chilling warnings we discover a person who is actually basically in favour of digitalization. She characterizes this ambivalence in a special way by confessing: "I'm not a Luddite" (Sawers, 2008): In fact, she does not want to do away with the computer or to put a brake on its further development. As a whole, she does not regard the digitalization of our world as harmful, but in fact as important. We might even believe that she described the current and expected advances in digital technology with scientific curiosity, satisfaction and verve. Her main concern, however, is to explore the opportunities, options and chances of the further development of digital technology. However, this must be contrasted with her absolutely critical prophecies. This mental balancing of future chances and risks distinguishes her from many blindly enthusiastic protagonists of digitalization in theory and practice.

Susan Greenfield is a competent, daring and spirited critic of digitalization. She impresses us with her perspicacity, which enables her to analyse, substantiate and reflect on possible consequences of an extended and intensified digitalization down to the last details. She warns us by forecasting possible serious undesirable developments using criteria from her own discipline. Her contribution to the critique of digitalization is extremely interesting of itself, and particularly relevant with regard to its great effect in the media.

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10 Reformers: John Palfrey and Urs Gasser

How we can master the difficulties of digital change together

John Palfrey, Professor at Harvard Law School and world-famous Internet researcher, was born in the USA in 1972. Urs Gasser, Professor at Harvard Law School, author and holder of many awards, was born in Solothurn, Switzerland in 1972.

Biographical background

Both John Palfrey's parents, Sean and Judith Palfrey, are professors of Paediatrics at the universities of Harvard and Boston. He studied at Harvard and Pembroke College, Cambridge, and was awarded a doctorate at Harvard Law School, where he has been a professor since 2008. At the same time, he is one of the directors of the Berkman Center for Internet and Society. Palfrey researches in the field of Internet law and intellectual property. He also examines the problem of how the new media can be used to strengthen democratic structures. He makes significant contributions to the Open Net Initiative project, in which experts from Harvard and the universities of Toronto and Cambridge cooperate. In the 2007-2008 academic year he was a guest professor at the University of St Gallen. Together with Professor Urs Gasser he wrote the book *"Born Digital: Understanding the First Generation of Digital Natives"* (2008). (Sources: Palfrey, no year; Palfrey, 2008b; Palfrey, 2010).

Urs Gasser studied law at the universities of St Gallen and Harvard, was professor of information law at the University of St Gallen, and is currently one of the directors of the Berkman Center for Internet and Society at Harvard Law School. His researches concern the question of intellectual property in the Web. He has taught among other places at the University of Amsterdam, Oxford University and the London School of Economics. He is the author or editor of six books. (Sources: Gasser, 2008; Gasser, 2008b.

Motivation

The authors' intention is to report not only on the chances but also on the *risks* of digitalization. They intend "to present the good and the bad in context" (2008, p. 9). For this reason, on the one hand they take part in the international discussion on legal problems of the Internet and, on the other, they investigate general problems of digitalization. The trigger for the latter activity was experiences with their own students. They were astounded to ascertain that the latter behave differently from their older fellow students when learning and communicating, because they have been familiarized with computers from childhood in various ways. For Palfrey and Gasser, this is a "cause for concern" (2008, p. 7). The growing gap between "digital natives" and older people unsettles them, in particular as the number of digital natives is increasing from year to year. It can already be seen how these completely different students are gradually becoming integrated into society. The authors forecast that they will bring movement into the markets, and change industry, education and even global politics (2008, p. 7). As responsible citizens they are convinced that this development cannot simply be left to run its course and have therefore decided to examine it thoroughly in a large-scale joint research project. They want to make the findings of their project available to the scientific community, but also to the public. The findings should put their contemporaries into a position in which they can understand digital natives better. Active

interventions are of the essence, because we are at a crossroads: one road leads, through interventions by the government for example, to the destruction of what is so amazing about the Internet, but another could, on the basis of intelligent decisions, lead to a bright future for the digital age (2008, p. 7). There are two motives behind their book *"Born Digital":* as established university teachers at a famous university their ambition is to investigate in depth and know exactly how the exceedingly complex process of digitalization has to be understood. It is about the acquisition of scientific insight. And as politically responsible citizens they want to enlighten, so that suitable decisions can be made regarding the further digitalization of our society. Critique of undesirable developments is coupled here with a pronounced will for reform.

Main features of their critique

General characterization

The book that these two academics wrote jointly is a comprehensive and detailed description of the so-called "Internet generation". Over 440 pages they explain the thesis according to which people who grew up as children with computers and other electronic media have internalized digitalization in a completely different manner to persons who were initially shaped by the culture of the written word and only later had to make efforts to gain access to the digital world. The authors call the former "digital natives" and the latter "digital immigrants". The scepticism that these terms evoke among experts should be mentioned here (Bullen, Morgan and Qayyum, 2011; Schulmeister, 2008).

The book is based on surveys of 150 experts and children and young people all over the world. However, the findings were not evaluated statistically (*"justitia non calculat"*). The authors also refer to findings of sociology, psychology, neurosciences and development paediatrics. The twin character of this book is immediately obvious to the reader. On the one hand it provides exact insights into the each subject and describes the special dangers of the Internet; and on the other hand, it also offers strategies for overcoming them. Consequently, we are dealing here not only with an objective report but also with an admonitory how-to manual for parents, teachers, psychologists and politicians.

Selection of subjects

For the two law professors it is natural to deal above all with those themes to which they have an affinity based on their own discipline. This includes those fields in which the Internet enables violations of the law. This results in issues that are already worthy of criticism. These include dossiers, i.e. the collection and use for other purposes of all information stored on those persons who have used the Web; protection of the private sphere; striving for digital security; and piracy, by which is meant breaching copyright when exchanging texts, films and music. Finally, under the title "Aggression" they examine the question of what relationships exist between the consumption of violent DVDs and the increase in acts of violence in public, in particular, spectacular killing sprees in schools.

In a first attempt, the authors concern themselves with a series of central themes of digitalization: the identity of users; new opportunities for creativity; the problem of the uncertain quality of information; undreamt-of possibilities of starting up innovative services; digital participation in political life; and, finally, the change in our concepts of learning.

- If different "identities" are formed in the age of the Internet, this is not an unusual process. Using the example of a sixteen-year old girl in the agricultural, industrial and Internet ages the authors show just how changeable personal and social identity is. However, the completely new possibility to have online profiles and avatars, and to experiment and play with one's own identity, to develop and shape it, does conceal risks, in particular through the divulgence of personal data.
- The Internet enables new forms of "creativity" that have developed and spread phenomenally, whereby previously unknown forms of creative activity have come into existence. On the other hand, this has pushed back traditional forms of creative writing, drawing, painting or composing. The quality of digital creativity is criticized because it is often nothing more than processing and combining the content of other authors.
- Securing the "quality" of information is a problem that has taken on a new dimension with the Internet, because users are surrounded by countless pieces of information, which are placed on the Web practically by anyone without being checked. This is why it is difficult for young people in particular to assess truthfulness and value: "Quality is one of the thorniest issues raised by Internet culture" (2008, p. 161).
- The authors are particularly impressed by the opportunities for "innovation" that the Internet offers, above all to enterprising young people. Users with a clever idea and not much money are able to set up digital enterprises and to reach a global public. As examples, Napster, YouTube, Flash-Sharing, BitTorrent and Facebook are named. However, their incomparable success stories contain a defect, because they have "destructive effects": they threaten traditional institutions of the music and film industries, cause billions of dollars worth of damage to them and infringe rights to intellectual property to a huge extent.
- The use of the Web for political participation is discussed in detail under the heading "Activism". Forms of collaboration are described and great hope is placed in them. On the other hand, the authors are basically of the opinion that real political activity should not take place online but always offline. However, they think that a practical combination of the two modes is possible. If people formulate and discuss political themes in the Internet themselves, this could "have a profound and lasting impact on democracies" (2008, p. 266). It also conceals risks that are worrying, e.g. the habit of many users to see only their own world and to search permanently for confirmation of their own convictions, in other words, to mirror themselves.[5] Other dangers are the uncertainly regarding the quality and reliability of political information and the

5 Miriam Meckel (2011, 2011a) draws attention to another momentous restriction (cf. chapter 20). She explains why, when search engines are used, the result is a "self-reflection" of the questioners. After Google "personalized" its search algorithm in 2009, users are offered information that matches their personal profiles when they submit a query. They have become "calculable" for the computer on the basis of all the information they have ever entered. This enables the computer to recognize their wishes and preferences and to offer information on this basis. This means that each question receives a "customized" answer. According to this, a critic of capitalism receives a different answer to a hedge fund manager when they each ask the same question. These algorithms "make a digital Narcissus out of the person, who now only gets to see his own wishes and preferences and eventually loses the view for things that happen in the world outside of his own self" (Meckel 2011, p. 120). "But this is not all. Our view of the world changes if we are increasingly occupied with things that are important to us and that we like. Our view of the world starts to suffer from Web-based short-sightedness, which progresses with time" (Meckel, 2011, p. 121).

strengthening of commercial forces that use the Web openly or covertly and in the end dominate.

- The authors regard a structural change of "learning" in the Internet as fundamentally necessary. Although most universities in the USA had equipped themselves with digital technology, basically they did not know how this could be used for education. For this reason the authors suggest "that the complete definition of learning be redefined" (2008a, p. 289). It must be widened and not refer solely to learning in the classroom (2008, p. 239). When this is done, it should not be forgotten how digital natives deal with information. They not only absorb it, they interact with it. They acquire a special skill in collecting information by applying sophisticated processing techniques that work in-depth and provide for feedback from the Web. According to the authors, they do not learn any less than their grandparents when doing this. We should not be concerned about digital natives, but above all about those persons who do not have such new techniques for dealing with information in the future.

- However, there are concerns of parents and teachers that we must deal with: multitasking reduces concentration, the attention span is shortened, longer texts are not longer read, a "sound-bite culture" and a "copy-and-paste-culture - a practice that is in tension with traditional educational ethics" (2008, p. 245) are created. When homework for school or university is written, attempts are made to cheat with the help of downloaded texts, or to solve problems with others. Here there is justified cause for concern. "Things are moving and changing quickly in the digital age. It's hard to know what the future will hold, and more than a bit scary" (2008, p. 246)

- The authors then discuss steps with which such difficulties can be met, and in the end console themselves with the idea that things will not turn out so badly. They say: "Television didn't transform education. Neither will the Internet." (2008, p. 250).

The authors have demonstrated their critical attitude with the examples shown here. It is a significant part of their publication strategy, which they themselves make clear: "Our goal in this book is to present the good and the bad in context and to suggest things that all of us […] can do to manage this extraordinary transition to a globally connected society without shutting the whole thing down" (2008, p. 9).

This practice-related intention causes us to discuss below above all those themes in which these researchers stress the "bad" side of digitalization more strongly than otherwise. These are the sections "*Overload", "Dossiers", "Aggressors", "Security", "Private sphere" and "Piracy"*.

Significant deficiencies

"Overload"

In order to characterize the special type of critique expressed by the two researchers, in an initial approach the treatment of the *information overload* is taken from this extremely broadly ranging book. This phenomenon is probably the most complained about consequence of digitalization. All users, including *digital natives*, are necessarily exposed to it. The authors "take the information overload seriously" (2008, p. 208). In order to pass on an insight into the particularly substantial nature of their critique, this section will be dealt with in more detail. The authors prove here to be very cautious, in

that they consider and discuss the problem from several sides. In this way, an example can be provided of how the critique of digitalization can look like on a scientific basis in social responsibility. The descriptions of deficiencies that then follow this are dealt with in similar detail in the book.

According to the researchers, the overload of users through enormous masses of information can lead to injuries to health. These are described above all as "*Information Fatigue Syndrome*". Palfrey and Gasser regard them as a new "mental illness of the digital age". Distancing themselves carefully from this statement they add: "To some these new threats mark the dark side of the brave new world with an ever growing amount of and diversity of information" (2008, p. 186). They then concern themselves with the history of information overload. According to the authors, this problem was already being discussed in the 1950s, namely with regard to the many impressions that people are exposed to in large towns and cities, a situation that was called at the time *sensory overload*. It was then found that these impressions inhibit the capacity to make decisions. The current *"explosion of the Internet"* and the use of the many new digitalized communication appliances, claim the authors, has intensified the information overload dramatically, and in particular for members of the Internet generation.

The authors then examine this group microscopically. In order to indicate the scope and the relevance of the problem, they refer to a 1998 study, which claimed that 80% of children in years 4 and 8 in Texas schools were suffering from information overload at the time. They then referred to ten medically and five psychologically ascertainable effects of information overload (including increased cholesterol levels, frustration and reduced learning capacity). In addition, difficulties in relationships can be noted, because with *digital natives* contacts with other persons in real life, including in the family, are less intensive. However, the reduced learning capacity that was ascertained here as well is serious.

The researchers then examine *"five generally accepted causes of information overload"* (including, e.g., the enormous computer memory capacity and the explosion of information channels), and assess the situation as a whole as follows: "Information overload is a fast-growing problem in the digital age. There is no end in sight to the growth of the amount of information"**.** In their opinion, "this trend is reason for concern"**.** The problem will have to be solved by enabling digital natives "to solve it for themselves over time" (2008, p. 194).

This does not conclude the treatment of this problem. They now examine the tools that have been developed and have proved useful in the solution of this problem (search engines, filters, recommendation systems, *semantic web*), and which new technologies are being developed for this purpose at present in major information technology companies. Finally, the roles that schools, parents and the state could and must play in solving this problem are discussed.

"Dossiers"

The more data a user enters, the more extensive and dense is the digital dossier that is compiled unnoticed by multi-billion dollar Internet companies. This is in fact generally known, but not in the dimensions that are described by the authors. By means of a CV they meticulously list the data that is collected in such dossiers - from the ultrasound photo of the unborn child through to photos, videos, texts, emails and text messages on activities in the games environment, in the field of learning and in social life. Reading this book, we can grasp how personal data are continuously added to in this way, which

leads to unimaginably large dossiers in the course of a lifetime over which users have no control at all. *Digital natives* were *"unconcerned"* to *"reckless"*, when they disclose even private data. However, they will think differently when employers or licensing bodies have access to the dossiers later on, or when they are targeted with advertising that matches their profile perfectly.

"Aggressors"

"Research does in fact show that there is a relationship between violent content […] made accessible through digital technologies and the formation of aggressive thoughts and beliefs that might ultimately result in violent behaviour of children and teens" (2008, p. 211)**.** This should give teachers and parents pause for thought**.**

These cautiously and circumspectly worded sentences reveal something of the type of critique that is typical for these authors. They want to calm the agitated discussion on violence in the Internet. They complain that each time someone runs amok in a school the media discuss the question whether the excessive consumption of violent videos on PCs is the cause of such catastrophically aggressive actions by young people. In contrast, they advise us to remain calm and assure us that the causes are not to be sought in the Internet, because in reality they lie much deeper. Violence is present everywhere in society. Scenes of brutal violence can be seen in films and on TV as well. In 1992, children in the USA had seen on average over 800 murders and 100,000 acts of violence on TV by the time they left primary school. As the age of these children increases, these figures will increase considerably as well (2008, p. 211). In order to be able to isolate the reasons for such acts of violence the authors refer to "extended general variables", e.g. to the role of the drive to imitate, observational learning, associative influences and the triggering of activating stimuli through repetition in the event that a propensity towards violence already exists.

The authors admit that the Internet aggravates the situation. Above all, new media formats contribute to this, for example, "violent music texts, hate websites, and violent movies on cell phones" (2008, p. 214). However, the really dangerous change is caused by video games with "superrealistic scenes of violence". Children are not merely observers, but active players "in brutal fantasy worlds" (2008, p. 259). It is the greater degree of interactivity and realism that can become dangerous here (2008, p. 216). What makes the situation even worse is that digital natives have now become produces of such violent films. According to the authors, creativity in the Internet has its dark sides as well (2008, p. 217).

All participants, including technology companies and the state, have an important role to play in combating violence in the Internet. The authors assert that nothing remains for us but to tackle this problem directly. Because "the stakes could not be higher" (2008, p. 221).

"Security"

"[D]espite the absence of data to show that young people are at greater risk in an Internet era" we should be aware that young people are exposed to greater danger in the Internet than offline (2008, 96). The authors give several reasons why parents of *digital natives* are concerned. They are afraid that paedophiles could come into contact with their children, their children could gain access to pornographic videos, deliberately or unwillingly, could be bullied or become dependent on the Internet. Reports on Internet crime in the media intensify their anxiety still further. The authors respond to these dangers and refer to the

current status of research, and recommend several coordinated and combined strategies in order "to make the Internet safer for our children" (2008, p. 121).

"Private sphere"

"Most young people are extremely likely to leave something behind in cyberspace that will become a lot like a tattoo – something connected to them that they cannot get rid of later in life, even if they want to, without a great deal of difficulty" (2008, p. 53). The authors describe here a situation that has never before existed. Enormous volumes of personal information are collected in the Internet that users are practically unable to access. It is true that some of the collected private data by Google can be reproduced, but most cannot be retrieved with search engines, instead "large deep pools of data that information aggregators collect about a digital native are nowhere to be found, unless there is a security breach of some kind. Medical records, academic history, credit card information, online banking transactions, all those security cameras that capture our comings and goings: Most are in the 'deep Web', where such engines today cannot reach" (2008, p. 55). Very private information of this type was *"cultivated"* by anonymous agencies without the knowledge of those affected. The US company Choice Point has stored ten billion documents in this way (2008, p. 59) and sells them to interested companies. The latter use them, something which the authors still regard as "negligible". What is worse, however, were Internet activities such as identity theft, stalking and checking job applicants. Sometimes, employees steal large data records and sell them to those interested in them. The authors investigate such infringements of the private sphere and examine ways and means for countering them. Their key suggestion: "The law should let users decide what happens to data about them, not the corporations that collect them" (2008, p. 78). What Europe has already achieved in this direction is lacking in the USA, and this is why Internet data protection is now under discussion there as well. The attitude to privacy of members of the Internet generation has now changed.

"Pirates"

"The vast majority of digital natives are currently breaking copyright laws on a regular basis – despite aggressive – at times even desperate – measures by industry groups and government enforcers to get them to stop" (2008, p. 132). This finding, which the authors call *"plain old stealing"*, leads to the two law professors and Internet law specialists to rephrase the question of copyright law and to reconsider "that it is at odds with the dominant social norms of a generation" (2008, p. 132). However, in doing this they keep the interest of Internet users in view. Following a detailed historical flashback, which describes exactly how this negative state of affairs came about, the measures that have already been taken to control piracy, and how to assess their successes or failures, the authors outline the tasks ahead of us precisely. In doing this, they stress several times that the question must not simply be about the toughening of traditional copyright law, which has become even more restrictive, although certain industry associations and politicians as well think of this in the first place. As accomplished Internet experts they fear that such a procedure would not only hinder the very important new forms of Internet creativity, but in addition would obstruct or even prevent the further development of the Internet.

They establish five principles for the development of a copyright law that meets the requirements of the Internet. These state that work with the Internet may not cause any damage. In the competitive struggle between content providers, appliance manufacturer

and developers, participants must act *"responsibly"*. Furthermore: "Use law as an enabler of the positive things digital natives are doing" (2008, p. 151). There should be incentives for compliance. At the same time, it was necessary at arrange extensive *awareness campaigns* (2008, p. 152).

Reception

The book *"Born Digital"* was very successful and has been translated into 11 languages. Well-known representatives of information and communication science have welcomed it: Nicholas Negroponte from MIT, for example, regards it as "an excellent primer on what it means to live digitally". Lawrence Lessing, Internet expert at Stanford University, writes: "This beautifully written book will set the framework for a field that will change". And Howard Gardner, Professor of Psychology at Harvard, calls it an "outstanding, original synthesis" (all quotes: 2008 back cover). Vanessa Dahm (2008) from the Institut der deutschen Wirtschaft praises the authors because they examined both the positive and the negative facets of digitalization.

There were mainly positive reactions in the press as well. *Publishers Weekly* finds that the book provides "a critical, but optimistic overview" and "a wide-ranging examination of future opportunities and challenges" Adam Thierer (2008) from *the City Journal* website regards the book as "a comprehensive and very even-handed discussion about a variety of concerns or Internet pathologies". Donna Seaman (2008) from *Booklis*t remarks: "Energetic, expert, and forward-looking, the authors serve as envoys between the generations" - "As old institutions crumble, there is a need for just this sort of enlightening, commonsensical, and positive guide to digital reality". Amanda Henry (2008) from the *Washington Post* thinks: "[T]he authors are knowledgeable, but never pedantic, especially in areas where research is pending". At the same time, she finds that they are "so busy being measured and pragmatic that they omit the apocalyptic hand-wringing". And John Dupuis (2009) speaks of a "fine and useful book. Every page is brimming with facts and analysis concerning one of the most pressing issues of the day".

There was approval in the German press as well. *The Süddeutsche Zeitung* (2008) thinks that John Palfrey and Urs Gasser have provided "one of the first serious interim balances of digitalization". Cornelia Hegele-Raih and Christina Kestel (2008) from the *Harvard Business Manager* welcome the book because it explains digital natives to companies "in the most fitting way" and at the same time discusses how to deal with information overload, cyber crime and data protection. They regard the book as "obligatory reading for executives and personnel managers".

Scott (2010) characterizes the authors' particular strategy: "Palfrey and Gasser's intention is clear: they want to illustrate the advantages and disadvantages of the digital revolution and at the same time to suggest how we can work together to facilitate the massive transition".

Comments

With their book *Born Digital*, John Palfrey and Urs Gasser have provided a comprehensive and substantiated description of digitalization. They impress with their thoroughness and objectivity, a high degree of differentiation, the link between theoretical contributions and practical application, the balance between eulogized advantages and deplored disadvantages and a proportion that is otherwise hardly ever encountered among critics. Essential subjects of digitalization are dealt with systematically and discussed circumspectly. By concentrating

on persons who have grown up with the Internet, the authors' book acquires topicality and vitality.

The authors have written their book in a very readable objective academic language. Their text never sounds unsettling or even alarming, although their findings are often serious. They do not criticize with the intention to cause a sensation or to trigger anxieties. They rather tend to relativize or tone down negative findings than to over-accentuate them. In this way they exude confidence and an optimistic point of view. This can be explained by the cautious approach of the academic researcher, but at the same time by their overall affirmative attitude. The following example is typical for the authors' appeasing effect: after determining that everyone must devise their own coping strategies**,** they admit**:** "Though it's an imperfect solution for an imperfect world, one thing is clear: We are all learning to live with the onslaught of digital information. Most of the time, humans manage to adapt" (2008, p. 197).

At the end of this chapter they also refer to the "positive aspect as a whole": "the danger of information overload is simply the flip side of many of the most wonderful aspects of the digital era. It's terrific, for instance that more and more young people are expressing themselves online" (2008, p. 207).

During reading, two questions obtrude in places: can the scientific clarification of facts be regarded per se as a critique? And: can such positive thinking and confident supporters of the Internet such as Palfrey and Gasser be regarded anyway as critics of digitalization and be included in this book? Readers often have the impression that the authors are concerned mainly with the objective examination of facts and circumstances. However, can the scientifically exact and neutral description of problems and deficiencies of digitalization already be regarded as a critique? There is no doubt that recognizing and gathering facts about the Internet's structural weak points is a favourable prerequisite for the development of a critical attitude. But if this were done from a mere striving for an abstract acquisition of knowledge, in other words, if the researchers were basically indifferent to the significance of their findings, we cannot speak of critique in the actual meaning of the word. This is not the case with the two authors introduced here, at least not if readers let the tendency and effect of their book as a whole have an effect on themselves. Palfrey and Gasser are most certainly conscious of the social, pedagogical and political significance of their findings. The efforts at countering negative consequences of digitalization that can be found in each chapter of their book show this clearly.

As far as the answer to the second question is concerned, the two authors act primarily as eloquent and convincing protagonists of the Internet. They are fully convinced of its importance. Better advocates, defenders and propagandists of digitalization cannot be conceived. In view of this overall impression, the question arises whether the critique that is also expressed has an incidental effect and moves out of the focus. Can Palfrey and Gasser therefore be regarded as critics of digitalization, above all in comparison with those authors whose critiques are the focal points? On the other hand, it has to be recognized that Palfrey and Gasser attach great importance to the deficiencies or negative consequences of digitalization that they describe exactly and discuss intensively, and apply themselves very seriously to them. The chapter headings themselves show that it was in the first place the serious difficulties of digitalization that are dealt with in detail. Each of them has its own dedicated chapter. This implies the considerable weight that the authors attach to these difficulties. This justifies regarding them as notable critics of digitalization.

However, European readers notice the confident certainty of the authors that societal problems can be solved by acting reasonably and applying intelligent strategies. This type of belief in progress is no longer hared here. Paul Schilling finds fault with their optimistic belief in the success of educational measures as well, and refers to the authors' "in parts conventional pedagogical idealism" (Schilling 2009). However, the critique of the construct "Generation Internet", whose members can be designated and characterized across the board as "digital natives", is more serious. If we take a close look at this labelling of what is now a large part of the population (about 80 million people in the USA), the question arises of whether the "generation" thus described does not consist of many very different sub-groups, with as many manifestations of digitalization. Experts in this field also criticize that the concept "Net generation" is not substantiated either theoretically or empirically. The claims that are made were therefore not scientifically documented at all. Rolf Schulmeister (2008) therefore asks critically whether there is in fact a Net generation. Finally, the reader is disconcerted because the researchers minutely document all quotes in their book, and include remote sources as well, but do not mention Marc Prensky, the "inventor" of the construct "digital natives - digital immigrants", although they use his wording in the title of their book. Even worse is the failure to refer in the slightest to the book *"Growing Up Digital. The Rise of the Net Generation"* (1998) by Don Tapscott. The same author's book *"Grown up Digital: How the Net Generation is Changing your World"*, published in 2008, is not referred to either. Is this merely an oversight, or the hardest form of literary criticism among competitors?

John Palfrey and Urs Gasser have made a notable contribution to the critique of digitalization. It impresses with its legal clarification, precise documentation, enormous range of facts, variety of subjects, references to the latest research, insightful discussion and refreshing balance. Current and future dangers of digitalization are clearly named and strategies for overcoming them are discussed. Because of its objectivity in particular their book is a succinct contribution to the critique of digitalization.

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11 The humanist: Hartmut von Hentig

Digitalization leans to a "creeping perversion of our life"

Hartmut von Hentig, the well-known scholar, publicist, committed teacher, Professor of Education, and holder of many awards, was born in Poznan (then Posen) in 1925. He has lived in Berlin since retiring in 1987.

Biographical background

The critic's father, Otto von Hentig, was a diplomat, and as usual in the diplomatic service, was assigned to a new diplomatic mission abroad every three or four years. Hartmut thus experienced the advantages and disadvantages of repeated changes of address and school. He gained impressions of life e.g. in Alamo, Amsterdam, Bogota and Berlin, where he spent his childhood and attended the Französisches Gymnasium (Collège Français**).** In this way he gained very different school and learning experiences, which were significant for his career and certainly for the development of his personality as well.

In 1945 he started his studies of classical philology at Göttingen University, which he continued for five years from 1947 at the University of Chicago, concluding them there. He returned to Germany in 1953 and started his career as a teacher of Latin and Greek at Schule Birklehof, a progressive boarding school in Hinterzarten in the Black Forest. He then taught these subjects at the Uhland-Gymnasium in Tübingen. In 1963 he became Professor of Education at Göttingen University and in 1968 at Bielefeld University. There he tested his ideas of educational reform in two broadly based experiments as head of the Laborschule (Laboratory School) and the Oberstufenkolleg, a school which combines the contents of the last four years of high school with foundation university courses. In the framework of these experimental schools, curricula, forms of teaching and learning for the higher secondary level (Level II) and for the transition to university and work were developed, practised, and evaluated. Because of their special educational character and their unusual institutional structure, these experiments and their director became widely known.

This critic's activity as an author is even more significant. His work comprises 26 titles, mostly with educational contents. He also edited the journal *Neue Sammlung*. His book *"Der technischen Zivilisation gewachsen bleiben"* (2002) (Coping with the technical civilization) is used as the basis for the description of his critique.

Hartmut von Hentig has received five major awards: the Schiller Prize of the City of Mannheim, the Lessing Prize of the City of Hamburg, the Sigmund Freud Prize for academic prose, the Eugen Kogon Prize of the City of Königstein, the prize awarded by the Dr Margit Egnèr Foundation, Zurich, and the Medal for Merit of the Land Baden-Württemberg. (Sources: Wer ist Wer, 1989; von Hentig, 2007; Beats, 2010).

Motivation

The digitalization of our life is going wrong! Von Hentig is convinced of this. Expressed more stringently: the electronic inter-connection of society is fundamentally "unnecessary, harmful [and] pointless" (2002, p. 111). Because the mediatization of our world continues to progress, traditional forms of thought and conversation are objectified. People's dignity and the acquisition of civil virtues such as truthfulness, responsibility and solidarity are

based on experiences that cannot be acquired from a computer. This aroused his opposition at an early stage. However, as he recognized, radical revolt against digitalization is dangerous, socially speaking. This is why he steers a middle course, in which its undoubted advantages can be used and its undeniable disadvantages alleviated or warded off.

His motives for this are: concern for people and the state of society, his educational responsibility, his need to make himself understood, to take up a critical standpoint, and probably his unconscious disposition to win social recognition and to exercise influence.

Main features of his critique:

1. The critique of a humanist
2. The false ratio of ends and means
3. Mediatization and technical civilization
4. Societal factors beyond digitalization
5. The educational concept "standing up to technical civilization"
6. Deficits in the family
7. "Rational expectations"
8. "Irrational expectations"
9. Social criticism

The criticism of a humanist

Hartmut von Hentig is described as a humanist, not only because of his professional familiarity with the language and culture of Greek and Roman antiquity, but also because he defends the interests of people in his critique of digitalization. His attitude is democratic-liberal, however, traditional characteristics of an antique idea of man are interwoven. For example, following the antique city-state (*polis*) he coined the term *"school as polis"*. In this way, he referred to an antique form of life in which citizens with equal rights administered and ruled themselves, and in which equality rules before law. Accordingly, he understood school as a "space for living and experiencing", in which pupils are educated to think and act democratically. Consequently, he does not see schools primarily as locations for teaching and learning.

In his writings, von Hentig often refers to Plato's ideas, and explains convincingly the significance of terms that are current today by going back to their classical Greek roots. His readings of "Homer, Sophocles, Plato, Thucydides, Sallust, Virgil, Tacitus and Boethius" (2007, I, p. 349) enable him to think and argue in a comprehensive frame of reference, and to elucidate what actually makes up people with a recourse to classical educational ideas. His special critique of digitalization can be understood against the background of his humanist education.

The false ratio of ends and means

"Humanity is surrendering to its means. People do not even seem to be conscious of this repugnant reversal of ends and means" (2002, p. 151). For von Hentig, the conception of the freedom and dignity of a person acting autonomously does not harmonize at all with the way in which most people surrender to the new technical media, and simply let the technical development of the computer wash over them. For this reason, he places a

"necessary, difficult cultural-philosophical preliminary question" before the analysis of details: What are our intentions with the computer? What is the end that we are pursuing with its help? And: "Do the means, does the computer, does the Internet, (…) fulfil this end without destroying other ends?" (2002, p. 23).

These questions are not easy to answer, because they are embedded in a more comprehensive process, the evolution of "technical civilization". This extends the question that has arisen: How do we want to live in the technical civilization and how not?

Von Hentig has found a cardinal approach for his critique of digitalization at the very beginning of his book. The universal use of computers and the Internet was by no means expected, foreseen, planned and developed with regard to a specific desired social goal. In addition, most people have the feeling that digitalization has simply washed over them and they are delivered up to it. Apart from this, as a result of digitalization other ends important for life have been suppressed.

A second general and fundamental approach of his critique is no less effective. The author is of the opinion that the stability of civilization is "constantly endangered" because means have started to dominate and "appear themselves as the goal" (2002, p. 24). This affects as well, and in particular, the use of computers. Because of all efforts made in the sense of optimizing, economizing, standardizing, and systemizing, discussing and evaluating the *ends* have fallen behind. For example, the question of what is the *good life* as defined by Aristotle, and how we can take part in it, is not even put in the computer world. In view of the acceleration of all work in the Internet, the reference to this good life is given a particularly effective main point, because, according to Aristotle, it is closely connected with "leisure".

Mediatization and technical civilization

The author approaches the subject of digitalization by placing it into an overall context. For him, digitalization is only part of the general *mediatization* of our life. The latter had accelerated dramatically in the last two decades. We were involved in "not examining" this unheard-off process, but in implementing it "literally unconsciously". He sees in this the "most important change in our culture, that is, our common way of life" (2002, p. 10). Accordingly, he deals with digitalization in the framework of a "theory of civilization determined by its ends" (2002, p. 10). According to Hentig, these unusual changes have not been acknowledged by educationists.

Von Hentig had already been concerned with the phenomenon of the "gradual disappearance of reality" (1984) twenty years ago, and described it as a consequence of the increasing use of the new media. In his new book on the same subject, published in 2002, he no longer refers to the "gradual disappearance", but already to the "intentional banishment of reality", to a "destruction of reality by virtuality" (2002,p. 9). In addition, as a consequence of the events of 11 September 2001, he has become painfully aware of how little we "have the world we created (…) under control" (2002, p. 12). Digitalization is a part of this world. Its rapid development eludes our control.

Von Hentig's reaction to this insight is remarkable. As one of the most stringent critics of the Internet he recognizes that the digitalization of our life cannot be delayed, let alone reversed. This insight is a challenge to him as an educationist and leads him to postulate an overriding educational goal that has never existed in this form. According to this, the most important thing is to qualify people to be and remain "masters of technical civilization". This ambitious

project can only succeed if more attention is paid to the ends than to the means. However, a prerequisite for its realization is detailed information on the condition of society, because many significant targets there are awaiting a solution.

Societal factors beyond mediatization

Through his analysis of today's society von Hentig's critique receives a new and unique dimension. The starting point here is his amazement about the hype that has led to the constant incantation of formulae such as "information society", "knowledge society", "media society" and even "media age". He queries the justification of these designations, and asks himself whether computerization and the use of other new media are really the most important characteristics of our society. Were there not factors that determine its development much more intensively and really inescapably? In his opinion, this is the case, and he presents "another description of the state of society" with the help of a catalogue, with commentary, of twenty characteristics that are peculiar to present-day society and that have a much greater effect than the new media. These are

1. High life expectation with low reproduction rate	12. Enhanced technical development: objectification and alienation
2. Increased mobility	13. The Chernobyl syndrome
3. Large migratory movements	14. Intensified Rationalization and Economization
4. Sustained growth of the world's population	15. Intensification of atavistic tendencies: aversion to work, aversion to risk, xenophobia, aversion to thought, and acquisitiveness, lust, lust for power, curiosity.
5. Further urbanisation, mega cities	16. The change in our labour market system
6. Loss of society's cohesive powers	17. Public debt
7 Pluralism in questions of belief, origin and taste	18. Disenchantment with politics
8. Increased tendency to relativism	19. Globalization
9. Secularization	20. The increases in almost all manifestations of life
10 Quantification and the statistics it enables	
11. Psychologization of our life situations	

Fig. 1: Characteristics of our society. Source: Hartmut von Hentig (2002, pp. 47-54).

The author considerably widens the view of most media experts and media educationists, and of those authors who extol "media competence" as a panacea, and in doing so he relativizes at the same time the exaggerated significance that is attributed to the digitalization of our lives. He admits: "Naturally, our age is also a media age", but at the same time emphasizes that the totality of society may not be faded out (2002, p. 57). In this way, he enriches the critique of digitalization with an aspect that is original and not otherwise found in the literature.

The educational concept "standing up to technical civilization"

In the development of this concept von Hentig starts with a basic issue. He refers to a figure of thought from John Dewey. This states that the advance of civilization is only "progress" "if it is understood, somebody is responsible, and it is controlled". "A delay that enables this can be more progressive than large-scale change" (2002, p. 60). This thought implicitly criticizes the thoughtless immediate acceptance of every innovation

of computer technology and the software industry, and the experience according to which everything that can be done, will be done.

Young people have three possibilities: (1) Participate, (2) Drop out, or (3) "Stand up to technological civilization" (2002, p. 243). As an educationist, von Hentig naturally recommends the third reaction. His goal is "a strong subject", who is a "good member of society", "understands science and technology, controls them responsibly and enjoys them within reason" (2002, p. 243).

But how can this goal be achieved? By having in each case "a clear perception of the ratio of means, ends and consequences in technical civilization" (2002, p. 60). Above all, one may not commit oneself obediently to "prevailing" progress, even if it is regarded as unstoppable and necessary, it digitalizes our real world systematically, and leans to a complete networking of people and to a "creeping perversion of our life" (2002, p. 63). In five sub-chapters he provides educational suggestions, some of which are selected and indicated here:

1. In order to stand up to mediatization, he recommends among other things spending the same amount of time on "conversation, encounters, observations and physical work" that we spend in front of a screen. Because: "For a world in which the computer exists we need above all something that we just cannot learn at the computer - open, dialogic, doubting, conceptualizing, evaluating, philosophical thought" (p. 73). It is also beneficial to select "images, data and relationships" consciously (p. 68).

2. In order to stand up to the consequences of rationalization and economization, he recommends among other things recognizing the role played by a person's "mental, political and economic existence" in ordering his or her relationships. In addition, it is important to keep alive the "pleasure in conversation" and not to mistake it for the "communication culture". It is also important "not to sacrifice education to data processing, or even to equate it with the latter" (p. 76).

3. In order to stand up to the collectivization and organization of our lives, he recommends among other things "self-discipline, openness, joint responsibility, tolerance, solidarity", as well as "watchfulness, criticism, civil courage, courage of convictions".

4. In order to stand up to the complexity of technical civilization, he recommends among other things being suspicious at first "of all simple explanations and solutions" and "of being conscious of what is important for one's own judgement and actions" (p. 81).

5. In order to stand up to objectification and alienation, he recommends among other things employing the "reason of our natural knowledge against our irrational cultural habits" and to let "our body and its senses cooperate in our decision-making" (p. 92).

As this educational concept shows, in his critique of digitalization he does not limit himself to fundamental statements, but in overcoming undesirable digital developments investigates the problems in detail, and presents their solution down to practical everyday behaviour.

Deficits in the family

The author's most stringent critique is based on his exact knowledge of child development. He knows that children acquire their own world actively in many small steps, form their "organs and senses" through own experiences and in doing this test their "chances and

limits" (2002, p. 221). However, the author contrasts these educational requirements with what children and young people actually experience in front of TV screens and computer monitors. They are deluged with many "pre-fabricated images", whereby they behave as passive recipients. They are provided with "completely false" impressions of life's reality (p. 221). They have "seen" all this, but not physically "experienced" it. This is why they cannot really grasp and classify what has happened. On the whole, the author's judgement is: "Reality retreats from the dramatically staged substitute world – objectively and subjectively" (p. 221).

The consequences of this media consumption cannot be accounted for educationally: children forget immediately what they have experienced or learned (p. 222). Older children are practically unable "to complete any sentence" (223). They impart their thoughts in the form of "image cascades" (p. 223). Apart from this, they are impatient, cannot stick to one thing very long and are unable to dedicate themselves to anything (p. 229).

In order to alleviate such consequences of long computer consumption, von Hentig recommends that children "are given strong experiences of the good life – of uprightness, aspiration, firm convictions" (p. 232). They should use their time to gather "important experiences" in the real world, to encounter "important problems", which they attempt to solve themselves. They should order their language and conceptions here, train fundamental skills, acquire useful habits, discover their own special talents, and acquire the capacity to recognise differences in their variety (p. 249).

In the end, however, the "media fate of our children … will be [decided] by what we adults set against the "fun" culture" (p. 234).

"Rational expectations"

Von Hentig's educationist's approach to averting the dangers of digitalization is developed further and refined in other passages of his book. To the reader's amazement, he reports here as an introduction on the educational advantages of two old and very traditional media: blackboard and chalk. He detects in them seven positive characteristics that verify their didactical versatility. However, this recourse to the traditional school is a critique. Namely, by minutely substantiating the didactic advantages of this very flexible ancient medium for vivid teaching, he indirectly criticizes the possibilities of the computer that are often limited by fixed programs and software.

Following this, however, he talks about "rational expectations" in the new media. We can see from these in what way and to what extent, in spite of all reservations and objections, he is in favour of using computers in school: as writing instruments, trainers, replacement of teachers and simulators. The computer itself should not be made into an object of teaching until the final years of school, whereby programming in particular can be important. It is significant here to map the thought processes of learners, to objectify and test them (2002, p. 136). In contrast, the short time available in the years before must be used to *practise joint thinking and acting*, because this is a prerequisite for subsequent work with computers.

"Irrational expectations"

In conclusion, noticeable critical aspects of digitalization must be mentioned that round off von Hentig's opinions of computers and the Internet. They are located on three levels. On the top level he displays his absolute irritation about theoretical perceptions of some professorial colleagues. On the middle level he expresses his lack of understanding for

frequently discussed expectations of the computer of the future. And on the bottom level he warns that, even with the great enthusiasm for the computer and the Internet, the damaging secondary effects of these media must be seen and considered.

First level: Von Hentig cannot understand those experts who rate specific functions of the computer higher than corresponding human skills. Some of these experts even desire the gradual mutation of humans into computers, in order to increase human intelligence. This is a nightmare for him.

In this context he recalls ideas of Villem Flusser, Sherry Turkle, Klaus Haefner and Niklas Luhmann. Villem Flusser irritates him with his notion that all stored knowledge could evolve into an "omniscience", which would lead a separate life at some time, even without speaking and judging people. Sherry Turkle shares radical convictions of advocates of AI, according to which "the substance and subject definition" must be "replaced by that of the system and process". Because of digitalization, Klaus Haefner wants to abandon the "completely obsolete image of Homo sapiens sapiens" and replace it with the image of "Homo informaticus". And for Niklas Luhmann "the system of society [consists of] communications. There are no other elements, no other substance than communication" (2002, pp. 138-140).

These positions are of their nature not compatible with the image of humans that von Hentig proposes. To express this, he refers to an argument from Dieter Baacke: "As long as people are characterized by emotionality, spontaneity and empathy (for example), neither the partial substitution nor the gradual disappearance of their rational system are desirable" (2002, p. 41).

Second level: It is obvious that von Hentig is also irked by possibilities of the computer that are forecast, admired and discussed in the literature by hopeful computer experts, but which often cannot be justified with today's ethical principles. This includes, for example, experiments with the "foetal phone", in which a mobile phone is inserted into the amniotic sac of a pregnant woman, so that the foetus can hear the voices of relatives. In addition, living rooms are to be decorated with a "wood" wallpaper, which also exudes the pleasant smells of a wood. It is regarded as technological progress if a family sits down together to lunch and each member wears Internet glasses and can therefore watch their own individual programmes. Changing the nappies of babies and small children is made easier, or done away with, because they are placed on plastic stools in which a *"waste watch"* has been installed. This procedure is automated as well. Finally, some people think that in the digital future busy people will simply rely on sex with virtual partners.

Third level: Prophesied developments that are based on the integration of nano technology, genetic engineering and computer technology. They are intended to enable researchers to cultivate human organs, to produce meat without animals, to reverse aging, to use nano robots to support the brain, and to "fuse" humans and machines. The utmost expectations are those in which computers are equipped with their own consciousness and emancipate themselves from the human user (2002, p. 139).

Von Hentig calls such expectations of digitalization quite simply "irrational". If these technological fantasies are contrasted with his analysis of society today, with its undesirable developments and dangers, we can feel how little digitalization concerns itself with them.

Fourth level: Von Hentig dwells in detail on "undesirable secondary effects" of digitalization. These include the unauthorized collection of private data, spam attacks, mafia-like *political warfare*, file theft by hackers, the danger of total monitoring, the surrender of privacy, political infiltration and child pornography.

Social criticism

One characteristic of von Hentig's critique of digitalization is its close relation to the condition of society. For him, digitalization is just one factor in a development in which the "systems of the means" dominate and rule over us. Technology has achieved "enormous accomplishments", but our capability to control them has not increased on the same scale. As examples he refers to the "arms race, the overpowering of the ecology by the economy, the proliferation of bureaucracy, the increase of mass poverty in some parts of the world and of grotesque wealth in others" (2002, p. 287). It can be seen here "how little we are a match for our inventions" (p. 287). This insight applies naturally to digitalization as well. We do not know how and to what extent we can integrate it into our lives, whether it will harm us in our development as a person, and are concerned or frightened how it will be developed still further.

Anyone who thinks like von Hentig in this way about the effect of computers and Internet recognizes the actual dimensions of the change and its consequences for society. Although we need time to reflect, test, look ahead and find ourselves, the computer rushes us though a sea of data. Although we know what is absolutely necessary for educating the growing generation, namely direct experience in the real world, direct dealings with others in person, critical assessment, independent decision-making and responsibility for their actions, we set them free into a virtual world of "training" by algorithms and software. Education or schooling oriented to the requirements of society is either neglected or does not take place at all.

In many reflections such as these von Hentig proves as well to be a consistent critic of our society and culture.

Reception

The book *"Der technischen Zivilisation gewachsen bleiben"* met with lasting interest. The number of Internet hits in the years 2002-2004 was high, medium in the following three years, and continued up to 2010 on a slightly lower level. Other authors referred to it fourteen times (Beats, 2010a). Reviewers in newspapers, magazines and journals were on the whole approving to complimentary:

- Thomas Feibel (2002) calls von Hentig's "reflections on the new media" a "really wise book".
- Merz, in *Medienerziehung*, (vol. 2002/2003) regards the book as "excellent reading, which, with a great love of the German language, shows the victory of clear-sightedness and disenchantment over general perplexity."
- *Spielen und Lernen* (June 2002) thinks that the book analyzes "the new media in their social and educational environment trenchantly for the first time in Germany".
- *Kirche und Schule* (March 2003) regards the book as "humanistically formative" and praises its "reflectiveness and persuasiveness".

- *Forum Politikunterricht* sees in the book "an exercise of practical reason, a polished reflection on the new media" and praises von Hentig's "creative language". The book sets "standards in several aspects" (Hacker 2002).
- *Sozialwissenschaftliche Umschau* (2002, 1) emphasizes von Hentig's "sublime orientation to humanity".
- *Kirche und Schule* (March 2003): "His admonition certainly has something of the status of the enlightening knowledge of modern philosophers and scientists".
- In the *Magazin für Schule und Kindergarten* (March 2003), Markus Holenstein calls the book "a kind of critique of civilization in a media-dominated society".
- *Wirtschaftswoche* (No 15, 4. 4. 2002) thinks the book is a "conservative counterpoint". It stirs "too many aspects" and would like to be "modern" but is not.
- In the *iX Magazin für Professionelle Informationstechnik* (8.9.2003) Rainer Fischbach criticizes the author's "language, which, for modern ears, is sometimes too stilted and elitist".

But how do Hentig's fellow professors judge the book? The media educationist Stefan Aufenanger (2002) has to raise considerable objections against von Hentig because the latter sharply criticizes the concepts of "media education" and "media competence" that Aufenanger champions. According to Aufenanger, von Hentig stresses only aspects that are limited to a section of the computer world. And his gloomy picture of the influence of the computer on children does not correspond to "the experiences of most teachers". In contrast, the literature educationist Bernhard Rank (2003) speaks of a "weighty book". And Horst Rumpf, the education scientist, characterizes von Hentig approvingly with an image that accurately describes the core of his being and his effect: "Some might say: a pedagogical Don Quixote with fantasies of a floundering educational world. But I would like to hope that he is a David who, armed with nothing more than arguments, challenges a Goliath hung about with armour worth millions" (Rumpf, 2002).

Comments

Readers of the book presented here will be smitten by the exact observations, precise formulations, an original, always plausible chain of reasoning, rational argumentation, great knowledge of the world and strong educational engagement. References to well-known critics of the new media reinforce his arguments and increase the gain in knowledge. Readers enjoy the author's demanding intellectual rigour.

Von Hentig does not reveal himself at all to be a "Luddite" or enemy of technology, and neither should his convincing objections to the too early use of computers by children be called the "escape movements of a cultural critical preacher of repentance", as Jürgen Rüttgers, the then German federal minister of education, science, technology and research, once did indirectly (1997). His theoretical, practical and political knowledge is too comprehensive, his analyses are too exact, deep and wide-ranging, for such simplifying characterizations. Above all, he is someone who, hesitantly at first, accepts clear advantages of digitalization as well. At the same time, he registers its social consequences with substantiated concern. In this, the author is characterized by the capability of dealing with an aporia that is important for his critical arguments: it is true

that he is a stringent critic of digitalization in basic questions, but at the same its moderate supporter in an albeit reduced digital practice.

"For the first time there is a book in Germany that trenchantly analyzes the new media in their social and educational context" (Feibel, 2002). We must concur with this in full, because it described the book's core. But von Hentig provides much more because he, himself a leading educationist with defining reforming ideas, adds to his analyses a concept of human formation in the Internet era and proposes "a different approach for education". For this purpose he picks to pieces the theories on "media competence" and "media education" that were previously always seen as antidotes, names the grave consequences of lingering in virtual worlds, and gives parents tips on their children's use of computers. A big "no" to the digitalization of our lives is linked with a small "yes" in this application field.

Hartmut von Hentig is a free, autonomous and disputatious spirit, an original, independent, undogmatic and radical thinker, who analyzes and assesses digitalization thoroughly under philosophical, political and educational aspects. Better than many others, he recognizes in the highly complex practical field of digitalization the things that are really essential, and always with particular pleasure where this does not conform to public opinion. He elevates his critique through humanistic and culture-historical retrospects and classifies them in media- and culture-historical contexts. He is the only one to recognize and formulate the special task of education in the age of technical civilization, and conceives a new educational approach that links theory and practice. He classifies the change brought about by digitalization into greater social developments. All this makes von Hentig an exceptional, autonomous and outstanding figure among the critics of digitalization presented here.

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12 The satirist: Philip Bethge

"Give us this day our daily Web"

Philip Bethge is a German journalist, author and university teacher. He was born in 1967 and works as science editor for the German news magazine *Der Spiegel* in Hamburg, where he lives with his wife and daughter.

Biographical background

Philip Bethge studied biology at Kiel University, where he was awarded a doctorate. He then carried out field research as a zoologist in Tasmania, to study the behaviour of dwarf penguins and platypuses. In the mid-1990s he attended the Evangelische Journalistenschule in Berlin. As science editor of *Der Spiegel* he prefers subjects such as animals, plants, ecology, species extinction, but also works on problems of climate change, energy technology, agriculture and evolutionary psychology. Recently, he published the satire "*Unser täglich Netz"* (Our Daily Web) (2010). (Source: Bethge, 2011).

Motivation

It is probably this author's particular disposition that brings him to concern himself with digitalization in a light and playful way. It is obvious that, as a trained scientist, he finds it amusing that some members of the guild of computer experts compare the Web with, above all things, a religious institution, and how remarkable fantasies subsequently run wild that cannot be brought in any way into connection with exact science and technology. Not only the great number of Internet users, but also some well-known Internet experts, have fallen victim to the general extravagant Internet publicity that may have facilitated the creation of such incommensurable concepts, because it moves far beyond reality. Finally, the wish to entertain and amuse his readers may also have motivated him, and this sounds obvious for a journalist, particularly one who is also a musician and, as a member of the male sextet Sexteddies, likes to be on stage singing a capella "with wit and charm".

Critique of digitalization

> *"I argue that a new religion is coming into being, based on technology, that replicates all the characteristics of traditional religions." Jaron Lanier (2010)*

Philip Bethge explains the Internet by concentrating on one of its aspects: the curious coincidence of some of its manifestations with those of a religious denomination. He refers here to criteria that in fact prove this coincidence. By compiling and commenting on them he arrives at the following realization: "I believe that the Internet is in the process of becoming a new religion, with a god and everything else". And he even goes so far as to say succinctly and surprisingly: "The Internet is God" (2010, p. 13).

This insight, which for many is irritating and for some even blasphemous, requires an explanation. Bethge anticipates this by pointing to the following special features: like the Bible, the Internet has an answer "to all questions", has ″a host of honorary disciples″ and even promises "eternal life".

The comparison of the Internet with the Bible

Bethge says: "If things continue with the unquestionably divine all-round carefree telephones, if we soon have 3D glasses for augmented reality that project the chemical composition of the contents every time a seagull's droppings land on me, the Internet could become the sole and complete tool for understanding life and reality" (p. 13). In this way, users become dependent on this technical system, which they do not understand, however. Its authors are just as unknown as those of the Bible. The Internet decides on what we know about the world and on how we know it. Because it answers all questions, it turns into a "world enlightener". Here Bethge ranks the Internet higher, because the Bible falls down on modern technical questions, but the Internet knows everything in this field as well. In addition, "a touch of omnipotence and wisdom" wafts around both (p. 14). Just as believers see their lives through the glasses of the Bible and conduct themselves accordingly, users let themselves be moulded by the Internet in their thoughts, feelings and actions.

The comparison with regard to "honorary employees"

He refers here to a remarkable feature of the Internet. There is actually an army of voluntary honorary helpers who, in the service of a higher cause, write texts and feed the Internet continuously with information of all kinds - "in blogs" and on "Twitter, Facebook, YouTube, in forums, and so on, and so on" (2010, p. 14).

The vision of eternal life

This coincidence is connected with efforts to construct the "ultimate search engine", which has become something like the "Holy Grail" for the "Knights of the Internet". This ultimate search engine not only represents the "wisdom of the masses", which clearly exceeds the knowledge of any individual, but also opens up the "world's knowledge". This "super-super engine" has already been given the name "Singularity", which is intended to denote its extraordinary significance. With the help of AI and "Singularity", the Internet will become cleverer than any previous search engine. Bethge caricatures this plan by saying: "I mean really, really clever, clever than all of us" (p. 14). And he adds mockingly that "Singularity" will also possess "the ultimate truth", whereby the parallel with the Bible appears again. One of those who are thinking these thoughts further is Ray Kurzweil, the US techno visionary (1999, 2005). He in fact believes that AI will be much greater than human intelligence. From 2045, artificial machines will propagate themselves through better artificial machines in infinite series. In this way, intelligence will become separate from people and will turn into a super-being. As if this were not enough, Kurzweil also believes it will be possible to feed human consciousness into the Internet. This would separate not only intelligence but also personality from the body. While the body decays, both will continue to exist, and will thus become "immortal". - Bethge's mocking comment: "Well, if that's not God".

The author summarizes the above points as follows: "We have a Bible that provides the answers to all questions; Singularity is a type of God; we have eternal life; and, naturally, we have this host of honorary workers who feed the system daily with wisdom" (p. 15).

These results are confirmed and supplemented by a paradox, to which Jaron Lanier (2010), a well-known Internet pioneer, draws attention. According to this, Internet protagonists are members of a materialistic movement that relies on science, but looks "more and more like a

religion". This movement is creating its "own Last Judgment" and its "own vision of portentous happenings". Bethge spins this out even further by decorating the "Net church" with beautiful music, pictures and works of art, like a mediaeval cathedral, "but globally, a sort of globalization of church architecture" (p. 15). At the same time, he addresses the particular dangers of such an "i-religion". In his opinion, it can be used to "influence elections, conjure up financial storms and create false new realities" (p. 15). He describes a scenario in which the Net "takes over the direction of itself", and he refers to the novel *"Daemon"* by Daniel Suarez (2009), which shows how an intelligence that has become autonomous brings infinite evil for humanity. However, he then consoles the reader with pretended lightheartedness: "Perhaps the Net intends only good. For my part, I believe everything that flickers across my screen" (p. 15).

Comments

We are dealing here with a particular type of digitalization critique: a scientist reports on quasi-religious phenomena in the Internet and names significant features of this as well. However, he is far from being an advocate or even a promoter of such a change to transcendence and into the numinous. He does not admire these visions of Internet technologists and digitalists at all. No, he keeps his distance and signals this to the reader firstly, by using rather a light-hearted tone, and secondly, by writing ironically, as if he agreed with what he is reporting, whereby he exaggerates as well. The whole thing is such a pleasure to read, and yet is still a critique of digitalization - and not at all a concealed one.

What are the stylistic means of this author, who wrote this contribution not only as a scientist, but also as a journalist. The allusion to the line in the prayer "give us this day our daily bread" in the heading of his article *"Our Daily Net"* brings a smile, if not laughter, and brings about a relaxed mood from the start. It is very obvious that the author himself does not take his trip into the world of religion seriously. But then there is the extreme and very provocative announcement: "The Internet is God". We can feel here just how the author enjoys being able to bluff his readers in this laconic way. Turns of phrase such as "well, if that's not a God" or "and it gets even better" and "the Net church is not founded on old books" bear witness to his mocking detached manner.

Philip Bethge deviates considerably from the other critics of digitalization both with regard to the special theme he selected and to his unusual means. His satire mocks those experts who cross over the limits of scientific thought and action in the Internet and interpret technical processes in a religious manner. In this way he provides an interesting and effective contribution to the critique of digitalization.

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13 The admonisher: Susanne Gaschke

The Deeper Meaning of Reading

The German journalist and non-fiction author Susanne Gaschke was born in Kiel in 1967. She is married and lives in Kiel with her husband, Hans-Peter Bartels, and her daughter Charlotte.

Biographical background

Susanne Gaschke studied English, law and education. She was awarded a doctorate in 1993 for her thesis in children's literature, was trained at the Evangelische Journalistenschule in Berlin, and worked as a freelance journalist for the German newspapers *FAZ, Die Zeit*, as well as for *Norddeutscher Rundfunk*. Following an internship at the *Kieler Nachrichten* she was an editor in the politics section of the German weekly *Die Zeit* and then worked for the same weekly in the family and educational politics section. Among other things, she has written about ten major, highly respected articles for *Die Zeit* and three books: *"Die Erziehungskatastrophe"* (2001), *"Die Emanzipationsfalle"* (2005) and *"Klick - Strategien gegen die digitale Verdummung"* (2009). (Source: Gaschke, no year).

Motivation

Scepticism and suspicion appear to be the basic motives for Susanne Gaschke's critique. Here she lets herself be led consciously by her personal interests, which she passes on as well. In accordance with the main topics of her journalism - politics and family and education policies - she approaches the subject with five special concerns (2009, pp. 9-16):

- She wants to know how the Internet has an effect on political life in a representative democracy.
- She wants to clarify how far the "old" media, in particular newspapers and books, can be replaced by the Internet, or whether they will remain indispensable.
- She wants to stress how important it is to acquire reading skills in a digitalized society as well, and in particular there.
- She wants to deplore the destruction of traditional holistic education through extensive digitalization.
- And she wants to draw attention to radical social changes that are caused as well by the ideology of digitalization.

Beyond these five motives there is a further reason for her critique. This is the distaste that she feels for the many naive Internet enthusiasts who have succeeded in charging the Internet atmosphere for their own purposes to determine the consciousness of its users. This feeling may also have caused her to reach for her pen.

Main features of her critique

> *"There is nothing more dangerous than ideological promises of salvation, modern history in particular has horrific examples. This is why we should approach the new media with sceptical realism: they can do a lot, and people can do good and cause harm with them. We will be able to recognise this better, if our view is not clouded by incense". Susanne Gaschke (p. 16)*

The announcement of a book with the title *"Strategie gegen die digitale Verdummung"* (Strategies against Digital Stultification) arouses expectation of an aggressive polemic. And this is what this book is in its general tendency and in some parts as well. However, in the main the reader is drawn into an objective discussion that deals with the negative consequences of digitalization. In general, the author campaigns against the promise of salvation of the "digital natives" and the expectations of salvation of many protagonists of digitalization, including "journalists and scientists, education politicians and entrepreneurs" (p. 7), whom she refers to as "digitalists" (p. 23). They eulogize the Internet "as the way to knowledge and prosperity" (p. 20), and expect total digitalization to lead to the creation of many new jobs. They believe that the Internet opens up ways to "direct democracy", to the "democratization of knowledge", to the expansion of human perception, and to the development of self-controlled lifelong learners.

How does digitalization affect political life?

The author devotes a whole chapter, with the ironic title *"The Dream of the Supercitizen"*, to the answer to this question. Here she asks herself: "How much good does the Internet do our society?" (p. 24).

First of all, she investigates the question whether the super-fast news of social events that the Internet makes possible, for example through "hourly updates" improves people's knowledgeability. Can we refer to people as "well-informed", if this also means an understanding of backgrounds and relationships, and the creation of one's own reflected opinions and of judgements? Here is where the author's scepticism starts. She finds that the new medium is "breathless" (p. 140), because what is always important to it are "rapidity" and "simultaneity". But these categories are obstacles to the calm formation of political opinion. In contrast, she regards summaries in the old media TV and newspapers as much more suitable for this purpose. With Neil Postman (1996), she regards it as highly problematical if rapidity is regarded as the equal to progress.

Her second objection refers to the special nature of information available in the Internet: this is in the main "contextless" and users are bombarded with it, absorbing it only "here and there". This is why information that is found has to be selected first of all and placed into a specific social context.

Her third objection goes deeper. More and more young people, she finds, are no longer interested in social and general political problems. They are turning away. According to an empirical study by the Allensbach Institute for Demoscopy in 2008, "the range of interests of the young generation is changing slowly, but steadily. They are withdrawing more and more from subjects and discussions that deal with society, political possibilities, the economy, social questions or cultural themes". In contrast, preferred themes were "jobs, high income, good appearance" (Köcher, 2008). Corresponding

surveys in the USA led to similar results. According to the author, such social changes warrant great attention. In the long term, they were "a catastrophe for democracy" (p. 142). In the future, people will be consumers in the first place, and not interested at all in getting to know and helping to design their social environment.

Is this the consequence of the continuing digitalization of our lives? Many people think it is. However, the author argues cautiously here, because it is obvious that other factors play a part as well. She sees this turning away of users as not being caused by their eagerness to be up-to-date at all times with the help of the Internet. She does in fact suspect that the Internet, in the form in which it exists at present, does not arouse the political interest of young people. In view of this shortcoming, Susanne Gaschke believes politics needs "proximity, encounters, disputes, discussions". And as well as this, the "experience of struggling for an objective in person". This requires the "holistic experience" of real people "who know each other" (p. 10).

Another point in her critique is the support and advancement of the Internet by neoliberal economic interests, who now speak of the "knowledge society" that provides them with an opportunity to extend employees' competence through lifelong learning. The expression "knowledge society" has since become the "battle cry of digitalism" (p. 55).

In the section with the likewise ironic title *"Welcome to the heavenly city"* the author distances herself from the political ideas of many Internet enthusiasts. She quotes an essay by Nguyen & Alexander (1996), in which the very title, *"The Coming of Cyberspace and the End of Polity"*, announces the dissolution of the previous political order. According to this, the Internet enables a new form of democracy, namely, one that is "non-representative", but "basis-related". Here were no longer any hierarchies there, because everyone had one vote. Decentralism was taking the place of centralism, a widespread interconnectedness replacing isolation. In this way, nation states will be overcome in the end.

This image of a digital society is rounded off by pronounced statements of a series of other Internet experts that Susanne Gaschke refers to (p. 24). According to these, the Internet provides the individual with "greater autonomy", political communities with "more democracy", society with "more opportunities for self-reflection" and "more human connections" (Benkler, 2006). Furthermore, the Internet will be seen as a "heavenly city", in which peace rules, and in which "humanity will recover" (Benedikt, 1991). And, finally, the Internet is contrasted with the physical world, in order to create in it an incorporeal "civilization of the mind" (Barlow, 1996).

None of this is true, claims the author. Her suspiciousness prevents her from taking these predictions seriously. She tends rather to point to those consequences of interconnectedness that are not seen by the propagandists of the Internet. Following Richard Sennett (1998), for her, social differences, poverty, misery and unhappiness still continue to exist in the Internet. Representative democracy has proved its value. She does not regard basis democracy as practicable. Above all, she cannot condone the "unique fervour" of digitalists "against democratically elected governments in the West".

Can we do without the "old media"?

In the era of digitalization, cultural institutions such as television and radio, newspapers and books are losing influence and societal significance. Susanne Gaschke regrets this and observes how they carry on a bitter struggle for opinion leadership, whereby they

are about to draw the short straw with regard to advertisers. The author is embittered about this development above all because, in her opinion, these old media are more suitable for education and learning than the Internet in connection with all other digital media. Using newspapers as an example, she substantiates this opinion as follows:

In a comparison between acquiring information from the Internet and from a newspaper, the newspaper performs much better. It is true that the transport of information is slower in print media, but this can be an advantage in absorbing and processing it. Articles were usually longer and more carefully developed. Their length and positioning provided an indication of their up-to-datedness and the level of their importance. The contents were correct, their truth content was high, because articles would be checked several times. Headlines make an overview easier. A newspaper portions the contents. They pass on a manageable volume of information, and they have a beginning and an end. But above all, they inspire in their readers the feeling that they are taking part with many other readers in a discussion on current questions of their common history and social development.

This was not the case with the Internet. Although it was true that new information could be obtained in microseconds, it was brief, heterogeneous and arbitrary. It had first of all to be mined with great effort from digital infinity with the help of search engines, selected and then brought in the desired context, in order to develop one's own new "knowledge". In addition, in many area of the Internet, e.g. Wikipedia and blogs, the authors are unknown, and cannot therefore assume responsibility for their contributions, which fosters uncertainty in the reader, and also tempts many a user to misuse.

The relevance of reading and reading skills

With this theme we are introduced to the author's main concern. Following her relevant studies she is convinced to an enormous extent of the cultural relevance of reading: "A person who reads learns to think; learns to see things from someone else's perspective; to empathize; to understand the other" (p. 56). Reading therefore did not only impart mere information. It expanded consciousness as well". And she quoted (2007): "The process of reading changes us, our brain, but also our soul" (p. 68). With these quotes the author wishes to show what is at stake as a result of the increasing dominance of the Internet: reading books and newspapers is part of the daily continuing occupation of fewer and fewer young people and adults. Internet freaks even refused brusquely to read printed matter, fully conscious of thus behaving progressively. However, this had consequences that most people did not see.

With her arguments in favour of reading the author is following Neil Postman (1986), who described in his book *"The Disappearance of Childhood"* how the spread of literacy caused people no longer to regard and to treat children as small adults, but as in need of protection, who had first to learn how to read in school before being confronted with the secrets and existential questions of human existence. This led to the creation of a safety zone for children, in that the behaviour both of children themselves and of adults was changed in a typical way. Postman judged this to be a "civilizing achievement of modern times". However, this had been threatened and already lost through television, because it released children from their safety zone and confronted them with all the conditions of the adult world.

Susanne Gaschke stresses an important aspect of this process. Pictures on television had already ousted and devalued reading. This had an effect on adults as well. People who

once proved themselves as readers disappeared. However, with them "determination, the postponement of needs and logical thought" (p. 172) lost their value, and these were characteristics that are acquired and consolidated through reading. The author now explains how the devaluation of reading is continued even more strongly in the Internet. As a consequence of digitalization namely, the motivation to train reading skills is drastically reduced. General reading competence, for this reason, cannot develop in the same way as before. Because reading trains "analytical skills, powers of imagination and empathy" (p. 172), these competences, which are so important for learning, are also lost in front of a monitor, because they are no longer required to decode the visualizations on the screen. This again has deeper consequences.

Young people above all have by and large practically stopped reading, because they think that in the Internet they have all the necessary information before them in seconds on screen. However, Susanne Gaschke makes it abundantly clear what they are losing here. Following Dietrich Schwanitz (1999) and the dyslexia expert Maryanne Wolf (2007), she first describes typical experiences of traditional readers: they were able to "try out roles", to "switch over into the consciousness of another person" and to take up "radically different perspectives". Are similar things brought about when texts on a computer screen are read?

Surprisingly, the author answers this question in the affirmative, but with a proviso: the reader must be able to "concentrate" when absorbing the text, and to have "the same training in decoding" and in "integrating contexts, in comprehension" (p. 69). But how is reading on-screen actually done?

The author mentions the typical "read zapping", clicking from one Website to the next, the constant further references and the signals that notify incoming emails, and therefore make concentrated reading difficult. And she refers to empirical studies by Morkes and Nielsen (1997), who said that they had ascertained with the help of eye scanners how users read. According to them, 84% do not read at all, but merely fly over the first line, and then scroll further (p. 82). What is even more alarming is that experts are already instructing authors of screen texts to formulate as briefly and as simply as possible. For example, they recommend using half as many words for a paragraph in an on-screen text than in the corresponding paragraph in a book. Simplification of this kind, according to the author, aids and abets the flattening of reading, and contributes to the decline of culture.

Reading experiences in front of a computer screen are therefore different to those on reading a book. Ongoing use of a computer changes the brain from one that is used to reading to one that is characterized by digitalization, in other words to a brain in which neurons connect with one another typically in a different way. According to the author, this rigidifies the negative consequences of abstinence from reading.

The dissolution of the traditional definition of education

Susanne Gaschke's critique appears to be most stringent when she points out how destructively the Internet deals with traditional concepts for "knowledge" and "education".

In her opinion, the way in which, for example, Google stores and sorts knowledge and makes it available leads to the creation of a definition of knowledge. It is no longer a dynamic process of understanding, setting into relation, recognizing nexuses and interpreting, but "a measurable, enumerable, digitalizable raw material, an object that exists

irrespectively of how many people understood it" (p. 52). In this way, the definition of knowledge is objectified and externalized. But it is this retrievable knowledge that has an effect on the nature of learning and increasingly determines it. Searching for and acquiring knowledge were in the foreground.

At present, this conception of knowledge and learning is displacing what the latter were understood to be in educated middle-class society, and that still has an effect today. Previously "education" had "the whole person, his character and his power of judgement in view", not only imparted factual knowledge, but at the same time formed skills for analyzing, interpreting and creating, and assumed a hierarchy of knowledge. Before the onset of digital media in our world, in favourable cases people struggled "for a lifetime to develop the intellectual world in themselves" and strived to achieve the "maturity of the personality" (p. 173). In a world of information overload and the search for suitable contextless information, this striving is lost. According to the author, digitalists do not want to "struggle" to develop an intellectual personality, they want to "click" it. The consequence is disastrous for our cultural development.

The author quotes the US playwright Richard Foreman (2005), who describes the new life feeling of users as follows:

"While in the western cultural tradition the concept dominated that everyone had to construct the heritage of his culture as it were in himself, to understand human development on a small scale in himself, our perception is being displaced rapidly from memory to databases. I can see this in all of us, myself included, the exchange of this inheritance for a new inner self, which is developed under the pressure of information overload and the technology of availability at any time" (p. 173).

Foreman explains what results from this in a drastic metaphor. He calls people who have been through this school of digitalization from the start "pancake people". According to this, pancake personalities "are spread out wide and flat over a huge information and communication network, that does not demand depth from any one" (p. 173). In Susanne Gaschke's opinion, neither television nor the global computer network can be motivated "to maintain the complex internal self of earlier times" (p. 173). And she concludes sarcastically: "Pancake people are the ideal network natives, easily led, easily diverted, easy to interest in this and that, to get interested in 'friendships' with people that they don't know and won't get to know " (p. 174).

Susanne Gaschke is thus a champion of the traditional holistic definition of education and defends it. She recognizes how it is dissolving and losing value as a result of the digitalization of knowledge and learning. In general, old concepts, attitudes of mind, habits, ideals and aspirations were losing value. She senses that digitalization will lead to a "relabelling of commercial mass culture and digital confusion in education". This crass formulation betrays her fundamental disapprobation. For her "it is still fully open for now whether the digitally supported knowledge society will lead to more freedom, cleverer people, better politics - or whether it will simply destroy the traditional definition of education (character), in order to put randomness in its place" (p. 58).

In this desolate situation she calls for resistance: "The educated middle classes have every reason to be concerned about what used to be important to it – and ultimately to take a stance" (p. 55).

Radical social changes

Susanne Gaschke poses the fundamental question of the image of people that the digital society needs and engenders. In her opinion, people who communicate with the world digitally in the long term develop other perceptions, attitudes, behaviours and routines to people who were able to experience the world mainly in dealings with real persons and original things, and were also socialized in the age of the book. According to Neil Postman (1986), the culture of the book moulded people's behaviour in that it educated them to self-control, furthered the power of imagination and empathy, and aroused interest in the past and the future. But what will happen to these competences in the digital culture of cyberspace? What will happen once people have passed through "15 years of frittering away time online" (p. 184), have become used to "immediacy" and have let themselves be led astray by the "suggestion of proximity and availability"? (p. 184). A new and completely different image of humanity is being created in the radically changed circumstances of digitalization, claims the author. She hints at this be referring to two processes that are typical for Internet. Firstly, the "blurring of limits between ages and generations" (p. 174), in other words, the increase in the number of adults who still play games to pass the time when they are older in which players can, for example "steal cars or blow up scarred monsters" (174), which leads to childish behaviour growing into adulthood (p. 176). This type of infantilizing leads to the creation of the "child-adult" (p. 183). And secondly, "the ostentative turning away from politics" and the "ingenuous orientation to consumption" (p. 175).

Furthermore, the author's warnings about a social process in which neoliberal ideology and the ideology of Internet protagonists overlap are depressing. The image of humanity that is created here was described by Bill Gates, the founder of Microsoft, in the 1990s at a world economic forum in Davos: People should not "cripple themselves with a well-defined job […]", but "prefer to move in a network of opportunities" (p. 185). The author interprets this recommendation in the following way: "What is neoliberal here is the idea that people do not need a fixed job, a predestined career, clear responsibilities in the work organization, job security - and, of course, have never finished education or training. The belief that clearly defined knowledge could "cripple" is digital - because, of course, there is so much mobile knowledge in the fluid world of the Internet". This radical structural change to the image of an employed person certainly means deterioration in living conditions and thwarts all career and life plans. The PR experts of flexible capitalism sold their ideology by persuading people perfidiously that everything was for their good, for example "short-term employment contracts, internships, continuous restructuring in companies". All this provided employees with more free time and flexibility. The author thinks on the contrary that employees have been incapacitated, because they had to live constantly in fear of losing their jobs, and infantilized, because, as adults, under the new conditions they had to "feel small and make themselves small" (p. 188).

A further radical change to the image of humanity was announced, according to the author, in the ideas of Sergey Brin and Lawrence Page (2004). These two inventors of Google had a great interest in research into the further optimizing of search engines, and were bent on linking the world's biggest search engine at some time with human brains. When this happened, they enthused, "the world's knowledge will be linked to the human brain (p. 190). The author comments on such concepts with the indication that

ideologists liked to transcend in their promises and to promise a "new man". The flexible person in a flexible world of work of flexible capitalism, who is connected through a digital super-brain to the world's knowledge appears to be the present chimaera of a person in the digital age. In any case, as Susanne Gaschke laments with a bitter undertone, these concepts are accepted by digitalists without complaint, advocated and even propagated. And what is even worse, they are taken up usually ingenuously by government agencies, communications experts, journalists and media scientists and regarded as extremely important. A scandal.

Against the Internet enthusiasts

Susanne Gaschke is unable to understand the intensive enthusiasm that accompanies the process of digitalization. She is amazed at how very much the views and intentions of the "animated prophets" of the Internet are ideologically coloured, and criticizes the implacability with which they fight their corner (2009a). She regards their great expectations of salvation for a better future as being hardly substantiated. She dislikes the behaviour of the naive champions of the Internet. The way in which they "appear extremely convinced of themselves", and their "hermetic vocabulary" (p. 12) exclude others. She is irked by the "calculated optimism" (p. 14) of the enthusiastic disciples and protagonists of digitalization, who always refer to the very advantageous sides of the Internet in their reports, and block out the disadvantageous and damaging sides. She is concerned, even astounded, about the insouciance, even "passion"**,** with which "digitalists" trample over proven values, practices and experiences of real life. Finally, she contradicts those Internet prophets for whom the digitalization of our culture has become the "epitome of desirable progress" (p. 12), which may not be opposed by anyone who does not wish to be regarded as old-fashioned and completely obsolete.

The author is disappointed above all by those persons who should really be accompanying the digitalization of our lives critically, but in reality are some of its thoughtless supporters. She cannot understand why "journalists, scientists, cultural politicians and entrepreneurs" (p. 7) support the Internet trustingly and full of optimism, in spite of its recognizable negative effects. She reacts with great scepticism to their promises that the Internet will "bring more democracy, cleverer science, more responsible journalism and more social justice" (p. 7). In fact, she suspects that digital culture will tend rather to prevent such objectives being achieved.

Reception

Susanne Gaschke's book was generally received positively. Alexander Jungkunz, writing in the *Nürnberger Nachrichten*, thought it offered a "polemic that was worth thinking about". Silvia Petzke from *Redaktion Zukunft* (2010) writes that the author poses the "right questions for our society", and in the *Süddeutsche Zeitung* Johano Strasser, the well-known political scientist and author, recommended her book "urgently above all to parents, teachers and politicians responsible for education". Even bloggers have been positive about the book. It provided an "impetus for an overdue discussion" and is an "extremely interesting, arousing, stirring book" (Neuschäfer, 2009). It is "the right book for a return to a critical, rational use of computers and the Internet" (Turmvilla, 2009).

Negative voices: D. Koch (2009) accuses the author of suffering from "Weltschmerz" and of constantly "moaning". Dieter Geiger (2009) is "more than just disappointed". Jörg Thomann, in the *Frankfurter Allgemeine Zeitung*, regards the book as being "slightly one-sided" in the way in which the author "rails against digital stultification". Elsewhere, he calls the book "a tirade against everything and everyone in the Internet" (Thomann, 2009). For Klausebott (2009), the book is "an aggrieved outcry by the depressed mainstream, which has up to know claimed the prerogative of opinion and interpretation for itself" and which "is losing readers to the Internet ". He asks why "controlled tasters", by which he means the established "quality journalists", are still needed. His advice is not to buy Susanne Gaschke's book, but "to read an intelligent blog". These examples show how much enthusiastic digitalists feel stung by Susanne Gaschke's critique. She causes them not to deal with her in greater detail, but to react emotionally and even impudently, without substantiated reasons.

Comments

Susanne Gaschke's contribution to the critique of digitalization is highly interesting, because it informs us about important weak points and dangers of this innovation. Her intelligent arguments convince all those who think about the social and cultural consequences of the digital revolution and are concerned about the future development of society. Special features of her critique: she approaches her subject with a realistic assessment and describes it with a sceptical attitude. She counsels caution, weighs up soberly, has good reasons for her judgements, mistrusts mere promises and predictions, expresses her disapproval, shows her concern, is deeply irritated, accuses, demystifies, and calls for resistance. She wants to enlighten unsuspecting and naively enthusiastic users about the gravity of their situation. She warns, wants to galvanize people and provoke a change of thinking. She often uses irony, and in some cases sarcasm as well. The effect of her negative assessment is intensified when she argues convincingly how actual educational and cultural goals can - and even must - necessarily be achieved without networked computers. Her credo is that it is only in real life that we can acquire the skills of reading, thinking, grasping, understanding, judging and differentiating that we need to be able to work sensibly and successfully with the computer.

Susanne Gaschke's interpretation and arguments have substance because she refers to selected circumstances that she has already examined, considered, discussed and described in many ways as a journalist. In addition, she also refers to US experts, and in this way enriches the critique of digitalization with themes that are hardly dealt with, if at all: the nature of information and knowledge; the influence of medial communication on political life; the fundamental importance of reading for personal and cultural development; and the concept of holistic education. Her book is an original contribution to the critique of digitalization, above all with regard to these focal points.

We think that Susanne Gaschke is a courageous critic. She is courageous, because she defends her convictions unwaveringly, even though by doing this she opposes a trend that is becoming more and more intense and resists the current zeitgeist. She is even more courageous because she exposes herself with her strategies against digital stultification to the unbridled criticism and the coarse mocking of a large horde of Internet enthusiasts. She is also courageous because she says what a lot of people think but instinctively, or circumspectly, do not say or write, in order not to be thought of as

old-fashioned or simply as not very progressive. She is courageous because she admits that she appreciates and likes the "old" media. Finally, this author is above all courageous because, like no other critic of digitalization, she harks back clearly to the cultural legacy of the educated middle classes. She wants to retain it in part and does not want to do without its inherent concepts, including, above all, those of hierarchically structured knowledge and the educational "development of the personality". She makes no secret of her desire to transfer traditional values from the age of the book into the digital era. She sees namely how the randomness of mass information from the Internet basically leads nowhere and digitalization even destroys cultural values. With this argumentation she proves to be a cultural critic.

The author speaks out clearly against the "crude commerce of the Internet" She decries how educational and didactic processes are other-directed and frustrated by the commercial interests of software producers and Internet operators who are worth millions. She contradicts the widely-held opinion that youth today have different viewing habits, which is why they need a digital learning environment, and exposes this as "marketing lyrics of manufacturers". She does not want her struggle against the "forced logic of a major technology and the aggressive interests of its protagonists" (p. 192) to be understood as "cultural pessimism". She observes sceptically how protagonists of neoliberalism talk full of assurance about the "knowledge society" with regard to the new opportunities of the Internet, whereby they are not thinking about general personal development but above all the adaption of occupational competences in lifelong further training, in order words they are hoping for economic advantages.

Like most critics, Susanne Gaschke is not at all an enemy of the Internet. She does not want to limit it or scrap it. She even admits: "There is no need to stress the advantages of the Internet - from emails through the opportunity for organized cooperation of scientists to the rapid findability of important texts and books - they are enormous, and hardly anyone would want to do without them" (23). Her critique is therefore not directed at the Internet itself but at its widespread uncritical use. The Internet is by no means "natural", but is marketed by extremely rich companies in flexibly capitalism to increase their capital. She refuses to accept the current harmful use of the Internet as immutable destiny.

With a look at the overall effect of this book the impression is intensified that a weakness can be seen at the same time in the author's firm and decisive position. In spite of her look back at bourgeois educational ideals, the author is by no means reactionary, but deals minutely above all with the difficulties of digitalization in the present day. However, when she hopes to salvage central values of bourgeois culture in the Internet age, this gives rise to perplexity. She lacks consciousness of the fundamental change that has actually taken and the vision of the future. Basically, we are already having to cope today with the demands of the "next society" (Baecker, 2007). What has to be done is to attempt to recognize its structure and culture presciently and anticipatorily under the aspect of digitalization. The intellectual flexibility that is required for this would be good for the author and let her work appear in an even more favourable light. It is true that it is difficult to figure out the present interpenetration of deconstruction and construction, but in the present era of general uncertainty and rapid change this is desirable, and even necessary.

Susanne Gaschke discusses important problems of Internet culture and points to serious undesirable developments. She is a realistic observer and a persistent admonisher. Her particular effect is based on the exact description of her own original positions, her special interests and motives. This enables her to take up a clear position, above all against the digital mainstream. Because of the special nature of her approach, her contents and her journalistic-literary devices, and because of the effect of her book in the current social situation, she has made significant contribution to the critique of digitalization. She is often successful in naming destructive deep effects of digitalization that impact on and corrode social and cultural life and endanger future developments. Susanne Gaschke is an excellent critic of digitalization.

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14 The man of letters: Nicholas G. Carr

Are we sacrificing our ability to read thoroughly and think deeply?

Nicholas G. Carr, the internationally famous US author, writer of best-selling books, journalist, blogger and sought-after speaker, was born in 1959. He lives with his wife in Colorado.

Biographical background

Nicholas Carr studied English and American literature at Dartmouth College in Hanover, which was one of the first universities to deal with Computer Science. He gained his Bachelor of Arts here, and continued his studies at Harvard, concluding them with an M.A. in Linguistics. He then became managing and executive editor of the Harvard Business Review.

Nicholas Carr has written articles for many respected magazines. However, he is best known for four books: *"Digital Enterprise: How to Reshape Your Business for a Connected World"* (2001); *"Does it Matter? Information Technology and the Corrosion of Competitive Advantage"* (2004); *"The Big Switch: Rewiring the World, from Edison to Google"* (2008); and *"The Shallows: What the Internet is Doing to Our Brains"* (2010). This last book was nominated for the Pulitzer Prize in 2011. His books have been translated into twenty languages. (Sources: Carr, 2008b; Carr, 2011).

Motivation

Nicholas Carr's critique of digitalization is the result of an "awakening". As a student at Dartmouth College he got to know the first computers. As long ago as 1986 he bought himself a Macintosh and from then on he was caught up in the fast-spreading enthusiasm for computers. This led him to buy each new appliance together with its technical accessory media. As an editor, and later as a freelance journalist, he gathered rich experiences with his computer. For twenty-one years he acted as a convinced promoter of digitalization – until something unexpected happened to him in 2007: "A serpent of doubt slithered into my info-paradise" (2010, p. 16). He then noticed things he did himself that he had never noticed before: he was spending more time with the computer than he really wanted to. And the computer was influencing him to a greater and more varied way than he had previously assumed. In addition, he was unable to concentrate on a subject for longer than a few minutes. And, as if that was not enough, his brain seemed to have "changed somehow". With this "road to Damascus experience" a development began that turned a Saul into a Paul, that turned an enthusiastic advocate of digitalization into a powerfully eloquent, convincing and widely effective critic.

Main features of his critique

In its July/August edition in 2008, *The Atlantic* published a title story by Nicholas Carr with the, for many, provocative title*: "Is Google making us stupid? What the Internet is doing to our brains"* (Carr, 2008a). In this article he championed the thesis that the Internet has a harmful effect on cognition and reduces our ability to concentrate and contemplate. This article sparked a lively and excited debate in which most well-known US Internet experts

and very many bloggers took part. Carr had touched a nerve. In the article, Carr reports on his own experiences of how his ability to concentrate and his willingness to contemplate had been reduced through his continuous work with computers. While searching for an explanation, he had come across a study from University College London. According to this, a new type of reader had been formed at the computer. He also referred to research by Maryanne Wolf (2007) that found the following: the neural circuits in the brain differ in a specific way during reading texts in different languages. From this, Carr draws the conclusion that the neural circuit that is created on regular use of the Internet may be different from the one that is formed by reading books. Two years later, he discussed these questions in great detail and thoroughness in the 276 pages of his book *"The Shallows"* (2010). Because Carr discusses fundamental findings regarding the harmful effects of digitalization in this book, they will be shown here in a brief summary in the order in which they appear in the book. At the same time, this critic's special presentation strategy will become recognizable.

The full title of this book is *"The Shallows: What the Internet is Doing to Our Brains"*. Nicholas Carr wants to prove to insouciant Internet enthusiasts and indifferent users that changes are taking place in their brains that are caused by the permanent regular use of networked computers. The message is that the computer is changing our brain, but not for the best. In his opinion, computers and the Internet are training people to abandon tried and tested forms of reading, thinking, writing, learning and studying, and to jettison traditional ways of looking and understanding their life world. Both these things were contributing to forming people with accidental, volatile knowledge and a superficial view of the world. With the "shallows", the author means the shallows in the Internet, which lead users into superficiality. The extensive and very detailed book substantiates and underpins this message from different aspects.

In the **first chapter** (*"Hal and Me"*) the author describes in detail his already illustrated conversion from an intensive champion of digitalization to its convinced critic.

Chapter 2 (*"The Vital Paths"*) is a detailed report on research findings on the question that is fundamental for Carr's critique of whether the physiological structure of the human brain is fixed, rigid and unchangeable in adults, or is plastic and flexible. Although knowledge about the brain was considerably extended in the 20th century, according to Carr, the assumption of its unchangeability has remained firmly anchored among most biologists and neurologists. For centuries, people have been of the opinion that the structure of adult brains solidified and never changed. In this question, Carr is of the opposite opinion. Because this finding is a precondition and cornerstone of his critique, he has included a remarkable number of research findings that confirm his conception of the "plasticity of the brain", starting with Sigmund Freud and William James, and ending with Alvaro Pascual-Leone.

In the latest research into the brain Carr does in fact find many indications of its plasticity. It is able to form new neural circuits throughout the whole of our life. And in 2005, Michael Merzenich, a neurologist at the University of California, even stressed that the Internet caused not merely minor, but fundamental changes in the brain, and could even generate "DIFFERENT brains" (p. 120). Carr refers to "vital paths" in our brain that most people take at any time. But, with regard to his critique of the computer, he adds, pointing to the risks, the further we move away from these paths, the more difficult it is to return to them.

Chapter 3 (*"Tools of the Mind"*) comprises a brief history of media, but the author has a particular aim in mind here, namely to impart the following insight to his readers: each new technical medium changes the situation in which we find ourselves, in some cases even gravely. As an introduction, he illustrates this process by means of the technical media "map" and "mechanical clock".

A map was not just a medium on which information is stored and passed on, but also a medium that imparts a special type of seeing and thinking. With the spread of map-reading, a specifically new way of seeing and understanding the world was formed. In this way, maps advanced the development of abstract thought. What maps brought about for the dimension of space was achieved for the dimension of time by the mechanical clock. The spread of mechanical clocks in public "changed the way people shopped, played, and otherwise behaved" (p. 43). The spread of personal clocks reminds their owners of ways of experience that are caused by "estimated time, consumed time, wasted time and lost time". In addition, in western civilisation personal time had led to individualization and changed the way in which we see ourselves, but, even more than this, it had caused people to adapt the capability "to stress the methodical mental work of division and measurement" (p. 43). In this way, the mechanical clock participated in the creation of scientific thought and the development of scientists.

Following this, the author discusses in particular "intellectual technologies", namely from the era of the first cuneiform writings on clay tablets 8,000 years ago to the emergence of writing based on the complete phonetic alphabet in Greece 4,000 years ago, through to the replacement of oral culture by written culture. Carr's aim with these examples as well is to stress the respective consequences for people's thinking and behaviour, whereby he emphasizes in particular the influence of each medium on the human brain. According to the author, neural connections in the brain that were not previously present were required even with the first and simplest of these media, namely, scratching marks on clay tablets to check cattle numbers. Synapses would have to have been formed between the visual cortex and the nearby region responsible for understanding. The replacement of the culture of the spoken word with the culture of the written word, which Carr calls a revolution, caused decisive changes to people, their memories, languages and, naturally, brains.

In **Chapter 4** (*"The Deepening Page"*) Carr provides a brief history of media that can be written on. He shows the respective influence that, for example, clay tablets, papyrus scrolls, wax tablets and, finally, books, had on people's thinking and behaviour. According to Carr, reading a book "was to practice an unnatural process of thought, one that demanded sustained, unbroken attention to a single, static object" (p. 64). In addition, people had to learn to ignore everything that was going on around them. And he describes the great influence that printing exercised on cultural development, above all in science, education and training. These historical considerations are important for Carr, because with them he is able to weaken the arguments of those users and experts who deny similar effects of the computer, namely by claiming that a computer is nothing other than a tool, an instrument, with which set targets can be achieved. Adherents of this view are known as "instrumentalists.

After this thorough introduction, in **Chapter 5** Carr presents the computer as "*A Medium of the Most General Nature*". It unites ten otherwise separate media and in this way alone acquires its great versatility, which increases to immeasurability through networks and

many new service offers. We had welcomed each of these extensions, because they are extremely useful. But hardly anyone paused and pondered on this media revolution, let alone called it into question. However, Carr thinks that he has observed the following negative effects:

- The time for reading printed material and books is considerably reduced.
- The old media were losing their economic and cultural power.
- The future of knowledge and culture is no longer determined by the book and other old media, but by the new universal medium, and at the speed of light.
- The change from paper to screen changes our way of navigating, our concentration and the degree of our immersion in the contents.
- The Internet causes us simply to "skip over" a series of texts, instead of concentrating on them in full and without interruption.
- Navigation is linked inextricably with distraction.
- Our attention to a specific text is becoming weaker and more temporary.
- Written texts are being fragmented. People work with scraps of texts.
- Bringing several types of text together on the computer screen fragments original texts and interrupts our concentration.
- The cacophony of stimuli is distracting.
- The hegemony of the Internet over the form and the dissemination of information is growing, which is leading in many cases to the retreat of traditional media.

In **Chapter 6** (*"The Very Image of the Book"*) Carr compares the particular advantages of the book with those of digitalized text. Each of these two media has advantages that the other does not. Amazon's Kindle facilitates reading downloaded books, but converts them into hypertext, because it adds background links to other texts, e.g. encyclopaedias, Wikipedia or sources. This points out the direction the journey is taking. The new medium is not used simply to reproduce the text of a book. Rather, the reader is tempted by the many technical possibilities of the Internet, encouraged and urged to convert the static and fixed text of the book into a dynamic text that is allegedly "freed of its chains, and whose processing will never be concluded. The protagonists of digitalization want in this way to "improve" the text of the book through extensions in order to achieve a higher quality level. Links to additional comments, interviews, podcasts and videos would then enrich the text.

Here is where Carr's critique begins. "Extensions", "improvements" and "dynamizations" of this kind change not only the contents of the book but also the traditional way of reading and writing. His judgement is harsh: "A digitalized book is just as little a book as an online newspaper is a newspaper" (p. 103). To characterize the degree of the corresponding change, Carr passes on impressions that several authors had when reading such digitalized books. Total immersion in another world was not possible; the book is read the same way as magazines used to be read, a little bit here and a little bit there; there is too much distraction; the reader cannot concentrate and cannot retain what has been read. The changes to writing digitalized books were even more dramatic. The narrative linearity is abandoned in favour of

individual modular building blocks, or even mosaic texts, sections are made recognizable for browsers by means of key words in the margin. Authors are urged to formulate headings that do well in Google's statistical rankings. According to Carr, the attitude of authors to their work is, naturally, changing as well. The author's original keenness to deliver a perfect manuscript for printing was waning. The inclination to write informally was on the increase - as was pleasure in the provisional way of working and speed.

As the author then reports in a historical review, the book has been under threat several times in its existence - in the 19th century from newspapers and the phonograph, and in the 20th from radio and television. The book survived these phases successfully. However, Carr regards the latest threat from the Internet as much more effective, which is true insofar as Amazon already sells more e-books in the USA than traditional books (Netzwelt, 2011). In spite of this, the book has still not lost its significance, is still in daily use and will continue to play a reduced role in future as well. What is decisive, however, is how we work with our computers. "In the choices we have made, consciously or not, about how we use our computers, we have rejected the intellectual tradition of solitary, single-minded concentration, the ethic that the book bestowed on us. We have cast our lot with the juggler" (p. 114). Here Carr is referring among others to users who are able to process several programs simultaneously by multitasking.

In **Chapter 7** (*"The Juggler's Brain"*) Carr asks what psychologists, neurobiologists, educational scientists and web designers have discovered during their investigations of the effects of the Internet on our brain (mind). The unanimous summary of these researchers is that the Internet "promotes cursory reading, hurried and distracted thinking, and superficial learning" (p. 116). The author characterizes these findings in the following way: "One thing is very clear: if, knowing what we know today about the brain's plasticity, you were to set out to invent a medium that would rewire our mental circuits as quickly and thoroughly as possible, you would probably end up designing something that looks and works a lot like the Internet" (p. 116).

Carr underpins this general finding with evidence from the findings of many empirical studies. As has already been said, the effects of the networked computer on the brain are not merely a "modest alteration", but "fundamental changes" (Merzenich, 2005); the computer influences "the style and depth of our thinking" (Sweller,1999); there is a "strong correlation between the number of links and disorientation and cognitive overload" (Zhu, 1999); hypertexts do not lead at all to an improved reading experience, but impair reading performance (DeStefano & LeFevre, 2007); multimedia do not appear to improve the acquisition of knowledge, but to worsen it (Rockwell & Singleton, 2007); multitasking inhibits our ability to think deeply and creatively (Grafman & Riesberg, 2006); the new visual-spatial skills that are acquired at the monitor undermine the deep processing methods on which the reflected acquisition of knowledge, inductive analysis, critical thinking, imagination and reflecting are based (Patricia Greenfield, 2009).

Carr concluded the list of empirical evidence with a comment from Michael Merzenich: "As we multitask online […] we are training our brains to pay attention to the crap". The consequences for our intellectual life may prove "deadly" (2010, 142).

In **Chapter 8** (*"The Church of Google"*) Carr describes Google, the multi-billion global company, as a "church", because it has dedicated itself to the "religion of Taylorism" and has committed itself to it with religious fervour. At the beginning of the 20th century Taylor

used time and motion studies to develop a system of scientific management. He broke down work processes into small sections, optimised them and attempted to realize "maximum speed, maximum efficiency and maximum output". This method achieved globally overwhelming success on the industrialization of work processes. However, Taylor believed that he could also optimize society with his method. In vain. The author criticizes that Google was about to apply the "ethic of Taylorism" to the area of thought as well. "What Taylor did for the work of the hand, Google is doing for the work of the mind" (p. 150). Google in fact subdivides data into small units, calculates their frequency with statistical methods and offer them for other uses. Speed is of the essence. Ambiguities, subjectivity and complexity were regarded merely as hindrances. Google also conformed with Taylorism in its "messianic belief" in its own cause. For this reason, Carr calls Google's head office in Silicon Valley "the Internet's high church" (p. 150).

In a historical sketch of Google's development Carr integrated substantial critical points:

1. Google has now grown into a digital tower of Babel. The system not only permits fast access but also shapes our relationship to the imparted content, which it transports so efficiently and in such profusion. Its intellectual technology facilitates fast and superficial siphoning of information and discourages all deeper, longer-term engagement with a single argument, idea or story (p. 156).

2. It conceals economic calculations, because Google's profit depends directly on the speed at which new information is repeatedly requested. In this way, Google receives the greatest possible volume of data about us and uses it for commercial purposes. Carr: "The last thing the company wants is to encourage leisurely reading or slow, concentrated thought. Google is, quite literally, in the business of distraction" (p. 157).

3. Carr also criticizes a Google project that exceeds even our wildest imagination: every single book in the world is to be digitalized. While this gargantuan project does in fact offer great advantages because of the enormous increase in the accessibility of the books, but considerable negative side effects have to be put up with as well. The book would be taken apart digitally, so to speak, whereby coherence, linearity of arguments or narrative are abandoned. Above all, each page will be surrounded by snippets of text, a clutter of links, tools, tabs and adverts, all of which want to draw the reader's attention to themselves. But it is even worse than this. The texts would be cut into slices, which would then be jumbled up, in order to be linked or aggregated somewhere else. Google has already developed a cut-and-paste tool for this purpose. According to the author, all this showed what a book means to Google, not an independent, self-contained literary work, but a much larger volume of data, that can be dismantled and broken down and used to make a profit elsewhere. For Carr, the huge Google library is by no means competition for traditional libraries, because it is not a library of books but a "library of snippets" (p. 166).

Chapter 9 (*"Search, Memory"*) is an essay on the change that perceptions of the role of memory have undergone in the course of history. Carr describes the great importance attached to memory in remote antiquity. For the Greeks, memory was the goddess Mnemosyne, the mother of the Muses. For Augustine as well it was the "reflection of God in man". Erasmus perceived memory not only as a container, but also as a melting-pot, in which earlier and different knowledge are mixed and pervaded with new knowledge. Into the 20th century, remembering was at the same time an art of thinking (William James).

Today, however, protagonists of computer culture suggest that the computer's mechanical memory is ceasing simply to supplement natural memory, because it is also replacing it. Don Tapscott, for example, suggests that using one's natural memory is simply a "waste of time" (p. 181). Perceptions of this nature are fostered because for some time now technology enthusiasts have misunderstood the human brain as a computer.

Carr clears up this misunderstanding thoroughly by basing his arguments on research findings of psychologists, physiologically trained psychologists, biologists and biochemists. According to these findings, the human brain is an extraordinarily complex organ in which implicit and explicit remembering and short-term and long-term memory are harmonized with one another. Memory is subtly influenced by the respective environment and personal experiences. It works in infinite gradations and still processes information long after receiving it. It changes when the body changes. The acts of remembering modify the brain in a way that facilitates the learning of ideas and the acquisition of skills. We increase our intelligence with each extension of the neurons and synapses. The reception of new information is therefore not a mechanical process, but is influenced by concentration and intellectual and emotional involvement.

However, when we work online, competing information leads to an overload of our working memory, so that its consolidation cannot start. The more efforts we make to train our brain to withstand the many distractions on the screen, and strive to process the required information quickly and efficiently, the more the brain is induced to forget. At the same time, it loses the ability to remember. In this way, according to the author, we are abandoning the control over our concentration - at our own risk. If we "outsource" our memory, and hand it over to networked computers, as the hardliners among Internet protagonists demand, we will lose an important part of our intellect and our identity.

But the loss is even greater than previously described. Personal memory has an effect on, and at the same time preserves, collective memory. In turn, collective memory supports culture. Carr explains: "Culture is sustained in our synapses" (p. 196). And he adds: "If we transfer our memory to external databases, we threaten not only the depth and distinctiveness of the self, but also the depth and distinctiveness of the culture in which we are all participants" (p. 196).

In **Chapter 10** (*"A Thing Like Me"*) Carr argues on the basis of media theory, in order to put forward once again his thesis of the great effect of the networked computer on the brain. The close link to our tools always has an effect in two directions. "Even as our technologies become extensions of ourselves, we become extensions of our technologies" (p. 209). Each tool that opens up new opportunities for us also forces restrictions on us. When a farmer ploughs his fields with a giant tractor, he can cultivate much larger areas in a short time, but he loses the physical contact with the earth, which he no longer touches. When we travel by car, we travel longer distances, but we lose the familiar relationship to the landscape. Finally, he draws the readers' attention to the "tools of the mind", that is, to networked computers and digital peripheral appliances. They offer not only enormous advantages, but also circumscribe "the most intimate, the most human, of our natural capacities – those for reason, perception, memory, emotion" (p. 211).

Based on studies by James A. Evans (2008) the author reports in this context on the effects of search engines. These provided unheard of advantages, but they restrict as well. Because they filter information automatically, popular information tends to be given more weight.

Because this information is constantly repeated, and thus reinforced, a consensus is generated regarding which information is important and which is unimportant. But this constricts science. The following finding by Antonio Damasio et al. (2009) was apt with regard to the constant on-screen distractions and the emphasis on speed: the more we are distracted, the less we are able "to experience the subtlest, most distinctively human forms of human empathy, compassion and other emotions" (p. 221). Carr's conclusion: the Internet is restructuring our nervous system, but in doing so lessens our capacity for contemplation and changes the depth of our feelings and thoughts.

In an **epilogue** Carr provides the following declaration: in spite of all the criticism, the speed and efficiency of work with networked computers provides advantages whose desirability is beyond doubt. In future, however, we should not be too complacent about following what computer engineers and software producers write as a scenario for us.

Reception

On the whole, Carr's book was received positively. In Nicholas Carr's blog *ROUGH TYPE* on 26 April 2010 (Carr, 2010a) the following assessments can be found, among others:

- Reading expert Maryanne Wolf is of the opinion that "only a few works may be more important" than Carr's.
- The *Library Journal* judged: "A deep, insightful study" and "a fantastic investigation".
- Tom Vanderbilt, an author, applauds the book for not being either a demagogically alarming lament or a quiet optimistic ode to the digital world, but "an extremely thoughtful, surprising exploration of our overwrought psyche in the age of the Internet".
- The poet Dana Gioia writes: "Nicholas Carr examines the most important subject of present-day culture" and "the uncanny, new, artificial world in which we now live".
- The author Mathew B. Crawford reacts with the greeting: "Welcome to the dark recesses [of the Internet], where work has started on reversing the education of homo sapiens".

However, Carr's view and findings have not proved popular everywhere, which was to be expected from the start. Adam Thierer (2010) explains why: for many people, this author was "a skunk at the cyber garden party" that took the liberty of not finding that everything in the brave new digital world was good. As an example of a member of the large group of those who remain completely unimpressed by Carr's critique we can turn to Peter B. Zaboji (2010), who apostrophized him as a "neural cultural pessimist", a "fundamentalist critic of technology", a "debate artist" and “carper", and complained about his "elitist bibliophile delusion".

Comments

With his book *"The Shallows"* Nicholas Carr presents us with a thoroughly planned, carefully researched, intelligently conceived and brilliantly written critique of digitalization. The author does not take centre stage rhetorically, but maintains a low profile by quietly and calmly presenting well-chosen facts that encourage readers to form their own opinions. Carr convinces through objectivity and logical arguments. His text is attractive and often fascinating. Carr's lucid academic prose facilitates access to his demanding deliberations and impresses through its wealth of ideas. The author also proves to be a skilful moderator of important voices from many disciplines. He draws on a great number of first-class research

findings, which are verified precisely and are easy to find thanks to the index. He quotes many Internet experts, and not just from the USA. Carr acts neither as a spin doctor nor as a polemicist. He does not rant or censure, and neither does he accuse. His critical arguments convince through plausibility and eloquence. With an impressive systematization he adds one building block of his argumentation to another and illuminates problems from several sides. Here he proves himself to be an extremely well-read and knowledgeable guide through the empirical findings of neurophysiologists, neuropsychologists, psychologists, psychiatrists, pedagogues, reading research experts and, naturally, of other computer scientists as well. In spite of his description of details he does not lose sight of the overall target and never deviates from the general line of his exposition. His book should stir even outright champions of the Internet to reflection.

"The Shallows" is broadly based. While Carr does in fact deal in the main with the disadvantages and dangers of digitalization, and has his finger on the pulse of the age, at the same time he also reports on historical development of technical information media, which starts long before antiquity and has reached an incredible culmination with today's digitalization. His book also contains a historico-cultural and cultural-critical examination of information media, a description of the positive effects of reading books, a treatise on the amazing accomplishments of the human memory and a critical assessment of Google.

Carr's conclusion is that regular and steady users of the Internet lose their ability to concentrate and can no longer reflect on contents they have read, because the Internet not only inundates them with information but also compels them to speed and simultaneity of work processes, and in addition systematically distracts and dissipates their attention. Users lose the skill of "deep reading" and of "deep thinking", which must have enormous consequences for future cultural development. In addition, he discusses the question whether such behavioural changes show up in our brain as well. He answers in the affirmative by vouching for his arguments with the findings of studies by numerous experts from all over the world. In great detail he describes the impact of the networked computer on the brain's neural pathways, which leads to lasting changes that affect above all thinking, learning and studying. In this way, a new understanding for the interpenetration of human life and technology is opened up.

Although Carr's arguments are clear and his critical objections are convincing, he is by no means a Luddite, and in fact he is not even someone who rejects the networked computer. In the face of the lively discussion he remains calm, and, naturally, he writes his books with the help of a computer. He even confesses to want to make use of all the services of the Internet again after completion of his last book manuscript. As an author, the computer is even a "godsend" for him (Carr, 2008a). Basically, a certain ambivalence is reflected in his attitude, which can be explained, however, by the precarious situation in which our culture finds itself as a result of digitalization. It is true that Carr does not arouse any anxieties, verbally, but he imparts insights indirectly that lead us look into an uncertain digital future, in which never previously known benefits will be coupled with mental changes that have never been thought possible.

Nicholas Carr is a perceptive, precise and systematic describer of negative consequences of digitalization. By concentrating on the effect of the Internet on the human brain he concerns himself with one of the most important topics of our cultural further development. His many exhaustive and detailed references to current research findings and his wise interpretations

compel us to express our views. His analyses have depth, because they include the historical dimension of the effect of technical media. He shows us repeatedly how, over thousands of years, each new technical medium has changed people's behaviour and their view of the world, a process that applies analogously to the networked computer as well. This finding is communicated and backed up in detail, in order to move the many users who regard the computer as "harmless" and do not perceive, or in fact deny, its impact on our brains, to rethink. Accord to this, all users are not only witnesses but also victims of grave mental and social transformations. The digital revolution is involved in instigating an epochal change, which will have significant social, anthropological and cultural consequences. The Shallows is an outstanding book, because it not only informs readers about the social change that is taking place, it convinces them of it as well. It will continue to play a considerable role in particular because of its balance and impressive solidity. Nicholas Carr is a sound, brilliant and superb critic of digitalization.

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15 The debate instigator: Frank Schirrmacher

Help! "We are losing control over our thoughts"

Frank Schirrmacher**,** born 1959 in Wiesbaden, is a German literary scholar, essayist and successful author. Since 1994 he has been responsible as co-publisher for the arts section of the *Frankfurter Allgemeine Zeitung*. He is married to Rebecca Casati and lives in Frankfurt am Main and Potsdam.

Biographical background

Frank Schirrmacher was educated at the Humboldt-Schule, a private school in Wiesbaden, where he also sat his university entrance certificate examinations. He studied German Philology, English Studies and Philosophy at the universities of Heidelberg and Cambridge, and also studied in Montpellier and at Yale. He was awarded a doctorate by Siegen university with a dissertation entitled *"Schrift als Tradition - die Dekonstruktion des literarischen Kanons bei Franz Kafka und Harold Bloom"*. Frank Schirrmacher came to the attention of the public as author of three books.

His first book, *"Das Methusalem Komplott"* (2004), deals with the subject of the senescence of society, which is caused by the steady reduction in the birth rate. People will get a shock, the author prophesies, if this trend escalates further. He calls for a "militant revolution of our consciousness" in order to overcome anxiety about old age. Schirrmacher achieved enormous success with this book, thanks to a successful marketing strategy as well. It was very well received in the press and was translated into fourteen languages. Schirrmacher's second book, *"Minimum"* (2006), deals with the dissolution of the family and the restraints on all social relationships generally. His third book showed him after this to be a critic of digitalization: *"Payback. Warum wir im Informationszeitalter gezwungen sind zu tun, was wir nicht tun wollen und wie wir die Kontrolle über unser Denken zurückgewinnen können" (Payback. Why we are forced in the information age to do what we don't want to do, and how we can regain control over our thoughts)* (2009).

Schirrmacher has received many awards for his journalism and his work as an author. He was awarded the Corine International Book Prize and the Goldene Feder media prize of the Bauer-Verlagsgruppe. In 2004 he was voted "Man of the Year" by Medium Magazin. In 2007 he was awarded the Jacob-Grimm-Preis Deutsche Sprache, in 2008 the Catalan Culture Award, and in 2009 the Ludwig-Börne-Preis. (Sources: WHO'S WHO, 2011; Schirrmacher, no year; Schirrmacher, no year a).

Motivation

This author's critique was obviously triggered by a disturbing personal experience. The title of the very first chapter betrays this: *"I cannot get my head around this"*. He confesses that he was no longer able to cope with the mental challenges of the times (2009, p. 13). He was certainly able to learn, "but something was wrong" (p. 14). He was "unconcentrated, forgetful" and easily distracted (p. 15). And, appalled, he confesses: "I feel that my biological terminal in my head has only limited functions, and in its confusion is starting to learn a great number of wrong things" (p. 14). On the cover of his book he also mentions the

"feeling of being imprisoned in a state of constant alarm, constant distraction, chronic mental overload and permanent self-exploitation".

These experiences may have motivated Schirrmacher to look for the causes of the changes to his behaviour. But there are further, general motives behind all this. With his first two books he took up subjects that were of great social relevance and also triggered corresponding discussions, but were hardly noticed at all in societal practice. In both cases, his motive was to draw people's attention to dangers and undesirable developments. His civic responsibility, as an intellectual as well, prompted him to warn urgently. In his third book he wants to warn about an acute social problem by enlightening readers about the downsides of digitalization and warning them against continuing to take each day as it comes in the digital future, blindly and unconsciously.

Characterization of the content

The book consists of a framework of different texts, which are coordinated with each other. There are personal confessions of the author regarding the grave way in which he himself became a victim of digitalization; emotional passages in which the reader is informed of drastic changes; analyses and interpretations that investigate the problems of digitalization more deeply; discussions of research findings with which referenced circumstances are substantiated; as well as recommendations and advice with whose help digital constrictions and adverse effects can be overcome. Some examples of each of the text types referred to are shown below.

Unsettling effect

In order to interest contemporaries in his critique, to bring them to read his book and to talk about it, the author plays with their sensitivities. He chooses formulations that generate anxiety, and in acute cases cause people to be frightened. In the advance publication of a chapter of his book in the weekly magazine *Der Spiegel* he asks, for example: "Who is eating whom in the digital society?" The chapter titles in the first part of *"Payback"* have an effect that ranges from unsettling to disturbing. Right from the start they give the reader an idea of what we can all expect because of digitalization. In detail, he registers the following: we can no longer cope with the new mental demands of the computer. Our brain is changing structurally. We are suffering harm to our health. We are being forced to adapt to the machine. Our short-term memory is suffering from turbulences and is malfunctioning. The multitasking capacity, which is praised as progress, is actual bodily harm. Based on data that is stored for years, computers get to know us in minute detail and have a corresponding effect on us: the computer as a tool is remoulding its inventor.

Emotional dimension

The author fascinates readers in his text as well. He involves them by addressing them emotionally. Some variants of this strategy are shown here as examples.

Feelings of apprehension. The author reminds us that we are in a "digital revolution": "It is a process without precedent. No one can now be in any doubt that we have entered a new era, but the misgivings about where it is leading us remain" (2009a, p. 126). Most readers, and this is obvious, are unprepared for such radical changes, either in their perceptions or in their practical lives.

Feelings of being overtaxed. Schirrmacher, a well-regarded intellectual, holder of many awards, confesses that he is overtaxed as a user of the information flood. The great majority of average readers must therefore fear that their brains function to a much lesser extent when working with computers. They will probably also gain the impression, if they test themselves, that they are even more unconcentrated, forgetful and distracted than Schirrmacher.

Feelings of agitation, even of alarm. These surface when the author describes the deeper dimensions of the change that we are inescapably delivered up to. For example, he claims: "Our thinking apparatus is changing" (p. 31).

Feelings of fright. These are triggered with regard to the heralded technological excess, and refer not to future robots, and not to AI either, but to present developments. We are experiencing in placeless and timeless virtually the "growth of a vast synthetic brain" (*2009a, p.126*). This is coming into being because all information provided by users is stored, something which, according to the assumption, adds up to and exponentiates the intelligence of the many.

Feelings of anxiety. The author confesses that he is no longer able to think correctly as a result of using computers. He sees people suffering from "information overload" everywhere in many professions (2009a, p. 126) and detects the inevitable consequence: "We are forgetting how to think independently, because we no longer know what is important and what is not" (2009a, p. 127).

The apprehension about becoming a slave of the computer. Readers get the impression that their work and lives are determined more and more by machines. In digital space, many of their decisions are being taken over by machines, and their software even forces them to think and behave differently to what they actually want: "We will soon subject ourselves in all areas to the authoritarian rule of machines. Because thinking is moving literally to the outside, it is leaving our internal selves and is being acted on digital platforms" (2009a, p. 127).

The concern about losing our own freedom. The freedom to inform oneself is increasing, while our personal freedom is being greatly reduced. (p. 73).

By arousing and reinforcing readers' emotions in this way, Schirrmacher generates ambivalent feelings. On the one hand, as the articles in the press prove, readers already have a particular interest in threatening, dangerous and spectacular developments. On the other, readers must be concerned that they will be swept away by them and become their victims. Feelings of alienation may also germinate that lead easily to resistance.

Analyses and interpretations

At many points in his book the author impresses readers with remarkable passages that initiate a new and in-depth understanding of digitalization.

Three ideologies

Schirrmacher describes how the complex evolvement of digitalization is affected by elements of three ideologies of the 19th century: Taylorism, Darwinism and capitalism. Taylorism strives to optimize work and make it more efficient, and can be seen in multitasking, Darwinism rewards the quickest in the hunt for new information, and

capitalism leads to "self-exploitative micro-work, which benefits Google above all" (p. 19). We are given further information about the first two ideologies of digitalization.

Digital Darwinism.

According to Schirrmacher, the wording of "survival of the fittest" should be interpreted as the "survival of the best-informed". Only those who are informed "quicker and still quicker" have an advantage, and this "applies to news consumers, bankers, politicians, as well as Facebook members" (p. 121). These findings are interesting insofar as they suggest that digitalization is not a systematically calculated process, but an evolutionary one. According to this, all information is in a struggle for attention. The winner is the information that is most requested, and which is referred to more than any other pieces of information in links - and this is irrespective of its quality. Google contributes to this completely along these lines with its page ranking. The "Matthew effect" is found here dramatically, as reported in the New Testament: "For whosoever hath, to him shall be given, and he shall have more abundance: but whosoever hath not, from him shall be taken away even that he hath" (p. 123). Well-known authors are in fact referenced more often than unknown authors and become famous, the rich get richer and the poor lose the little that they have. For the author it is therefore clear that "The Matthew effect is the genotype of the Internet and of all digital technologies" (p. 123).

Digital Taylorism.

Frederick W. Taylor was an American engineer who developed "scientific management" at the beginning of the 20th century. He revolutionized industrial production by developing and introducing precise time-and-motion studies. To do this, he broke down work processes into the smallest units, which he optimized in each case with a stopwatch and a slide rule, in order to increase the quality of the output in this way. It was important to adapt the machines to the performance capabilities of the workers, and, vice versa, to adapt the workers to the requirements of the machines. Schirrmacher argues that many of the "inhumane efficiency methods of the industrial working environment" are attributable to Taylor (p. 49). He took over the expression "digital Taylorism" from the US publicist Maggie Jackson. She says that the computer also works with small units and "carves up life, time and thoughts". Schirrmacher states: while Taylorism tried to adapt the human body to the machine, digital Taylorism is concerned with adapting the human brain to the computer. As a consequence of this "epochal self-test" Schirrmacher registers "headaches", "blackouts" and "nervousness" among users (p. 50). Just as the physical powers of the body, which were very important in farming, were no longer in demand following industrialization, a new way of thinking is coming into being in the digitalized world, and this is pushing traditional thinking into the background.

The calculability of people

The computer "detects" and "reads" the user. The author sees a danger here. Because we use the Internet in various ways, everything that we enter, detailed and basic facts as much as important and superficial opinions, suspicions and judgements, is stored permanently without our knowledge or consent. Web operators register our behaviour at the computer minutely and collect all personal data as well that we disclose unconsciously in the Internet. Major companies such as Google, Facebook and Yahoo collect these data and keep files on us that, as a consequence of the computer's absolutely reliable memory, will soon know

more about us than we do ourselves. People are being changed into "calculable units" that these companies can use elsewhere for other purposes. They are even able, with the help of suitable software, to bring the collected pieces of information into relationship with one another and to evaluate them for their own purposes. In this way, they can not only get to know how we behave, but also predict this, and make use of it - for example, for making a profit and for political influence. Schirrmacher refers to this new dimension of our everyday life as "monstrous and momentous" (2009a, p. 128). Many see in this the danger that George Orwell described in 1945 in *"Animal Farm":* the development of a society that is policed, pored over and controlled "by a cold power" (2009a, p. 128). If this development progresses, the purposive-rational thinking of the computer will be transferred more and more to private life. People would then begin "to request their accomplishments, their feelings, their whole life paths more and more like information ". Things would then only happen "because they are calculable and utilizable" (p. 88). However, this would mean nothing less than the "conversion of man into mathematics" (p. 99).

Specific addictive behaviour

According to Schirrmacher, our relationship with the computer can trigger addictive behaviour. He explains this behavioural change with our archaic "primary instinctive craving for new things", which is satisfied with search machines as with no other medium. When a user makes a find in the Internet and is able to make use of urgently required information, his brain releases dopamine, the pleasure substance. He continues to pursue this experience again and again, and in this way becomes addicted. In spite of all the damaging effects there is therefore paradoxically a close relationship between the user and his computer. Some users even love their computers (p. 137).

Empirical backup

A further characteristic of this book is the various pieces of evidence for the facts that are put forward taken from recent findings of empirical research. There are 172 entries in his bibliography. These include the names of well-known computer experts, philosophers, psychologists and neurologists. For example, Roger Peros, the great English physicist, George Dayton, the US economic historian, Wolfgang Prinz, the well-known German neuroscientist. Eric Kandel, the US neuropsychiatrist and Nobel prize-winner, and Daniel Hillas, the US Internet pioneer, are all included as sources. The studies referred to are mostly from the recent past, and are therefore up to date. The following are two examples of how Schirrmacher backs up his references and opinions.

Multitasking. In complete contrast to most protagonists of digitalization, who celebrate multitasking as an innovation and eulogize the skills required for this, Schirrmacher regards it as extraordinarily annoying to be required by the computer to do several things at once: enter texts, look for texts, write texts and at the same time use Facebook and Twitter. Distractions are caused by superimposed and often flickering advertising. This multitasking asks too much of him and makes him ill. His explanation of why this is so is as follows: while a computer can carry out several tasks at the same time without any effort, humans, as "linear beings", are unable to do this. He calls multitasking an ideology, "a kind of digital Taylorism with a sadistic drive structure" (p. 69). In an interview he claimed that multitasking is "the worst practice of our time" (Kalberer & Strehle, 2009). Schirrmacher does not leave it at such explanations. Rather, he researches the status of the relevant research by immersing himself in the work of Sindhi Mullainathan, Professor of

Economics at Harvard University, and Clifford Nass, Professor of Communications at Stanford University.

Mullainathan looks at the economic dimension of multitasking, and in 2008 came to the conclusion that the "compulsion to devote one's attention constantly to other problems" generated an "economic spiral of failure" (p. 70). This applied both in the material and in the mental sphere. Multitasking was "a self-accelerating downwards spiral", and all our strength had to be applied in order to "keep distractions away".

Clifford Nass (2009) published a study that Schirrmacher calls "sensational" (p. 71). In the study, people who multitask a lot are compared with those who rarely multitask. The results confirm Schirrmacher's assumptions. Multitaskers are muddle-headed, unable to differentiate between what is important and what is unimportant, do not become "more and more efficient, but more and more weak". Their ability to think "is becoming more and more faulty". People like this are easily susceptible to manipulation and temptation. Their readiness to hand over thinking to machines is growing. Schirrmacher's summary: "Multitasking is the attempt by humans to become computers themselves, an attempt that is doomed to failure" (p. 73).

The loss of the ability to read. Our children are no longer able to read complex texts because they have lost the ability to concentrate for longer periods. This nightmarish finding was the result of a US study. This loss has a "devastating" (p. 35) effect on their chances of social and occupational advancement. Schirrmacher found further confirmation for this finding by building on new insights from the field of brain research that Maryanne Wolf, an outstanding US expert in the field of the biology of reading, published in 2008. According to this, reading was not just a "technical act", not just a "mental process", but a "building order for the brain". When children learn to read, regions of the brain that are really responsible for other manifestations of life were linked to one another in a new way. This caused the brain to grow in a way that was not originally foreseen. But for those who can read, a space for their "own fantasy" and their "own feeling of self" is opened up. People who can read acquire the freedom to have thoughts that are deeper than previous thoughts (pp. 37-38). The author then immerses himself deeper into the material. As research has shown, the brain contains "delay neurons" that enable us in the first place to read texts and to be contemplative when doing this. In this way, the reader gains time to reflect. It becomes clear at this point what is being lost as a result of digitalization. These delay periods will no longer exist in the forthcoming "real-time Internet era", and this will mean that important preconditions for the development of intellectual life will lapse (p. 38).

What can we do?

In the second half of his book, Schirrmacher devotes almost 80 pages to the question, "How can we regain control over our thoughts?" It is true that the author's recommendations here are, prima facie, not really a critique, but they are provided with regard to specific serious consequences of digitalization. By concerning ourselves with them, we get to know them, and also because they are thus illuminated from a different perspective. Among other things, Schirrmacher attempts to show how we should react to the following seven difficulties:

- *"Ego exhaustion"*. This occurs when users are constantly forced to differentiate between important and unimportant information. This compulsion "hollows us out", an effect that is intensified because we are constantly having to think about information

we may have missed (p. 163). In such situations the author recommends exercising "self-control in the decisive moments" (p. 166).

- *"Burn out"*. As a result of permanent receptiveness, multitasking and information overload, users are not longer in a position to bring imparted information "into a logical context". The author explains this process by using two examples from other areas. People who watch a lot of television avoid demanding films and prefer to see "poor quality films". There is a similar image with excessive eating: "The body has to pay the bill for 'all you can eat', the spirit for 'all you can read' " (p. 169). The overload leads to ego exhaustion (p. 167). In this state, computer users find it very difficult to read books. The remedy here is to reinforce "willpower" and the strength of "self-regulation" and to bring the "trump card of the personality" into play, which "pre-empts all others" (p. 170).

- *The compulsion to "unambiguousness of information"*. Because of the use of algorithms, work with computers restricts individual opportunities to think. "In an environment of unambiguities we are kept prisoner in the categories" (p. 180). In the computer, the "whole world" becomes "a preformulated recipe that (leaves) no room for anything else" (p. 175). However, the "non-algorithmic dimensions of thinking" were neglected through this. As empirical studies at Harvard University show, however, it is exactly "indeterminableness" and "uncertainty" that enhance intelligent behaviour and enable creative solutions. The author derives the following recommendations from the theory of "mindfulness" (Ellen J. Langer), which is derived from such studies: escape from the constraints of the computer by concentrating on strengthening mindfulness, strengthen willpower and self-control and guide thinking into other paths through changes of perspective (p. 170).

- *The "inability to change perspective "*. The way in which the computer presents information to users based on its statistical frequency generates a feeling of security among users, but excluded "free choice". However, facts and statistics have always had only limited evidential value. Users must bear this in mind and change their perspective consciously of their own accord, in order not to fall victim to the illusion that they are on the right road and have everything under control (p. 187).

- *"Computer dependency"*. Constantly using computers accustomed people to "judge their lives on the basis of volumes of processed data, and not according to other probabilities" (p. 193). They thus lost the ability to include other rules.

- *During reading and writing at the computer the "interlacing of information and thought (was) dissolved and information placed at the service of utilizability*" (p. 194). However, this led only to the limitation of the attention span. Consequently, our thinking was subjected to the computer. We were therefore shaped by the intelligence of computers. We were losing our inner freedom. Here as well, the recommended way out was a deliberately caused change of perspective (p. 196).

- *"Classification of information based on its statistical frequency"* (p. 203). In the digital world, all information is shown statistically. Anyone who reads it can find out all sorts of things about himself, e.g. about his specific search behaviour. In this way, the computer changed "our feeling about ourselves" as well. However, human behaviour cannot be calculated, and imparted statistical values say very little about us. The statistical recording of human behaviour has to capitulate namely in the face of peculiarities of the

human brain, because this is the source not only of "ambiguities, but also of fantasy and freedom" (p. 204). "Rules of thumb, intuition and gut instincts" (p. 205) simply cannot be recorded statistically. For this reason, people should train themselves "to read their own lives" (p. 205) as well, and not just statistics about themselves.

- *"Overlaying two forms of communicative learning"*. This situation was detected by the anthropologist Michael Welsh among "digital natives" at a university and then described. They were suffering on the one hand under fusty traditional academic teaching, but at the same time under "modern forms of communication". His experiences studying the consequences of literacy in the preliterate culture of Guinea had shown him previously that a feeling for "non-algorithmic thinking" could be wakened and learned. To do this, first of all "attentiveness" has to be created and the willingness to get involved in "the fascinating game of changing perspective" (p. 209). The computer offered students the "hunting grounds for bagging rich information". However, the evaluation and assessment of the information acquired in this way would not be done by the computer, but by the students themselves in interchanges with the members of their learning group. The judgement therefore took place "in their own head" (p. 209).

These recommendations gain weight insofar as they are based in each case on the findings of empirical studies.

In general, Schirrmacher provides the following advice: only those "who do not perceive themselves as calculable beings" (2009a, p. 129) can acquire real knowledge that is their own. "Power training, or the muscle of self-control" (p. 172) was necessary for this. We must strengthen our willpower, "decelerate" our pace of work, muster more mindfulness, learn to deal with indeterminations and uncertainties, decide to ask questions, think for ourselves and think further, read books, meditate, change our perspectives, get involved with ideas and spontaneous insights and to bethink ourselves once again of creativity. His message: users should liberate themselves from dependency on the computer and become masters of their own thoughts again. Of course, they may still make use of the computer, but at the same time free themselves from it, assert their "claim to leadership" and become the master of the computer. What is important is to display characteristics that the computer lacks completely: "tolerance, creativity and presence of mind". In this way, subjectively presumed "free will" gains leeway once again and the humanist image of man is restored halfway.

Reception

"Payback" met with a great response in Germany. This is shown on the one hand by its inclusion in the bestseller lists and, on the other, by the large number of reviews in the press. Positive assessments were found in many newspapers: Uwe Justus Wenzel (2009) from the *Neue Zürcher Zeitung* found Frank Schirrmacher's book "instructive, well-informed and thoroughly balanced". For Eberhard Fehre (2009) in the *Tageszeitung* it was a "polemic, but one that can be read with profit and pleasure. And one that we should read if we want to know what happens to us when we do what we do, day in, day out. And when we want to know the price that we pay for this". Adrian Kreye (2009) in the *Süddeutsche Zeitung* said that Schirrmacher had "now at last extended the debate on digitalization by intelligent thoughts". In *Getabstract*'s judgement (2009), Schirrmacher was warning "urgently and volubly about the dangers of computerization". Gerd Meyer (2011) thought that Schirrmacher illuminated "with *"Payback"* a subject that is still unexplored at these depths".

Denis Scheck (2009) from Germany's *ARD* TV channel appraised the book as a "plea for mental gymnastics". Öschelbrunn (2010) wrote in an *Amazon* customer review that Frank Schirrmacher had "once again displayed an instinct for the mega-subjects of our time". Gregor Dotzauer (2009) from the *Tagesspiegel* stated: "You have to concede that Schirrmacher describes the historical watershed that he perceives in information technologies that have taken on a life of their own, with an urgency that attempts to outline with clear terminology things that up to now have only been vaguely felt".

Adrian Kreye (2009) wrote in the *Süddeutsche Zeitung*: "Schirrmacher's strength as a publicist is to combine the intellectual thirst for knowledge of a polymath with the hunting instincts of a tabloid journalist. This makes competition with him so sporting and his books and the impulses he provides for debates to precision landings in the zeitgeist". Stephan Sattler (2009), writing in *Focus*, opinioned, Frank Schirrmacher possesses "the special knack of processing complicated scientific subjects into the subject of exciting debates". *"Payback"* opened up "a gripping debate on the future of our life". In the *Hannoversche Allgemeine Zeitung* Imre Grimm (2009) found that seldom had "anyone described the fear of digital overload so elegantly and with so many facts" as Schirrmacher. And *Focus* called Schirrmacher "the debate provoker" and thus formulated a characterization that was later taken over by several reviewers.

When Schirrmacher refers enthusiastic Internet adepts in his book to digitally undesirable developments and draws their attention to necessary radical changes, it is natural that he has to reckon with criticism. Richard Herzinger (2009) welcomed the book with the jokingly exaggerated alarm call: "Help, the brain eaters are coming!" Andreas Thiemann (2009) assessed the book as the "sorcerer's apprentice's call for help". Eckhard Fuhr (2009, 2009a) entitled the book clinically as "Schirrmacher's Sorrows" and "How Schirrmacher can save himself from the Internet". Andreas Fanizadeh (2009), writing in the *Tageszeitung*, thought that the book's discussion structure was "extremely wobbly and not particularly substantial content-wise". Sascha Lobo pilloried the author's cultural pessimism and complained that he had marked the necessary discussion on the digital society with "the stamp of rejection and resignation"(Lobo, 2009). And Adam Soboczynski (2009) criticized the author's "sinister anthropology and polemical powers of suggestion".

A comment from Peter Kruse, a psychologist at Bremen university, deviates from such sweeping derisive and mocking objections. He regards Schirrmacher merely as a "looker-on, who (commits) errors in reasoning through the one-sidedness of the perspective he selected" (see Kuhn, 2009). For Kruse, Schirrmacher is a person who experiences digital happenings as an "impersonal and appraising observer". In doing so, he had outed himself as an "Internet visitor with stranger anxiety", who "looks on at a distance, curious and irritated to the same degree". In this way, Kruse the scientist has excluded the journalist Schirrmacher from the circle of authoritative digitalization experts. In spite of its condescension and subtle malice, this judgement has something. At all events, the position of an "impersonal and appraising observer" is not a bad precondition for writing such a book, which presupposes scientific substantiation.

Comments

Frank Schirrmacher's book *"Payback"* is a thorough, comprehensive, multifarious and inspiring contribution to the critique of digitalization. It is based on the author's own experiences, vast reading, perceptive discussions, convincing arguments, more in-depth

interpretations of current developments, and on the point-by-point evaluation of research results from all over the world, which are verified in the notes. Because Schirrmacher is not an information scientist, but a journalist steeped in the humanities, he does not approach his subject under special technical points of view but under general cultural points of view. In this way, the broadly based critical discussion of digitalization gains new aspects and its own relevance over twenty chapters.

Schirrmacher opens readers' eyes to tremendous changes in their lives and in the world of learning and work, and warns them to be prepared for the coming tasks of adaptation. Many of the drastic changes that he refers to trouble or unsettle those whose way of thinking is traditional. In a review of *"Minimum"* (2006), Jakob Augstein (2006) described the author clear-sightedly as follows: "Anyone who is afraid of the dawn himself will scare others. What is striking in Schirrmacher's texts is their urgency, finality, and their alarming and dispositive nature. Because the catastrophes are still to come". This is correct with regard to *"Payback"* as well. Insofar, the characterization of Schirrmacher as a "scaremonger", which is ascribed to the Swiss journalist Frank A. Mayer (2006), is certainly justified in a way. On the other hand, the question is whether this refers only to his journalistic-literary method, because creating fear and dismay is a tried and tested stylistic device of many successful journalists. However, the author's complete engagement for the matter, and the acknowledgement of his own concerns and worries, contradict this.

As a professed maverick, Schirrmacher has a good portion of self-confidence. This enables him to take up a position intellectually, to find his own subjects and to champion them against resistance irrespective of the spirit of the times. The currently dominating tendencies, which are accelerated by the enthusiasm of "digitalists", could have caused him to illustrate and extol the unbelievably great and hardly comprehensible opportunities of digitalization in a journalistic manner. However, the focus of his book is on elucidating the true nature and the consequences of digitalization. He names and interprets what has been visited on us over the last fifteen years, and explains what the "digital revolution" actually means for us. And he directs his attention to the cultural paradigm change that is already in the offing. Insofar, Schirrmacher is an audacious forwards thinker and courageous author, who expresses things that others do not see yet or ignore recklessly. He swims against the current.

The author is particularly important on the one hand because of the way in which he detects a new challenge for society as a whole, in this case that of digitalization, sees through it and kindles a public debate on it, and becomes the opinion leader in this field. He sees himself tellingly as a "seismograph, who announces social earthquakes" (Mayer, 2006). On the other hand, his special writing style is pleasant as well. With Schirrmacher, scientific thoroughness is combined with the intuition of the columnist for a public effect. He relates to the way of thinking and the feelings of his readers. He knows how to mesmerize them with alarming information, exaggerated depictions and polemic arguments. His suggestive persuasiveness compels them to consent voluntarily or reluctantly. It is not for nothing that this book went to the top of the bestseller lists.

The consequences that Schirrmacher highlights are to a great extent pessimistic and create a feeling of helplessness in people who ponder on them. His readers now know what caused the change with its new challenges, and what they can expect with regard to digital developments in the near future, but they are still unclear about what the digital transformation will finally add up to in the end.

It is true that Schirrmacher's book contains a comprehensive and detailed critique of digitalization, but at the same time it gives rise to the impression of ambivalence. In spite of his eloquent and convincing references to the dangers facing traditional forms of intellectual life, he does not plead in the least for restrictions on, or even the elimination of, digitalization and a return to culture of the book, and even stresses that he is by no means an opponent of digitalization. Rather, he hopes, extremely optimistically and probably more with a selected, educated public in mind, that users can gain more freedom to develop their own creativity through the gradual loosening of the constraints of the machine, the emphasis on their own will and strengthening their self-confidence, and in this way "regain control over" their "thinking". These are without doubt categories from the predigital epoch. Eckhard Fuhr (2009) has described this ambivalence of Schirrmacher's book drastically with an image: "He gives the apocalyptical horse its head - and then ropes it in again to rejoin the parade".

Does Schirrmacher cling more to the future or to the past? When the new iPad was presented, shortly after his book appeared new and very interesting information on this was received. "Two souls raised hell in his breast", commented Brauck & Müller (2010). Schirrmacher was torn between whether the new magic device would be a curse or a blessing for users. On the one hand, he said enthusiastically that he would be getting the new iPad immediately, because it was a "very, very important device". On the other hand, he professes, "Paper will soon be the last medium that I can still use without someone else reading along, knowing where I am at the moment, and suggesting what I should buy". Pleasure in technical progress has been commingled again here with the conservative author's critical attitude of concern for preservation.

Frank Schirrmacher belongs to the group of those critics who, in spite of serious reservations, think that a positive development of digitalization is possible if users succeed in becoming the masters of the computer. His book brings home urgently and convincingly the complex change that digitalization triggers and advances. It moves, excites and generates fears. He is successful like no other in triggering and continuing a massive debate in the media on the dangers of digitalization. Frank Schirrmacher plays a major opinion-forming role in the discussion on digitalization as a forward thinker, critic, stimulator, admonisher and counsellor, and above all because of his bestseller "Payback".

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16 The dramatist: Botho Strauß

Digitalization in the world of dreams and mirages

Botho Strauß, the successful German dramatist and holder of many awards, was born in 1944 in Naumburg an der Saale as the son of a chemist. He now lives in Berlin and in the Uckermark.

Biographical background

Botho Strauß attended upper secondary school in Remscheid and Bad Ems and studied German, Sociology and Theatre Studies at the universities of Cologne and Munich. He wrote a dissertation entitled *"Thomas Mann and the Theatre"* in Munich but did not conclude it. During his studies he worked as an extra in performances of the Munich Kammerspiele. After studying, he was editor and critic of the newspaper *Theater heute* (Theatre Today) for three years. The essays he wrote for this newspaper were published in the anthology *"Versuch, politische und ästhetische Ereignisse zusammenzudenken"*. He then worked for five years as dramaturg at the Schaubühne am Halleschen Tor in Berlin. He spent 1976 in the Villa Massimo in Rome as a fellow. In 1977, the performance of his *"Trilogie des Wiedersehens"*, his fourth drama, was a great success. Since then, he has written plays, short stories, essays and aphorisms.

Botho Strauß is a member of PEN and has been awarded the Dramatist Prize of the City of Hanover, the Advancement Award of the Schiller Prize of the state of Baden-Württemberg, the German Record Prize, the Literature Prize of the Bavarian Academy of Fine Arts, the Mühlheim Dramatist Prize, the Jean Paul Prize, the Georg Büchner Prize, the Berlin Theatre Prize, the Lessing Prize and the Schiller Memorial Prize. (Sources: Who's Who, no year; Goethe Institut, 2011;Hartnoll & Found, 2011).

Motivation

Those who read Botho Strauß sense "real and genuine anger" (Meyer, 2011). He is a desperate man, who struggles with having to live at the wrong time and in the wrong society, in a nasty and loveless "Thersites culture" (2004, 47). He behaves as an outsider and characterizes himself as a "misfit" and as someone "without boundaries in the virtual world" (Erben, 2004). As a solitary author, he imagines encountering solitary readers: "solitude plus solitude" (Greiner, 2003). He suffers from this. When he was asked in an interview about the stringency of his criticism, to which his opponents draw attention, he answered, this "is part of the story of suffering. I believe that with people who are pessimists, typically European individuals with the capacity of imagination, a certain structure of suffering is paramount" (Greiner, 2003).

Strauß finds his subject from this sensitivity, a subject that he has worked on and propounded relentlessly for decades in many variations: the critique of the "secondary world", in which everything is engulfed in chatter and information. In order to criticize this from the ground up, he searches for the meaning of primary life, of essential life, to which consciousness of history and tradition belong, as well as ties to intellectual achievements of the past and the assumption of relationships to the numinous. What he wants to do is to find

out "what secrets, alignments with the preternatural" he can still explore in people today. He regards the search for this as his "life's programme" (Greiner, 2003).

As a dramatist, he explains, he wants "to convince through the aesthetic appearance in the old style, and no longer through what one says, because abstractions are becoming more and more bland". He regards the "abstractionist" as old-fashioned. This being the case, he confesses his motive cannot be "to churn up opinions", because people would simply just laugh (Greiner, 2003). This insight may have motivated him to his direct sensuous effects on theatre audiences, and to his special way of writing powerful metaphors and miniatures.

Main features of his critique

The "revolt against the secondary world"

If we want to classify Strauß's critique of digitalization, we have first of all to bring to mind the following: his essay *"Der Aufstand gegen die sekundäre Welt" (The Revolt Against the Secondary World)* (published 1991) is not actually and particularly concerned with the "virtual world", which is sometimes also referred to as the "second world" in order to distinguish it from the real first world, but with the general state of our civilization. He rejects this, because it is marked by the "loss of God and of faith, degeneration of values and poverty of ideas; a continuous splitting off of origin and past, technological nihilism, an economy without a soul, and carte blanche for blind functionality" (Meyer 2011). It is admittedly the "media" in particular and the advance of digitalization that have led to this condition. With Botho Strauß, the critique that is addressed to this is therefore embedded in a general critique of our culture and civilization.

For a better understanding of the idiosyncrasy of Strauß's critique it is also useful to sketch its origin. This is derived namely from his aesthetic theory, which, following the example of George Steiner, he describes as follows in his essay *"The Revolt Against the Secondary World"* (1991): it is important to liberate a work of art from the "dictatorship of secondary discourses" (2004, p. 39). When contemplating a work of art, it was important above all to "get involved with the immediate", to detect its "meaning" beyond all interpretation. This meaning was binding, even if it could not be explained rationally. Where there was no secret, there is no transcendence either. Only in this way does the "real presence" of the work of art reveal itself, its "theophanous glory", the "real present", that is, the presence of the "logos god". The real presence, the "undemonstrable" grew out of the novel, the sculpture, the fugue (2004, p. 44f.). For Strauß, this radical aesthetic approach ranks above the political. It is also characterized as "aesthetic fundamentalism" and "reactionary spiritualism" (Thomas, 2004).

This model for thought and experience determines not only Strauß's appraisal of works of art, but also of intellectual life in our society as a whole. Just as art, in his opinion, is deficient without access to transcendence, intellectual life lacked the essentials, if the supernatural, such as myths, were denied. He therefore champions a "remythologization" of our culture (2004, p. 47). After the Nazi cult and WW2, according to the author, the "critical-social age" started in which the "ugly clarification of what is hateful" was able to develop without constraint (p. 44). The main role was played here by "journalism", not only as an "institution for disseminating news and opinion", but "more as a comprehensive mentality of the secondary, which has penetrated deeply into literature, scholarship, philosophy, and not

least into belief and its offices" (2004, p. 44). Strauß criticizes these issues in the secondary world among others: the "supremacy of secondary, medial, indirect ways of speaking" (2004, p. 46), the "curse of amusement and information overload", the "power of the media mass of triviality", the "medial pretences of totality" (1981, p. 91), and the general "culture of consumption" (1981, p. 90). He understands "secondary reality as the housing of artefacts and deceptions, of short-term pleasure and exploitation on all sides" (Meyer, 2011). For him, this secondary world is denaturized.

For Strauß, therefore, the world is divided into two: the ersatz, superficial, denaturized secondary world, and the real, primary world, which follows on history, tradition and myths.

To provide an example of how profoundly his critique of the secondary world is felt, his complaint about an experience that particularly affects him as an author will now be discussed. He claims that in literature there is no longer any continuance.

"Unimportant: not a single book has any weight any more. Works that are accomplished, complex, difficult to penetrate, insofar as the 'internal market' lets them be created in the first place, find just as little ground in which to take root as the affectionate and popular works of the season. Where nothing is developed, reluctance cannot hold. Together, all works become victims of the domination of speed, growing acceleration and total passage. In the dromocracy (the power system of accelerations), in which we now live or pass the time, if Paul Virilio is right, continuance is something that is against the law" (1981, p. 80).

This critique would probably have been even more stringent in the second decade of the new century as a result of the further development of digitalization.

Finally, Strauß prophesies the end of rational thought, one of the cornerstones of traditional intellectual life. He regards the secondary world as a phase that is preparing for a new phase, in which the written word will lose its importance and in which "the forms of rational thinking are being prepared for a return to diffuse, multidimensional thinking". In the near future, Homo sapiens "may perhaps have become a completely different type" (1981, p. 91).

Strauß thus fears an anthropological relapse into orality that would be unparalleled in the history of humanity.

Critique of technology

A revealing approach to Strauß's attitude to modern technology, and in particular to digital communication media, is provided by a catalogue of aphorisms that was published by the weekly *Die Zeit* under the title *"Wollt Ihr das totale Enginieering?" (Do You Want Total Engineering?)* (2000). The allusion to Goebbels' question "Do you want total war?" evokes an atmosphere of danger, crisis and possible ruin. These aphorisms impart to the reader a kaleidoscope of insights and ideas that encapsulate his distance, critique, contempt and distaste more exactly and more sensuously than rational arguments would probably have been able to do.

First of all, Strauß criticizes the "competence consciousness" of technologists "which is completely immune to all inappropriate questioning, all ethics and morals". His opposition to restless technologists is also revealed in his adage "There is no darkness, only the blind. There is no progress, there are only those who are dazzled" (2000). He despises the "new extropists", who want to save the human spirit on the machine and in the end to depart from the earth.

In his book *"Vom Aufenthalt"* Strauß provides two examples of a morally responsible technical decision. He calls to mind the intelligence of the ancient Chinese, who certainly had the "means to apply their inventions", but let them rest. He claims that this was done with the intention of "preventing calamity". He contrasts the wisdom of this behaviour with the "fearless curiosity of modern times" (2009, p. 237). And he quotes Augustine (354 - 430), the church father, who "denounced curiosity, scientific curiosity, as a mortal sin" (2009, p. 237).

The potential for catastrophe inherent in technical development brings him to the conclusion that the complete technical system and the civilization on which it is based will one day collapse. He envisions this event as follows: "The blow of the certainty of suddenly being unable any longer to understand the world". - "The deathly humming of all opinions that adhere to the hack of destruction like bluebottles". His reason: "Technology appears to be realizing its own infinity itself, otherwise it would not plunder and exhaust the reservoir of the possible in such a headlong way".

In order to express the dubiousness of the technologization of our society, he uses a stratagem. He imagines what the inhabitants of the post-technological age will probably think when they look back at the "accomplishments" of our late technology. He thinks that they will then "behold, marvel at and detest with a frosty smile" everything that had been achieved technologically. He obviously has in mind a future phase of human development without technology, another example of the radicalism of his thinking.

Structural dangers of digitalization

At an early stage, at the start of the worldwide use of laptops, Strauß detected important disadvantageous effects of digitalization. In his book *"Paare, Passanten"* (1981) he argues that the computer realized above all "the idea of storing, hoarding, summarizing". As such, it aimed at "branching out, above all into the surface, into what exists" and was therefore "not a production machine". It was rather in the service of controlling and steering. But in this way it tended to take over from the previous idea of progress. And even more, it thrust aside productive achievements of the human brain, in roughly the way that industrial machines had thrust aside human hands, which "in the long term" will lead "to the genetic atrophy of this organ". This insight led Strauß to the following analogy:

"This being the case, we have to assume that the 'memory machine" will thrust us aside as well on those levels on which it possesses perfection, and will connive at the regression of our capacity to remember. It is an erroneous assumption that the organ, once relieved of tedious tasks, would for this reason be better and healthier and could concentrate more successfully on essential questions". (1981, p. 149). "That machine therefore, which in part represents an outplacement of the human brain, will possibly have the effect of atrophying it …" (1981, p. 150).

As far as the digital networking of the world is concerned, Strauß was already criticizing the following consequences at the beginning of the century:

- "All points of the compass are absent".
- Because of digitalization, our memory is "at the mercy of predatory actions". What we think, feel and want is "compiled into a world-spanning corpus" that everyone (can) use".

- We should use a laser lancet to cut the "information excrescences" out of today's knowledge.
- The person who "is the first to burst the chains of globality", who "shows us the way out of the cul-de-sac of 'worldwide'", will be a hero.
- The "organ of the past" is "mutilated or completely ectomized".
- The "communication currents of the computer and the Internet will never (be amalgamated) with the hot underground, the restless magma of what has been".
- One day, when this horrific virtual episode has departed from the earth again, there will be a voracious appetite for people who are touchable, an untameable urge to connect. (All quotes, 2000).

This author's radical opposition to engineered and digitalized life in our times is reflected in these selective prophesies.

As far as the Internet is concerned, Strauß expects disaster to come of it, because it "[carries] in itself the greatest disorder into which the world could be placed. A disorder in which nothing can be differentiated any more, neither truth from lies, nor fact from fiction, nor today from yesterday and tomorrow" (2009, p. 238).

But Strauß goes even further than this when he imagines how social intercourse will be permanently damaged. He states:

"We are the last to have known the "old man", how he stood before us straddling nature and history, and advanced only with effort and scrupulously, marked by happiness and care. The direct way to contact people will be blocked of to his successor through a veil of virtual agencies. Unless a storm breaks out above him, this successor will never again be able to leave the shadow world of his pervasive artificialities". (2009, p. 108).

This shows that the author is expecting a profound anthropological change from the digital revolution.

Cultural criticism

Botho Strauß became known to a wide public after triggering a fierce discussion in the media with his essay *"Anschwellender Bocksgesang"* (*Swelling He-Goat Song*) (1993), which was published in the German weekly, *Der Spiegel*. In this essay (Strauß, 2004, pp. 55-78), he championed the following opinions with regard to our subject:

It was true that there is a great volume of "analytical knowledge", an "abundance and profusion of discourses and global blueprints", but these belonged "one and all to an intellectual culture that has no say at present". In contrast, there is "the avantgarde of technical-economic culture, which has absolute priority, which is skilled in doing, functioning, know-how, but does not impress with intellectual achievements". His judgement: what happens, happens "without any philosophical or aesthetic reflex" (Greiner, 2000, p. 4).

It was important to rebel against "the total domination of the present, which wants to rob the individual of any presence of unenlightened past, of what happened in history, of mythical times, and to eradicate all this" (2004, p. 62). In addition, it was disastrous no longer to have a feeling for disaster, and to have lost the feeling for forms of tragedy (2004, p. 64). It was bad and damaging that society, in its "liberal-libertarian self-

referentiality", tolerated or even promoted "mockery of the Eros, mockery of the soldier, mockery of the church, tradition and authority" (2004, p. 59).

The author feels that it cannot go on much longer like this. Some time or other "every mould shatters, every jug shatters, and time runs out" (2004, p. 57). At present, however, crises and debilitations simply led to people "losing themselves in all manner of secondary things" (2004, p. 58). Apart from this, for the "media citizen", "every horror that can be imagined serves as entertainment". The "solitary ones", such as Strauß himself, were "surrounded and beset by … forces of nonsense" (2004, p. 65). In an interview with the *Tageszeitung* (TAZ) he said with regard to Internet blogs: "Space is filled with Everyman's vomited daily routine, the logbook of globally communicated incontinence". (Magenau, 2009).

This is by far probably the most stringent critique of the blogosphere, a critique that was obviously written with a feeling of loathing. It is therefore no surprise when Strauß professes that what is needed was "courage to secede, to turn one's back on the mainstream" (2004, p. 66). A cultural pessimist must regard "destruction as inevitable" (2004, p. 64). On the other hand, the slight hope of change is germinating in Strauß as well. When he reads in Burckhardt's *"The Civilization of the Renaissance in Italy"* that it was borne "on the shoulders of a band of one hundred men", he concludes that even today "[a] hundred of the converted would be enough to break with the accordance" (2009, p. 103).

Das blinde Geschehen (play)

It is very interesting to see, in the example of Botho Strauß, how greatly digitalization not only alters the everyday thinking of users and scientists, but also penetrates the "dreams, transformations and abysms" of a sensitive artist. In his novella, *"Die Nacht mit Alice, als Julia ums Haus schlich"*, a situation is imagined in which people have already reacted to the "real time" of the computer age. Here, the Internet is described as a "time splitter", which "drove between people and shattered the one present for all" and "divided it into as sorts of unattachable fragments" (2003, p. 138). In this context, Strauß imagines how people would suffer under a "bloody arbitrary reform of time" (2003, p. 76), because they were unable to adjust to it. They would be furious about this establishment of a commission responsible for time reform: "On the one hand, personal life has to be shielded effectively with the help of extended time dimensions against the high speed of information technology, on the other, the complete world of work has to be re-timed" (2003, p. 76). The author's creative fantasy has drawn our attention to a critical situation using the example of a consequence of digitalization that is not seen by most of its protagonists. In this way, he shows how rabidly technical progress not only has a bearing on people's way of life but also confounds it.

In Botho Strauß's play *"Das blinde Geschehen"*, which was premiered in March 2011 in the Burgtheater in Vienna, can be seen, in detail and extensively, how deeply the changing effect of digitalization not only occupies this author but even penetrates his dreams. Even the title (*Blind Happenings*) refers to the new way of experiencing of those who live in a virtual world and thus become blind to the real happenings of the actual world. The play demonstrates how the coexistence of real and virtual world is reflected in peoples' dreams, their fantasy and in their consciousness. The main figure, John Porto, has withdrawn into his virtual world - the Second Life – and takes hardly any notice of the real world. He plays the part of the cyber king as a game designer,

who keeps inventing new games in his parallel world and plays different parts in Second Life. He sits on the stage and stares incessantly at the screen of his laptop. He explains his situation to the audience as follows: "On the outside I'm flesh, as a disguise, but my brain is playing the same game that I play online. I am made of a game and will become a game" (Kümmel, 2011).

His great opponent and symbol of the real counter-world is Freya Genetrix, the passionate earth mother, who attempts again and again in the game to reach Porto in his virtual world. The play describes the battle of the sexes in the age of digitalization. It goes through possibilities of approaching and turning away. The world shown in this way differs from the life in the real world typically through its fleetingness. The persons we have just seen and understood leave the stage again immediately. The critic recognizes in this the influence of digitalization on Strauß's drama and his art: the "impatient attitude of his dramatic art [combines] with that of the networked world, in which there is always an opportunity to clear things away, to start and destroy worlds, in short, to empty the large wastebasket" (Kümmel, 2011).

Peter von Becker, the theatre critic of the newspaper *Der Tagesspiegel* (2011), summarized his impressions of this play's premiere as follows: "The stage once again wants to be the whole world, wants to say there are no longer any people. Or, at least, the real people, the good and bad ones made of flesh and blood, now have competition. You do not have just one life. You have a Second Life as well. And perhaps, as the play suggests, you no longer have a life. The shadow has sold its body".

The following dialogue taken from the play give an impression of the lived-in world changed as a result of advanced digitalization:

> Freya Genetrix, the earth mother, has painted two dolls' heads on her bare knees and flirts with them playfully. The avatar accosts her about this:
>
> John Porto: "All the world now flirts virtually – and you're playing with two love struck knees! Real knees made of flesh and blood!"
>
> Freya Genetrix: "I am an unmanageable woman from grubby reality. An old believer in pain, lust, flowers, mountains and letters, real letters on perfumed paper".
>
> The cyber magician John Porto: "You present-day antique".

Another critic reported as follows on the play's two main figures: "To the bitter end they stagger, because if they don't recognize each other they can support each other, through gloomy levels of a virtual life, probably created by Porto, but only seldom controlled by him, in multiplayer mode" (Lhotzky, 2011). When Freya says something that irritates Porto, he asks in return, "Do you mean that virtually or boringly normal?" - Nothing could make it more clear to the audience how the two worlds are mixed in our heads.

Is resistance possible?

How can we live in a secondary world that is fully denatured through industrialization and digitalization, in which important processes are increasingly accelerating and are also subject to rapid change? With all the radicalism and uncompromisingness of Strauß's critique of a society that is exposed to decay, special recommendations for a modus vivendi of critics can hardly be imagined. But in spite of this, the author has provided advice in places:

- Do not collect things incessantly, but "leave them to one side, forget them, lose them" (2009, p. 104).
- Deal generously with "data and things", the "small here and there" has to take second place here (2009, p. 104).

In his book *"Vom Aufenthalt"*, Tilman Krause, who writes for the Germany daily *Die Zeit*, identified additional "fuses" with which decay could be resisted (Krause, 2009, p. 31):

- Don't march onward, stop and take stock.
- Do not let yourself be overcome by time, prefer the standstill, experience "fulfilled" time, even leave time unused.
- "Resist all fast-acting stimuli".
- Share in family situations.
- Do not create anything new, but vary and refine existing things.

These suggestions of a highly sensitive loner and stringent critic, holding out in strict isolation and solitude, show that in a hopeless situation, Botho Strauß still has the means, even if they are few, to resist the overly powerful trend of the times.

Reception

Iris Radisch, a literary critic, reports (2004) how very much the antagonism between the author Strauß and his critics has changed over the course of ten years. The publication of his now legendary essay *"Anschwellender Bocksgesang"* in *Der Spiegel* in 1993 triggered an acrimonious controversy. Strauß was sharply attacked for having anti-democratic attitudes, for his alleged closeness to political right-wing radicalism and to intellectual representatives of the "conservative revolution". However, ten years later, according to Iris Radisch, "peace has been concluded" between Strauß and his critics. She explains this really extraordinary and unexpected change of opinion by saying that many intellectuals now not merely put up with Strauß's "revolt against the stark dilution and virtualization of our lives", but welcomed it. Strauß "says today what everyone thinks who hasn't yet sold off his little bit of understanding". It did not occur to her to criticize his "brilliant cultural criticism, (his) critique of capitalism and progress". "We agree with it", writes Radisch. The reason? Botho Strauß had not become "better" in this decade, but world had "become worse". What we have here is unusually convincing proof of the effect and resonance of Strauß's critique.

Renowned experts are in no doubt about the high ranking of this author. Simply the fact that his books have been translated into many languages is proof of this. Ulrich Greiner (2000) from the weekly *Die Zeit* calls Strauß "one of the most brilliant intellectuals and authors in the country". In his *"Geschichte der deutsche Literatur"* (2002), Bengt Algot Sørensen appraises him as follows: "His central function as a commentator, seismograph and mythologist of the contemporary history of the Federal Republic of Germany is beyond dispute". Fritz Raddatz (2011) admires his language. For him, Botho Strauß is "a violin virtuoso of buzzing, floating words; they enchant through their clarity, as transparent and as amazing as the water in which we appear to swim without any effort". And Iris Radisch (2004) praises his novella *"Die Nacht mit Alice, als Julia ums Haus schlich"* (2003), because it sparkles with "scenic creativity and diabolic ambiguity".

In contrast, there are critics who do not like this author at all. Michael Laages (2011) can serve as an example, with his following criticism of the play *"Das blinde Geschehen"*. He admits that he recognizes in the play "research into the survival capability of the loving self in a collective and virtual present", but regards it as a whole as "a series of drolly turned platitudes", as "a really hoary and very stale and relationship salad", "dismayingly hollow bluster", an "untidy, and even carelessly thrown together mishmash" and an "echo from the past". It is obvious that this critic finds it difficult to discover the way to Strauß's singular and extremely subtle manner of thinking and writing.

Comments

Botho Strauß takes up a special position in the series of critics of digitalization described in this book insofar as he makes us feel in a disturbing way just how far the digital change of our world has already penetrated individual and collective consciousness. With the means of imagination, the "aesthetic appearance", in other words, of art, he achieves in-depth effects. Like no other critic, he understands how to criticize our society trenchantly through lightening-fast selective insights. We become aware through this of the crisis-ridden time we live in, but without suspecting, let alone knowing, where the actual causes of this are to be found.

The reader understands Strauß's radical rejection of the superficial mindset and ways of behaving, and our "sense-less" life in empty functionality. Many will agree with him as well, when he stands up to optimistic faith in progress. His critique is insofar more radical than that of other critics of digitalization because it shows us forcefully how fatally the consequences of the Enlightenment, of industrialization, of electronic media and finally of digitalization not only damage our existential core, but also dissolve it. Strauß thinks that people are not anchored in historical and literary tradition, and the ancient images and visions from the realm of the numinous are missing as well. One of Georg Friedrich Wilhelm Hegel's aphorisms illustrates the loss on which Strauß focuses: The "step of enlightenment converts the sacred grove into dead wood" (quoted in Meyer, 2011). His fundamental critique therefore touches on the innermost part of the individual.

Another reason for the enormous effect of this criticism is that it leaves us in a state of consternation. While we recognize and understand our precarious situation in the "secondary world", we are unable to find a way out, we cannot escape it. Rather, we are continuously compelled to play our part in it, without having an idea of the catastrophe and the tragedy of our behaviour. Many of his readers and listeners see themselves in this position.

Of course, like some other critics of digitalization as well, Botho Strauß is naturally concerned about humanity, not about saving it, because it has long since been lost and abandoned in the secondary world, but about its reanimation, which may be possible in the future. In his rejection of the "secondary world", he is to an extent more radical than any other, because he regards whole epochs of human development with contempt, and even ascribes to them the decline and fall he registers. In this he is similar to the Romantics who, in their attitudes to art, the world and life, turned their backs on enlightenment and rationalism and turned to a mythical past, whereby they also made efforts to amalgamate the past and the present. Strauß brusquely rejects the living conditions of technical civilization, as they were brought about by enlightenment, democratization, technization and digitalization, and pines, not for political, but for aesthetic reasons, for a life world that, in his

opinion, existed before these transformations. In his thinking he has thus constructed a breach in human development that is unparalleled.

The striving for a real, humane "good life", as Strauß sees this, has its attractive sides for a person who wishes to escape the complicatedness, the toils and the remoteness of God of a highly industrialized and digitalized world, because in it humanity is inevitably becoming less and less important. In contrast, people who see themselves as products of technical civilization and are committed to it, raise objections here. The person who could live in the manner imagined by Strauß no longer exists. Media theoreticians namely regard the development of the human species in close connection with technical media. Each new medium - from the use of the spoken, the written or printed word, through the use of the clock or maps to all today's electronic media - has brought about drastic changes to ways of thinking and behaving that have developed humankind's original type characteristics further and transformed them. The use of media is now not an incidental capability of people but a constitutive feature, which philosophical anthropologists make clear with the central term 'Homo faber'. Thus, because of media consumption 'Homo sapiens' has gone through many structural changes, and what is probably the greatest change is being brought about at present through digitalization. How 'Homo informaticus' can exist anyway with an attitude to the world and life moulded by technical civilization in the manner suggested by Strauß - possibly even without media - must remain unfathomable.

Nevertheless, Strauß's critique can be welcomed in full. His pleading for the good, right life in accordance with traditional principles, sharing in the "primary", does not have to be understood as a manual for action, but can be regarded as a model for thought with which it is possible to criticize technical civilization's present view of the world and life thoroughly and completely. There is no doubt that Strauß has succeeded in this, because he imparts to his readers the impression of being the victims of a tragic aberration that exceeds human dimensions.

Botho Strauß roots out social change and contradictions like no other and informs his contemporaries of this with the means made available by art in multifaceted and ambiguous scenes, situations, aphorisms and miniatures. He has enriched the critique of digitalization through intelligent and original ideas and arguments. For him, digitalization is a contributory cause and amplifier of the general decay of culture and civilization. Against this general background, the particular disadvantages of digitalization gain enormous importance. Their critique appears more decisive and more consequential. No one can show clearly, as Botho Strauß does, how digitalization not only penetrates our thinking and feeling, not only changes our life world, but also takes hold in the dreams and imaginations of artists. We thus become aware of digitalization's enormous power of infiltration. This is the special contribution of this important critic.

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17 The hesitant sceptic: Sherry Turkle

"It’s time to put technology in its place!"

Sherry Turkle, the well-known US sociology professor and clinical psychologist, was born in Brooklyn in 1948 and lives in Boston.

Biographical background

Sherry Turkle started her studies in Paris, where she examined the influence of psychoanalysis on the everyday life of the French for several years at the Institute D‘Etudes Politiques, as well as attending lectures by the French structuralists Jacques Lacan and Michel Foucault. After returning to the USA, she received a BA from Radcliff in 1970 and an MA from Harvard in 1973; she received a joint doctorate in Sociology and Personality Psychology from Harvard in 1976. Her dissertation was entitled *"Psychology and Society: the Emergence of the French Freud"*. Since 1976 she has taught at MIT, where she has been Professor of the Sociology of Science since 1991.

Sherry Turkle is the author of six books. At a very early stage she occupied herself with the problem of how the computer brings us to reflect differently on our thinking, memory and our reason, and how our perception of ourselves changes when we do this. This is described in *"The Second Self: Computers and the Human Spirit"* (1984a). Following this, she studied how computers intervene in the mental development of users, how people find their way around the new virtual worlds, and how the separation between real and virtual life is gradually dissolving for many. In her book *"Life on the Screen: Identity in the Age of the Internet"* (1995), she studies the new possibilities of getting to know one's own identity in the Internet and developing it further. This book made her internationally famous. In 2011 she published *"Alone Together. Why We Expect More from Technology and Less from Each Other"*. In this book, she imparted the results of fifteen years of research, and discussed above all the problem of how Smartphones are changing our lives. (Sources: Turkle, no year; Monitor Talent, 2010; Turkle, no year a).

Motivation

Two contrary motives can be seen here: on the one hand there is the pleasure in being in the forefront of research as a scientist with many awards, a member of a very well-regarded university, of being very successful and generally accepted; and on the other there is the apprehension of losing the sympathies of colleagues and the public if she publishes the negative consequences of digitalization that she detected. This dichotomy can be extrapolated on the basis of one of her statements. When Christoph Drösser, in an interview for the German weekly *Die Zeit*, questioned her about her new sceptical attitude in her new book, and finally came out and asked her, "Have you converted from being an Internet preacher to being a sceptic?", she answered candidly as follows:

"I don't like it when people say 'Sherry Turkle demands: Pull the plug out!' It was easier for me to be the darling of *"Wired"* than to give people the feeling that I have turned against them. Many people believe you're either for or against technology. What I'm saying is simply: Take a break!" (Drösser, 2011).

With this answer, Sherry Turkle disclosed two important motives that are obviously significant for her work.

Critical approaches

Early unease

When Sherry Turkle started her work at MIT at the end of the 1970s and began, as a psychologist, to grapple with computer technology, she was determined to approach this task with a clinical attitude. The young scientist wanted "to control the medium, without letting herself be controlled by it" (Spiegel, 1996). However, the work in MIT's Media Laboratory was extremely fascinating to her and soon turned the cool observer into an enthusiastic and inspirational Internet protagonist (Spiegel, 1996). Her positive attitude and unbroken belief in progress can already be seen in her book The *"Second Self"* (1984). Admittedly, her book was published in the year in which George Orwell's novel *"Nineteen Eighty-Four"* had prophesied that its bleak, pessimistic view of society would be in bloom, but Turkle did not let herself be influenced by this. On the contrary, her book was then, as she herself says, "by contrast full of hope and optimism" (2011, p. XI). Her second book *"Life on the Screen"*, which was published in 1995, also has an upbeat mood throughout. In this book she examines how people react to live in the Internet when they meet each other there, experience being together there, take on different identities there and try them out in various Multi-User-Domains (MUDs). In this context she questioned and observed 1,000 frequent users of chat rooms and MUDs.

For Sherry Turkle, the emotional relationship of users to their computers is of particular interest. As she discovered, many young users prefer activities on the Internet to those in real life. As an optimist, she is enthusiastic about the new possibilities provided by networked computers. Accordingly, the dust jacket of her book *"Leben im Netz"* (1998) states that her book was "written in opposition to computer scepticism". This is indeed the case, but it is not the whole truth. In the third part of the book the author already deals selectively with "Virtuality and its Discontents" (1998, p. 378), and initial critical approaches can be detected here. She is involved in this book with subjects such as "The Loss of the Real", "Escape or Resistance?".

Sherry Turkle compares real "great good places", such as bars, bistros or cafés with virtual socializing. In virtuality, as she had to admit, the actual personal relationship is lost. But even before the use of computers the real world had "intermediate steps" […] "from a sidewalk café to a food court in a shopping center" that led to the disintegration of personal contacts. She points here to shopping malls and to Disneyland, in other words to establishments that she already classifies in a "culture of simulation" (1998, p. 380). Her definitive critique reads:

"Technological optimists think that computers will reverse some of this social atomization, touting social experience and virtual community as ways for people to widen their horizons. But is it really sensible to suggest that the way to revitalize community is to sit alone in our rooms, typing at our networked computers and filling our lives with virtual friends?" (1998, p. 382).

She also registers the "devaluation of direct experience" (1998, p. 382). The Internet does not in any way offer us a fully adequate replacement for our real world. A person who can get excited about how alive an artificial Disneyland crocodile is will certainly be

disappointed by an encounter with a real crocodile in a zoo (2011, p. 4). A person who has observed on-screen how a blossom unfolds in fast motion will linger impatiently and disgruntedly in front of a real blossom. There is also a danger that "denatured and artificial experiences seem real"(1998, p. 383). Her recommendation is "[I]f we value certain aspects of life off the screen, we may need to do something to protect them" (1998, p. 383).

To characterize the phenomenon of "escape into the Internet" Sherry Turkle describes the life situation of three college graduates who have to live in unsafe neighbourhoods as victims of the economic recession, the spread of Aids, unemployment and a lack of money (1998, p. 390). They want to escape from this situation and attempt desperately to rise to the middle classes, but do not get a career opportunity to do this. For these people, the Internet provides an opportunity to flee from this misery. They feel good in the Internet. One user speaks for many when he says, "MUDs make me more what I really am. Off the MUD I am not so much me". (1998, p. 391). Here, the author poses the difficult question of whether the real self is always the one given naturally. Is the real self always identical to the self of the physical world? Fundamental questions arise here on the interpretation of the virtual community (1998, p. 391).

In the following years Sherry Turkle appeared again and again in the scientific community as a researcher, teacher, advisor and publicist. She is the founder and director of the MIT Initiative on Technology and Self, and occupies herself there above all with the relationship between people and artefacts, in particular with computers and "sociable robots", whereby she concentrates above all on their use by children and older people (Turkle, 2005, 2005a). Because of her researches, she is confident and places great store in the further development of Artificial Intelligence (AI).

Stronger misgivings

In a detailed interview that Sherry Turkle gave the Internet magazine *Frontline* in 2009, we can see how her critical attitude gains weight in the new decade. Her new misgivings are the result of a structural change to networked computers: the mobile user appears on the scene and is able to access the Internet everywhere and at any time with his Smartphone. He finds himself in a situation of permanent connectivity. This has a great impact on users' consciousness, because if the permanent connection is interrupted, they immediately start to feel helpless. As a psychologist, Sherry Turkle is concerned about how this life with Smartphones will develop in the future. She examines the consequences of this change, whereby she is interested above all in users' internal processes. Among others, the following points are discussed in this major interview: the role of technology, the dissolution of traditional social ties, undesirable developments in teaching and learning, and using the Internet to escape the misery of everyday life (Frontline, 2009).

Critique of technology

"I think that we live in techno-enthusiastic times. We celebrate our technologies because people are frightened by the world we've made. The economy isn't going right; there's global warming. In times like that, people imagine science and technology will be able to get it right" (Frontline, 2009, p. 1). However, technology is by no means a panacea. Asked about Internet technology, she replies that we wither if we try to everything everywhere, and in the end feel lonely. Because the greater the effort we make to be connected online with as many people as possible, the lonelier we will become.

Most Internet protagonists are interested mainly in technical problems. However: "The saying that we know too little to make a judgment about technology has, as its starting point, that we know nothing about human development" (Frontline, 2009, p. 14). She substantiates this with two examples. With the help of computer technology we are about "to free our universe of people", to give people video games for entertainment, and to provide them with 'sociable robots". When this is done, no account is taken of what we know about ourselves as people. And not only this, in the last five years there has been an unparalleled cultural delusion. People have become infatuated with the didactic miracle of 'multitasking'. But as carefully controlled trials have shown, multitasking impairs all the functions taking part. Will ten years have to pass, asks the author, in which we all forget that concentration is necessary to master difficult tasks? We feel like asking whether common sense and our own experience might not have led to this result from the very beginning.

Sherry Turkle's understanding of digital technology is outlined most clearly in this sentence: "Again, I'm not a Luddite. Technology is a wonderful conversation opener because it's so seductive. That doesn't mean it's where the conversation should end. It's a wonderful means of collaboration. But the collaboration is between people who are excited about the ideas. The technology is not the product" **(**Frontline, 2009, p. 10).

Sherry Turkle is definitely of the opinion that the nostalgic recollection of what we were once successful in doing is generally interpreted as "hostility to technology". However, nostalgia of this kind must be understood and evaluated positively, and she wants to contribute to this. Sherry Turkle's new attitude can be seen most clearly in the demand that she put forward assertively in another interview: "It is time to put technology in its place" (Huffington, 2011).

The disintegration of social solidarity

Sherry Turkle makes the consequences of the spread of the Smartphone clear by describing the following situation: the children of divorced parents, who live with their father, have not seen their mother for four days. She comes and collects them to watch football with them. However, she sits the whole time with her Blackberry to her ear and does not look at the children once throughout the game. The telephone conversation is even continued during the drive home in the car, so that the children do not get any attention here either. What is amazing for an erstwhile enthusiastic protagonist of the Internet is Sherry Turkle's advice: if we regard the acquisition of social competence as important and want our children to feel at ease in real groups, we have to recommend "[A] little less Net time, s'il vous plait!" (Frontline, 2009, p. 1)

Didactical undesirable developments.

Many users do not believe that simulated situations are only second-best and often even prefer the virtual to the real. They want "to give up the body" (Frontline, 2009, p. 7). However, in real sociality, direct contact of people with each other is important. We have to experience how we feel in a situation and how we recognize ourselves through the reactions of others. But now, a generation is growing up without any fundamental skills for social contact with people in real life. It was particularly serious if young people lived through the period of their adolescence without having worked out the competences required as adults for dealing with people and ideas, and without detecting and exploring their own identity with effort.

In the digital age, people had forgotten how much regard and attention we owe to our conversational partners. They were intolerant if complicated matters were explained. The author rejects PowerPoint, because this type of presentation does not support critical thinking. She regards as false the often seen demand that work in the Internet should be with short and simple texts: "I would feel bereft if, because technology wants us to read short, simple stories, we bequeath to our children a world of short, simple stories. What technology makes easy is not always what nurtures the human spirit**."**(Frontline, 2009, p. 8).

Should we not already judge the virtual world as being more important than the real world? The author answers this question from the interviewer in the negative. We were living beings with bodies - and the pleasures of the body were more important. In reality we can communicate with each other in a nuanced way, through minute changes to the voice and the facial expression. These considerations cause the author to issue the following warning: "Many exciting and interesting things can happen when you are in virtual places, but every hour of life on the screen is an hour not spent on the rest of life. And it's well past the time to take the measure of what are the costs." (Frontline, 2009, p. 5).

If we appreciate and prefer the speed of working with computers, we rob ourselves of the capacity to analyze complex issues intelligently. Students had changed in the last twenty years, because they no longer had the ambition to solve difficult tasks. Those students who believed that multitasking was a good thing had to be compelled in a difficult and continuously exhausting manner to formulate arguments for solving a difficult problem in a cultural, historical and psychological context (Frontline, 2009, p. 9).

Cultural criticism.

Sherry Turkle refers to a maxim of Henry David Thoreau (1854) who, as he wrote in his book *"Walden"*, undertook to live a full life as a man, and made three resolutions for this purpose. He wanted to live his life fully consciously, to live his own life and never to give up hope. Looking at our digitalized world, Sherry Turkle concludes: we do not live fully consciously, but we are bombarded with information. We do not live our own lives, but in part a Facebook life. And we have given up hope. This behaviour prevents users from exploring their personal identity (Frontline, 2009, p. 14).

At the turning point

The book *"Alone Together"*, which was published in 2011, lets the change that has occurred in the author's attitude appear even more clearly. Even the title indicates a situation for criticism, namely from the aspect of physical health and mental hygiene. The subtitle describes the change that has occurred more precisely: *"Why We Expect More from Technology and Less from Each Other"*. It arouses associations of the loneliness of modern man in engineered mass society and draws the reader's attention to how the technology of social networking intensifies still further the dissolution of personal bonds that is already taking place in a serious way. Accordingly, the foreword (Author's Note) is entitled significantly: Turning Points.

A reviewer in the New York Times described the difference between the positive representation of the Internet in the book *"Life on the Screen"* (1995) and its critical evaluation in Turkle's new book drastically as follows: "It was a mostly optimistic account, as Turkle celebrated the freedom of online identity. Instead of being constrained by the responsibilities of real life, Turkle argued, people were using the

Web to experiment, trying on personalities like pieces of clothing. As one online user told her, "You are who you pretend to be." - In Turkle's latest book, *"Alone Together"*, this optimism is long gone. If the Internet of 1995 was a post-modern playhouse, allowing individuals to engage in unbridled expression, Turkle describes it today as a corporate trap, a ball and chain that keeps us tethered to the tiny screens of our cell phones, tapping out trite messages to stay in touch.

The author has in fact become more sceptical and concerned about the current development of digitalization. Her misgivings about the devaluation of real experiences as a consequence of simulation, which she had already conceived in part at the end of *"Life on the Screen"*, have intensified considerably since then (2011, p. XII). The critical points that she had already formulated in her major interview in 2009 were manifested much more clearly in this book. In addition, the author discloses what she was able to discover about the damaging effects of robots and networked computers in her many interviews with users in schools and universities. As the only researcher among the critics introduced in this book, she concentrates on the emotional relationships between users and their respective digital technical appliances. She describes how using them has an effect on users' psyche. Her critique is not developed systematically, but is spread over the 360 pages in the book. The following are some of the salient points of her critique.

- A paradox of cultural history shows how far and varied the development of social networking already is, and how little has been achieved in the end. For over half a page, the author lists all the digital technologies with which contact to other online users can be made, often simultaneously. In spite of all the online contacts that are made and maintained in this way, it may still be that users suddenly feel "completely alone", in spite of all their keenness. Here, personal relationships can be turned into mere contacts. This paradox led Sherry Turkle to write her most recent book (2011, p. 12).

- In the introduction to this book the author reports on her research on Zhu Zhu, the robot hamster, which advertisements claim can love children. While this is objectively impossible, it is possible subjectively speaking. Children then project specific characteristics onto this hamster, which enables them to create an emotional bond with it and to demand human ways of behaving of it. However, this gives rise to ethical questions.

- The online program Chatroulette is heavily criticized. Here, about 1.5 million users from all over the world are video-linked on a random basis. The photo of some user or other appears on the screen, but this can be rejected by a mouse click and replaced by the next photo. In the author's opinion, this turns people into objects, and she continues, "A disturbing symmetry: we seem to be determined to give human qualities to objects and content to treat each other as things" (2011 p. XIV). This finding as well is typical for the digital alteration: our traditional ideas of subject and object are changing.

A special section of this book (2011, pp. 13-14) deals with "Connectivity and its Discontents". In the beginning, connection with the Internet was to take the place of face-to-face contact, but recently a change has occurred here as well. In the USA, users like texting most of all. The reason: people no longer have any time for a telephone call. And what is worse: people avoid telephone conversations because they can't interrupt

them, and they don't want to become involved in the problems of the person at the other end of the line. The disastrous consequences that this attitude can have become clear in the following typical situations:

- An eerie scene: a woman in her fifties is walking along a road. As she soon sees, she is the only one without an earplug and is therefore not connected with the Internet via a Smartphone with the Internet. She checks whether there is anyone else, apart from her, who is not online. She does not come across anyone she can say hello to or nod to. She discovers that there is nobody there where the pedestrians are. They are all talking to people who are far away. The woman misses the old conditions on the street and complains that her home town has become empty.
- Typical behaviour: a High School senior admits that conversations are fun, but are usually stressful, which is why he prefers to text.
- An everyday family scene: the father is sitting at the table with family for lunch, but at the same time he is writing a text message on the iPhone, tweeting, and at the same time asking someone to pass him the salt:
- A dysfunctional mother-daughter relationship: a thirty-something woman talks to her mother, who lives some distance away, twice every week via Skype. She likes to stretch these conversations out, for over an hour, because they are free. However, while she is talking she is dealing with her emails, which her mother can't see.
- A breakdown of the trusted relationship between brother and sister: a lawyer is angry, and feels hurt, because his sister told him about her forthcoming engagement in a circular email that she addressed to all her friends. He had expected a personal telephone call in such an important family matter.
- A close bond to the laptop: at a high-level global conference of robot engineers in Japan, most of those attending do not listen to the speaker but deal with their emails.
- A too close bond with the Smartphone: many users are unable to live without their Blackberry. They even hold it in their hand when they are talking to someone. And they are horrified if the Internet connection is interrupted. "I feel like death", said a student in such a situation (2011, pp. 13-16).
- By describing a large number of these situations the author shows how fragile interpersonal relationships have become, the great extent to which traditional ways of behaving have evaporated and how even what is "the done thing" is no longer self-evident. As the author had to note with amazement, when asked about this, users think these new ways of behaviour are quite normal.
- As a "psychoanalytically trained psychologist", the author sets great store in personal relationships "on the relationship of intimacy and authenticity.[...]", which is why she is concerned about David Levy's idea "of seeking intimacy with a machine that has no feeling, can have no feeling, and is really just a clever collection of 'as if' performances" (2011, p. 6).
- In her judgement: just as mass media lower people's mental levels, the emotional level is lowered in the area of love and sex, because people were deliberately turning away from the complexity of human partnership: "The inauthentic as a new aesthetic" (2011, p. 6).

The author draws our attention to the "cultural displacement of expectations" that "we nurture with regard to technology". Often, the opinion is put forward that "love, sex and marriage with a computer" were not only better than nothing, but were even a substitute for, and in fact better than, the natural experience. This can be explained by the present experiences in our chaotic, frustrating and always complex world. The intensified attention paid to technology was therefore at the same time a turning away from our complicated lives. The greater hopes for the computer were a general trend, which is why Sherry Turkle calls our present day a "robotic moment", by which she means the emotional and philosophical willingness of people to expect salvation from the machine. "I find people willing to seriously consider robots not only as pets but as potential friends, confidants, and even romantic partners" (2011, p. 9).

Sherry Turkle arrays her misgivings about these consequences of the change in digital communication in a series of questions: does digital technology offer us the life that we want? Is it right to have our children, or our old parents, looked after by computers or social robots? What about our responsibility? Do we feel well living in these virtual environments? She closes this chapter with the remark, "This is the time to begin these conversations, together. It is too late to leave the future to the futurists" (2011, p. 17).

Hesitant re-evaluation

On 24 February 2011, the German weekly *Die Zeit* published an interview with Sherry Turkle on the occasion of the publication of her book *"Alone. Together"* (Drösser, 2011). Here we get to know her current assessment of the Internet more precisely, because it contains further sceptical judgements. Above all, we discover why she has changed her opinion about digitalization in recent years. Her sceptical judgements refer to the quality of the emotional bond of users with their computers and robots, the intensity of online relationships and, finally, on the massive change of digitalization in the present day.

At first, the interviewer mentions a passage in the new book in which a female student "confided that she would trade her boyfriend for a sophisticated Japanese robot" (2011, p. 8). In answer to the question from the interviewer about how the author reacted to this confession, Sherry Turkle replied she was "astounded", but then she discussed this case in more detail. On the one hand, she "had been sad", but, on the other, this student's statement showed her a precarious social situation. The student wanted to have a "companion" who would make her less lonely and create a pleasant atmosphere. The researcher then goes into the question of how things can come to this mental state and finds, "We have lost confidence in people". Further, however, part of the "core of being a person" is that we "get involved with the complex mesh of human relationships". We should not look for problem-free partnerships in the Internet in order to escape disappointments, pain, traumas and the risk of being abandoned. Our social world has to take note of and understand the "heights and depths" that we experience as persons. And as the summary of her study she finds: "At present we are in a moment of being tempted to leave all this behind". With this, Sherry Turkle referred to a cardinal point in her critique.

In answer to the question whether online relationships were superficial, Turkle replied "a Facebook friend is not a friend - unless he was already a friend offline". Users often had the impression of experiencing intimacy online, but in fact they were hiding here as well from the complexity of human relationships. Anyone who exchanges short

messages with others on the Internet as a substitute for personal acquaintanceship was going without "a lot".

Is the freedom that the Internet promised us over? When asked this question by the interviewer Turkle referred to goals for whose pursuit the Internet was "unbeatable", and pointed to the role it played in the liberation struggles in North Africa, about which we were only informed because people with mobile telephones were able to take photos and organize demonstrations. But, she added "some aspects of technology make us vulnerable, and I think we should look at them before they overpower us".

The interviewer's remark that in her new book Sherry Turkle appraised the "parallel life that people lead on the Internet" more sceptically than in earlier publications, and his question about what had led to this reversal of opinion, prompted her to the following revealing confession:

"Fifteen years ago I was excited about the possibilities that the Internet opens up for research and experimentation. But at the time I didn't think that people would always have it with them, and that it would be possible for them in all situations and at all times to escape reality. And now there are parents who text while driving, with their children sitting tight on the back seat. We even text during supper with the family, grow apart from ourselves and from the people around us".

As these examples show, more recent technical developments, in particular mobile networking, have led to Sherry Turkle having serious misgivings. This situation deserves particular attention because this researcher has dealt fundamentally and optimistically as a sociologist for two decades with the consequences of the interaction between man and computer, and between man and robot. With her, the critique is not the outflow of resentment, as it is with many enemies of technology, but is based on comprehensive and thorough analyses of more recent user behaviour.

It seems that in the Internet culture the age of emphasized and exclusive affirmation is over.

Reception

Sherry Turkle's publications have been honoured on many occasions by US magazines. In 1995, *Newsweek* adjudged that she is among the fifty most influential observers of the development of cyberspace. *Time Digital Magazine* voted her one of the fifty people who belong to the "cyber elite". And, according to the American Library Association's *Library Instruction Round Table*, *"Seeing Through Computers"* was one of the twenty best articles of the year (Haro, 1998).

The response to her book *"Life on the Screen"*, published in 1995, was huge. Reviewers, including fellow professors, praised it fulsomely, because it casts "a fascinating revealing look at the changing nature of personal identity" (Mitchell Kapor); because it "is a seminal book that mesmerizes the reader" (Howard Rheingold); because it "is the best monograph that has been written on the social phenomena that are being formed on the Internet" (Paul Carr); and because the author had developed into the "Margaret Mead" of the Internet (Paul C. Judge) - (all citations: Amazon, no year).

Derek McMillan (no year) wrote: "This book is a witty and well-written explanation of the strange world of cyberspace and the even stranger world of post-modern theories" – a "first

class read". Anonymous readers of the book commented: "relevant and important" - "engaging and thought-provoking" – "important anthropology of virtual life" – great, well grounded analysis" - "a balanced and nuanced book" - "compelling reading". There is also a great number of customer reviews. One of these characterized the book as "relevant and important, mind boggling, exciting, terrifying and […] revealing" (anonymous), another as "well organized and thought provoking" (Lea Jakaitis). Individually, there were also negative voices. One regarded the book as "post-modern vagaries and mostly trivial observations" (anonymous). It "combines the best of their research in psychoanalysis, computer technology, and sociology" – "Highly recommended" (customer review). "Quite outstanding. Turkle's work is without parallel" (nicolayi@smmit.net). (All citations: Amazon, no year a)

One critic thought the book was "absolutely compulsory reading" and a "contemporary document for the beginnings of the Internet". Another praised the true-to-life examples, a third reacted derogatorily, saying Sherry Turkle had "interviewed half America and scraped this book together". Yet another confirmed that, on the one hand, the book satisfied scientific demands and, on the other, was entertaining.

The response to the book *"Alone Together"*, which was published in 2011, was no less varied and positive. The publishers printed six extraordinary assessments from top-class experts in the blurb. Kevin Kelly described the author here as our "techno Freud" and found her book "immensely satisfying". Harvard Professor Rosabeth Moss Kanter thought Turkle's book painted "a brilliant, profound, stirring, and often disturbing portrait of the future"; Mitchel Resnick, a colleague at the MIT Media Lab, called the author "the Margaret Mead of digital culture", and Harvard Professor Howard Gardner remarked, "Sherry Turkle has observed more widely and thought more deeply about human-computer relations than any other scholar", while Jessica Bennett (2011) from *Newsweek* talked of "a fascinating portrait of our changing relationship with technology".

Comments

With Sherry Turkle we get to know a critic whose attitude to digitalization has gone through changes. She started at the end of the 1970s clinically and sceptically with the intention of not letting herself be dominated by the computer, but by the mid-1990s had become a progress-conscious, enthusiastic and almost lyrical protagonist. In the middle of the following decade she became a sceptic once again under the impression of mobile connectivity. We readily believe her critique of the more recent developments of digitalization, because she does not crow about it, but propounds it more cautiously and restrainedly.

Sherry Turkle is worried about serious dislocations in thinking, behaviour and social intercourse. She pauses and asks herself about which road we have actually taken, whether human targets can be pursued with it in any case, and whether we can see what we have surrendered in the last phases of digitalization. In her opinion, we are standing at a crossroads, which basically means a change of direction.

This author is unique in a double sense. For thirty years she has occupied herself intensively with a single, limited aspect of digitalization: the internal relationships that come into being between users and the technical systems robots and networked computers. And she stands out from other critics through her particular way of working as well. She carried out

thousands of conversations in all regions of the USA with incredible perseverance, patience and dedication in order to acquire exact information and to shed light on the behaviour of children, young people and adults towards the named technical objects. Field research is in first place for the trained psychologist and practicing sociologist. In this respect her work is similar to that of ethnologists. She describes herself as well as an anthropologist (2011, p. IX). Consequently, the indication by one reviewer that she is a "Margaret Mead of digital culture" is extremely apt and exposes the importance that people in the scientific community attach to her work.

In her books, Sherry Turkle expands on what she has discovered in her field research, whereby she reproduces particularly insightful statements by those in the surveys word for word. In this way, she is able to get to know and document a very large number of different opinions, attitudes and mental states full of nuances. These form a broad empirical basis for the findings that she puts forward in her books. It is true that her mainly anecdotal acquisition of insights cannot be generalized, but typical statements from those she questioned provide us with insights into never previously seen circumstances. She is a pioneer in the research subject she selected as well as in her way of working.

Sherry Turkle's present critique arises from a fundamental insight. This is: a new phase started in the development of digitalization with the sudden and rapid spread of the Smartphone (107.7 million in 2011 – FAS, 2011). While mobile phones were used simply for telephoning and texting, the Smartphone is a completely different appliance. It is a small computer with Internet access that can open up a new virtual world and become "a helper in any situation" (Hirzel et al., 2011). Traditional telephoning is now practically immaterial and has been replaced by texting and tweeting. Sherry Turkle has seen this radical sea change more clearly than all others and has proved its negative consequences for human coexistence through hundreds of exact case studies.

Sherry Turkle's description of this new phase in the development of digitalization prompts us to take a look at previous phases from which she has broken away. According to this, at the beginning there was a phase in which the computer was used as a tool. There followed the phase in which the networked computer served above all as a communication medium. The construction of virtual worlds then came to the fore. And in the fourth and (to date) last phase, Smartphones enabled users to maintain the connection with the Internet permanently and thus to live in the virtual world.

Sherry Turkle is the only one of the twenty critics who have their say in this book who has dealt not only with the effects of networked computers but also with those of robots. In fact, she devotes half of her new book to robots, including "social" or "sociable robots", which can take over the functions of tutors for children and young people, or look after old people and the disabled. In her opinion, using them gives rise to moral and ethical questions. On the one hand, she contradicts the devout prophets of AI, who want to ascribe human characteristics to these artefacts, and, on the other, she increases our understanding for the emotional mechanism that brings people to project their perceptions and feelings onto non-living apparatus. This enables them to assume that interaction with them is possible, whereby the robots in fact display "human feelings", even if these are merely "as if" feelings.

Permanent mobile connectivity has led above all to two changes in user behaviour to which Sherry Turkle draws our attention again and again. On the one hand, users say a definite "no" to telephoning and instead favour texting and tweeting. And on the other hand, this erodes personal commitments, liaisons and the capacity to adapt to social situations. This critic has thus described the central point of the change that will have a great impact on the future of digitalization. It has to be said that when users are asked about the decline in social commitments they already accept this without misgivings and increasingly regard it as normal. An even more alarming finding.

Sherry Turkle has made a unique contribution to the critique of digitalization. Her psychological way of thinking and her field research have enabled her to diagnose diversely undesired and harmful developments of digitalization, to describe them precisely and to explain them perceptively, including some that other critics do not recognize. She impresses through her long involvement with the chosen subject and with her ability to recognize motives behind changing ways of behaviour. In the presentation of her findings she shines through high intelligence and persuading eloquence. She is an outstanding critic of digitalization.

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18 The cultural pessimist: Jean Baudrillard

The end of humanity

Jean Baudrillard**,** the world-famous French sociologist and philosopher**,** was born in Reims in 1929 and died in Paris in 2007. He is regarded as an influential theorist, literary critic, translator and eminent media theorist.

Biographical background

Baudrillard was born into a family of farmers and civil servants. He studied German at the Sorbonne, and Philosophy and Sociology at the University of Paris-Nanterre, where he was given a chair for Sociology after completing his doctorate. Later, he taught at the University of Paris IX Dauphine, and finally was appointed Professor for Media and Culture at the European Graduate School in Saas Fee. Initially he played a role as a militant leftwing intellectual. Later on, he became famous globally as a protagonist of the post-modern and as an aggressive cultural critic.

Baudrillard's oeuvre is extensive. He wrote 50 books, many of which have been translated into other languages. He began as a Marxist, but later he subjected Marxism and the ideals of the Enlightenment to a stringent critique. His first book, *"The System of Objects"* (1968), (*"Le système des objects"*, 1976) described manufactured everyday objects that surround us as an enclosed semiotic system, which he interpreted as an illusory world of consumption. His main work, *"Symbolic Exchange and Death"* (1976) (*"L'echange symbolique et la mort"*, 1976), is regarded as a central philosophical work of the post-modern. At the time, its protagonists conjured up the end of the "great stories" and the "end of history". Some of Baudrillard's main themes are fundamentalism, terrorism and globalization. However, he acquired his reputation as a significant media theorist with writings that grappled with virtuality, simulation and hyperreality: *"Requiem for the Media"* (1972), *"The Agony of the Real"* (1978), *"Simulacra & Simulation"* (1981) *("Simulacres et simulation"*, 1981) – this book proved to be a bestseller in the USA –*"Why Hasn't Everything Already Disappeared?"* (2009) *"Pourquoi tout n'a-t-il pas déjà disparu?"* (2008). – His critique of the simulated world was reflected in these books. (Sources: Kellner, 2006; EGS, no year).

Motivation

Jean Baudrillard wanted to enlighten his contemporaries by leading them on the path to veracity. Only in this way is it possible to change anything. Paradoxically, in his world of hyperreality, in which there is no longer good or evil, he lets himself be guided by a positive ideal: the "ideal of the intellectual who voices the uncomfortable truths that are important". He wants to approach this ideal by feeling obliged to be genuine. In this he wanted to achieve "clarity" and a "lucid consciousness" (Strehle, 2007). We are aware of an additional motive here, because Baudrillard disclosed this in a short essay entitled *"I Have a Dream"* (2010). He dreams of the "desert", which is for him "the clearest, most beautiful, brightest, strongest form of absence". The immeasurableness of space excites him. "It is like a drug, a form of ecstasy". He sees in it a "permanent counter-concept" to the world of objects. It makes us curious about "how the world might look like when we ourselves are no longer there". In this way, Baudrillard imagines the

world "without the human species". He imagines it anyway as the last consequence of simulation. The pursuit of exact knowledge of our world is coupled here with a desire for detachment from the world.

Main features of his critique of digitalization

Some major assumptions

To measure what serious relevance digitalization must have had for Baudrillard in particular it is necessary to call to mind some of his pivotal ideas. Baudrillard's critique of digitalization is namely embedded in his media theory, in which, even before the emergence of the 1/0 coding of the computer age, he was able to show the great extent to which signs and semiotic systems, and the phenomenon of simulation, changed people's lives.

Historical preliminary stages of simulation

Baudrillard finds again and again that the world simulated by electronic media is at present ousting the real world. However, he interprets this process as the hitherto last stage of a process that began very early, basically with humanization, namely with the acquisition of language and the formation of definitions. "By imagining objects, naming them and recording them in definitions, man ensures that they exist, but at the same time hounds them towards their loss, disengages them subtly from their raw reality" (2008, p. 9). This process was intensified in modern times, as people started to transform reality, "namely through science, analytical knowledge of the world and its technological application" (2008, p. 6). Analysis, he stresses, originally meant "dissolving". According to this, digitalization and the creation of the virtual world dissolve the real world. Baudrillard's last work is therefore entitled *"Why Hasn't Everything Already Disappeared?"* (2009).

Modern periods of simulation

Baudrillard describes three historical periods in which the relationship of semiotic systems to social reality changed fundamentally in each case: the age of the Renaissance up to the 19th century, the age of industrialization, and the age of electronic mass media and of digitalization. These transformations were caused by three different activities: first imitation, then production and finally simulation.

Imitation. A radical change took place in the Renaissance with regard to signs. In comparison to the previous era of feudalism, many new signs were created and multiplied. They were no longer exclusive, but liberated from regulations based on social status. Everywhere people were imitating originals, above all from nature, such as, e.g., Dürer's drawings prove. Imitation presupposes active creative action and remains the characteristic feature of this period, which continued until the 19th century.

Production. The Industrial Revolution caused a new radical change. Again, new signs and semiotic systems were necessarily created on the basis of mechanical production of goods. They were produced mechanically, which is why the term *production* gave this epoch its name. Signs could now be produced en masse. Access to them was free, or at least no longer a matter of status, but of money. However, with this mechanical production of signs the previous close relationship with reality was lost, and with it the metaphysical content of imitation. Semiotic systems assumed an independent existence and were commercialized, above all in advertising.

Simulation. Information technology once again liberated signs from the constraints of the previous period. With networked computers signs can be copied in any numbers and in the shortest period of time and spread all over the world. The constraints imposed by time and space are being dissolved. Digital worlds are being created, through which reality loses significance during the sensory perception of the world. The consequences of this radical change are once again serious. The imaginary is lifted away from reality. The relationships to physical reality and to metaphysical meanings are dissolved. According to this, signs no longer point to real contents but to themselves. According to Baudrillard, this means that "meanings and differences, critique, reason and good and evil" are disappearing (cf. Oßwald, 2004). But if the difference between the copy and the original is lost and can no longer be perceived, the copy is regarded as reality, and we find ourselves in the area of hyperreality.

A world without people

Baudrillard sees in hyperreality an "excess of reality" that is achieved by the development of "a boundless material and mental technology". Human beings are now in a never before experienced stage of their anthropological development, because this particular technology enables them "to go to the end of their capabilities". In doing this, they enter "a world from which they are being expelled at the same time". (2008, p. 24) Why is this the case? Because the specific, "the particularity of the being", consists exactly in not going to the end of their capabilities. But this is an essential part of technical objects, "making full use of its capabilities and developing against everything and everyone, in the end against humans themselves". However, this implies in the more or less long time the disappearance of humans. At the end of this inexorable process, which leads to a completely objective universe that in a certain sense represents the highest stage of reality, there are no longer and subjects, there is nobody to see this universe". Baudrillard concludes this section with the insight, "This world no longer needs us" (2007, p. 24). With regard to this apocalyptical vision we find ourselves in a critical state shortly before the end, which Baudrillard calls "paroxysm" (2002).

This radical vision is obviously by no means a futurological speculation. The invention and use of the atom and hydrogen bombs, and the more recent developments of genetic engineering, which cab change humans, or create new life, show even now that mankind has in fact already gone "to the end of its capabilities" with the help of electronic media and digital technologies. The disappearance of people from this world is already a favourite topos for a number of US films, in which people are hardly found, if at all, e.g. *Matrix*. Obviously a large public feels itself emotionally touched by visions of a world without people. The new can also be seen in Stockhausen's electronic music, and in new musical directions such as Heavy Metal, Techno and Rave: what is individual and personal is disappearing, and what is actually "human" is drawing back.

When evaluating these basis assumptions, Baudrillard's idiosyncratic way of thinking and writing has to be kept in mind as well, as this has met with a good deal of dissent. He works impulsively, discontinuously, speculatively, paradoxically, provocatively, apodictically and inconsistently. He is sometimes superficial and unsystematic in substantiating his theses. As a sociologist, he refers as well to other disciplines, such as biology, new physics, media technology and cybernetics. He is not afraid of undertaking historical considerations and going down the path to metaphysics. The scientific nature of his work quality was then called into doubt as well. For example, in the features

sections of newspapers magazines he was referred to as the "fashionable philosopher" (cf. Blask, 1995, p. 7).

All the same, since the publication of his book *"Symbolic Exchange and Death"*, and above all because of his simulation theories, Baudrillard has continued to be regarded. He had great influence as a media theorist. His ideas were received and discussed internationally. In its obituary a philosophy journal called him one of "the most controversial, but also one of the greatest modern thinkers" (Strehle, 2007, p. 1).

Dimensions of the critique

Baudrillard's critique of digitalization must be understood and evaluated against the background of his theory of signs and simulation.

When he interprets language and conceptualization in human development as the beginning of the splitting of the simulated from the real, this results in the following insight: the present drifting apart of the real world and the simulated illusory world is not brought about by external factors, but is anchored from the start deeply in human nature.

When Baudrillard describes historical epochs in which the dominant semiotic systems (simulacra) change massively both structurally and functionally, virtual semiotic systems that are created by networked computers align themselves completely naturally in this development, and at the same time represent its summit up to now.

If we live in an illusory world that is simulated by "electronic media" and regarded as real, the powerful networked computers are part of this development in that they create an own world of virtuality. Digitalization through networked computers must be seen, logically, as the last and, at the same time, the enhanced stage of Baudrillard's simulation theory. Peter Weibel, the media theorist, opines, "What is happening at present in the Internet … redeems all the visions of the French thinker – and surpasses them" (cf. Haas, 2007).

Findings

The forms of simulations outlined here have led to the following momentous social changes:

The postmodern world no longer appears to us as a real world, but as a simulated world. Signs and semiotic systems have achieved supremacy in our real world. In this process, they are becoming so important because they replace the real objects for which they stand and which they represent. Consequently, we regard the representation as more important than the reality, and live increasingly in a simulated world. At the same time, reality is moving more and more into the background. This has far-reaching consequences.

Baudrillard speaks of the "murder of reality" in the age of the virtual and the Internet (2008, p. 6). Primary experiences are limited, or are lost. For him, the "virtual human [sits] motionlessly in front of his computer, makes love via the screen, and lectures by means of teleconferencing. He is becoming physically disabled, and without doubt mentally disabled as well" [(Baudrillard, no year a; www.zitate)].

What is even worse is that in the simulated illusory world, which the author calls hyperreality, we find ourselves in a state without any references. Values, what is real, institutions, ideologies and ultimate purposes are disintegrating (2008, p. 14). In this

process, "the subject as an instance of the will, of liberty, of imagination, the subject of the power of knowledge, of history" is disappearing (2008, p. 18).

The serious effect of the transition from analogue to digital, which Baudrillard calls "merciless", can be illustrated using the example of the fate of pictures. Analogous pictures reproduce an objective reality and reflect an objective truth. In the computer this is "changed into a digital virtual reality". We are faced here with the systematic evaporation of reality, but this is only a "tiny detail in this anthropological revolution", "a tiny example of what is happening in all areas on a massive scale" (2008, p. 23).

Advanced digitalization has particularly serious consequences "in the area of thinking, of comprehension, language, representation" (2008, p. 28). These changes are so important for the author that he refers to them again on the next page: "The same fate of the digital awaits the mental world as well, and the complete broad field of thought" (2008, p. 29).

He characterizes intellectual work on the basis of program-controlled constructions as follows: "There will soon no longer be a single interface that would be receptive for confrontation, no longer any tension of thought between illusion and reality, no more gaps, no silence, no more dissent - but just a single continuous flow, a single continuous circulation". (2008, p. 29). It was a "gigantic illusion to mistake rambling calculations for thinking" (2008, p. 30).

New dangers arise because the de-symbolized electronic data networks easily fall victim to viruses, and then just when all external dangers have been switched off in the "delusion of prophylaxis". The fault comes then from the inside, with enormous potential consequences: "A single virus in the Pentagon's computers is enough potentially to destabilize all data in the information systems" (cf. Blask, 1995, p. 111).

As a result of the unfolding of a boundless mental and material technology, we have been enabled to aspire to extremes, which leads in the end "to the virtual disappearance of the human species" (2008, p. 12). Because, "At the end of the seizure of power by these machines, which will embrace the whole of human intelligence and is certain from then of complete autonomy, it will be clear that man exists only at the price of his own death" (2008, p. 45).

Reception

As was not unexpected with this eccentric and controversial author, reactions to Jean Baudrillard's media theory were both positive and negative. How massive and across-the-board his impact was can be seen simply from the great number of obituaries following his death in the year 2008. What is more, his influence is greater in Anglophone countries than in France. In addition, he has readers and devotees all over the world. The *Stanford Encyclopedia of Philosophy* calls him "one of the leading intellectual figures of the present day" (Kellner, 2007); and for *SIC ET NON - Die Zeitschrift für Philosophie und Kultur im Netz* he is "one of the most controversial, but also one of the greatest thinkers of the age", who has made "important contributions to a philosophical media theory", which "can hardly be underestimated in their significance, but also in their radicalism" (Strehle, 2007). And the sociologist Martin Horacek (2000, p. 156) judged, he had "driven the discourse on the influence of mass media forward at the highest level" and had thereby become a "classic".

We can find further signs of recognition in the features sections of newspapers. *Spiegel Online* opined that Baudrillard was "France's most provocative cultural critic", a "star thinker", who "has his finger on the pulse" (Haas, 2007). *Buchtips* (2009) stated "We have a book before us that is to be taken seriously, whose theses on current developments must be considered". *Der Freitag* thinks that Baudrillard is "one of the most vituperative analysts of the political and cultural present" (Höltgen, 2007), while *Der Spiegel.de* (2007) calls him "one of the most influential thinkers of the post-modern".

Negative assessments refer to Baudrillard's writing style. Martin Horacek (2000, p. 143) asks, for example "Is the diffuse playing with rhetoric and a strange vocabulary, often borrowed from modern science, only decadent fun that people indulge in in decadent discussion groups? Are Baudrillard's analyses in fact only stagy, meaningless, verbose and superficial juggling with various discourses?" And Alan Sokal and Jean Bricmont conclude their critique as follows: "In the end, we have to ask ourselves what is left of Baudrillard's thoughts when we look behind the façade of the pompous language" (cf. Steinberg, 2007).

Comments

Baudrillard's critique of digitalization attracts attention and lasting recognition because it refers to only to a singular aspect of our present-day culture, but is also part of its comprehensive theoretical interpretation, which also reflects historical and future aspects. His critique of digitalization is aligned seamlessly with his cultural-critical thinking, and confirms it in a startlingly clear way. Based on his semiotic, simulations and media theories, even *before* the introduction and worldwide use of networked computers he arrived at the realization that the real world is being replaced more and more by a virtual world of signs. These new worlds of signs, he concludes, not only replace reality, but also bring about an "anthropological revolution" (2008, p. 23). The results of his thinking are like predictions of what people are now experiencing today as acute personal and social change. Peter Weibel, the art and media theorist, remarked on this: "What is happening right now in the Internet…takes up all the visions of the French thinker – surpasses them even" (cf. Haas, 2007, p. 1).

Affirmation is alien to Baudrillard. Not a single word about any possible advantages of digitalization can be found in his works. In contrast, his merciless, probing look detects radical social developments that are caused by electronic media, but up to now have hardly been noticed with this acuity. At the same time, he projects the results of his reasoning into the future, and in so doing proves to be an unorthodox thinker, whose theses perturb and unsettle.

Simulated hyperreal society is in the centre of his "uncomfortable truths". The core features of this society are its lack of references and its self-reference. As a result, there is neither truth nor error, neither politics nor history, neither good nor evil, neither reality nor people in the traditional sense. He describes how this "hyperreal society" came into being, how it has already reached its peak, and prophesies its coming decline and fall, acting here as the "last witness of the end of the world" (Blask, 2002, p. 219).

In all of this Baudrillard does not bemoan the story of decline that he describes. He is no Cassandra. He simply states things coolly and emphasizes his aloofness through irony. In some places he even follows the virtual transformation of society with amusement. In

one instance he mentions that we would "to an extent savour … the systematic evaporation" of reality and its "sinking into twilight" (2008, p. 23). And for Dosser and Oberhuber (2007, p. 1) he is even a "happy demiurge", in other words a "creator of worlds", who enjoyed hyperreality.

Baudrillard is the most stringent and most radical critic of digitalization. His vigorous diagnosis of present-day society goes beyond neomodern positions and has had a global effect. He has developed a historical general overall framework aligned to the future for a comprehensive interpretation and critique of digitalization. At the same time, with his unsettling articles on simulation he distinguishes himself as a harsh cultural critic. The development of the critique of digitalization reaches a pinnacle in his works.

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19 The apocalypticist: Paul Virilio

The slow Agony of planet earth

Paul Virilio, the French philosopher, was born in Paris in 1932. He has become famous all over the world as a media and culture critic.

Biographical background

Virilio has had an unusual career. As an autodidact, he first studied Architecture and Urban Development, then completed vocational training as a stained glass master craftsman and created stained glass windows for some churches in Paris under the guidance of Henry-Emile-Benoit Matisse. He then worked as an architect, urban planner, artist's workshop manager and magazine editor. For example, in 1963 he became president and publisher of the Architecture Principe Group's magazine, and in 1973 director of the magazine *L'Espace Critique*. In 1969 he became a professor at the École Speciale d'Architecture in Paris, and in 1979 co-founder of the Centre Interdisciplinaire de Recherche de la Paix et d'Études Strategiques. Since retiring in 1999, he has given summer courses in Saas Fee as professor at the European Graduate School.

Virilio's theoretical work was influenced by phenomenology, in particular by thinkers such as Maurice Merleau-Ponty, Martin Heidegger and Edmund Husserl, but also by the Italian futurist Filippo Tommaso Marinetti. References to Albert Einstein can also be verified. Virilio became globally famous because he warned against the "speed craze" and its destructive effects on culture. (Sources: EGS, 2007; Arte, 2009a).

Because of his work in the field of urban studies, Virilio was awarded the "Grand National Prize for Architecture Critique".

Motivation

What motivates a man who is interested in a radical way not in progress, but in fact in the reverse of progress, and in doing this becomes a prophet of decline? A look at Virilio's childhood can provide some indications. It was certainly unconventional: he is the son of an Italian communist who was persecuted by Mussolini and therefore emigrated to Paris, and who had to fear the Gestapo after the country was occupied by the Germans. When he was six, the family had to flee to Nantes in order to escape the belligerencies. At the same time, the *blitzkrieg* and the experience of "total war" virtually "traumatized" him as he was growing up (Amitage, 2000). In addition, there were the operations of the allied troops during the invasion, which he observed in Nantes harbour, and his experiences in the Algerian war, which he had to take part in as a conscript. These experiences laid the foundation for his later grasp of "speed" and for his rejection of war. In war he detected namely the actual cause of technological progress. He himself recognized this influence of his childhood experiences on his subsequent work, because he referred to himself as a "war child" and once said that the war was his university and that everything started from there (Derian, 1995).

As an adult, concern about the loss of the human world worried him. There is special evidence of this (Kittler, 1995). In an interview, he lamented that we had invented a

technology with which people could love over thousands of kilometres without touching. He saw in this a "metaphor of disintegration". He criticizes not only the disconnection of couples, during the act of copulation as well, but the disconnection of social bonds generally, and asks: "Is that not already an effect of the information bomb?" To the objection that he exaggerates he replies: "But how can you not exaggerate in the face of such circumstances?" (Siekermann et al., 2001). Apparently, doubts, concern and indignation are his motives.

Theoretical foundation

Paul Virilio derives critique of digitalization from three of his special research directions: from his general critique of science, his special theory of speed and his visionary forecastspredictions of an apocalyptic future of humankind. The findings of his rigorous analyses were formulated and published before the introduction of the Internet.

Science critique. "Present-day science" does not really serve human progress, he stated in the 1990s. Its truth is found more "in the extent of the caltechnical catastrophes that it causes" (2000, p. 9). Modern science had "departed from its philosophical foundations" and been transformed into a "techno science". Today, science was striving less after "truth", than after the "beneficial effect" above all (2000, p. 10). Based on the successes of the appliances and machines, science was suffering from the "immoderateness of its alleged progress". Above all, his judgement that techno science was destroying "the resources of all knowledge" is serious (2000, p. 10).

Theory of speed. In 1977 Virilio published his book *"Speed and Politics"*. In this work he broached the subject that has occupied him to great extent since. In 1991, he organized the exhibition *La Vitesse* in Paris. There and in his writings he examined speed and its acceleration, which has increased progressively in the course of history, with regard to social changes, a subject that he regards generally as underexposed. Warfare, politics, science and communication were influenced to a great extent by increased speed. Throughout history, the constantly increasing speed of transport has led to "centralization of various powers", which facilitates their exercise of power. Using the examples of the means of transport horse, ship, railway, car and plane, he shows how their respective accelerations in fact considerably changed relationships and power relations. Wars were won because the victors were able to move faster or send and receive messages faster. Based on these studies, for him "speed has become a socially constitutive factor" (Morisch, 2006). He analyzes this phenomenon thoroughly and on this basis developed his "science of speed" ("dromology"). Here he also describes "acceleration as a principle of media-technical development" (Laagay & Lauer, 1998, p. 17). Human history for him is an "endless race with time" (1993).

Apocalyptical visions. Virilio criticizes not only all optimism with regard to technological and industrial progress, he sees dangers everywhere. For him, using every caltechnical invention has injurious side effects. He traces in particular catastrophes and accidents, which are each inextricably linked with technological progress. He regards speed critically and negatively and senses its "uncanny effect of dissolution and destruction" (Jakob, 1994, p. 115). He observes how the "slow death throes of planet Earth" "have become something […] of an everyday nature" for us "thanks to live television" (2000, p. 37).

Virilio's thoughts and ideas range beyond the post-modern, as this was described, for example, by Baudrillard. For this reason, the culture theorist John Amitage has classified this author under "hypermodernism", a school of thought that is just now being formed.

Critique of digitalization

> *"Nothing is ever obtained without a loss of something else. What will be gained from electronic information and electronic communication will necessarily result in a loss of somewhere else. If we are not aware of this loss, and do not account for it, our gain will be of no value." (Virilio 1995)*

With regard to the effects of the digital revolution Virilio has proved to be a good prophet. As early as the 1980s, in other words some considerable time before the general introduction of the Internet, he prophesied its radical impact on people's lives, and this has actually come about today. In doing so at the time, he knew the Internet solely as an idea (Sorgenfrei, 2008). However, his precise power of imagination and strong inclination to structural analysis enabled him in advance to see through the new and very complex phenomenon of the digitalization of our lives and its development.

An excellent example of this is the essay *Rasender Stillstand* which appeared in 1989. He recognized that, with the future Internet, borders would be crossed that are firmly anchored in consciousness. This would lead to spatial distances disappearing. The relationships of the individual to the spatial world would be lost. As a result, people would withdraw from physical interactions with others and the objects of the real world and make themselves into the focal point of the cyberworld (egocentrism). Because the individual remained in this focal point, but at the same time could communicate interactively at the speed of light with others, even at the other side of the world, the paradoxical title of this essay *Polar Inertia* (1999) is without doubt plausible and revealing.

The way in which Virilio interprets this new situation and in doing so penetrates to the essentials, can be verified best of all through the following radical culture-critical argument. The human body is basically no longer required in cyberspace, because people can take part in society's events on a global scale, without moving physically. This was insofar contrary to nature, because in the course of evolution man had developed in fact as a part of the real physical world. His limbs, senses and skills related to his body are intended to enable him to survive in this world. If these are no longer used in virtual space, they forfeit their functions. People will be reduced to using computers. The consequence of this sudden anthropological transformation will be the destruction of the individual.

Critique of technology

Virilio's observations of the negative effects of the Internet can be easily derived from his critique of technology. In fact, they are even a concise part of the latter, because digitalization can be understood as an escalation of the preceding technization. In his opinion, the Internet damages the substance of knowledge and of scientific work, because original "mental and analogous processes" such as a gedanken experiment, for example, were being ousted by "instrumental and digital processes" and are dying out.

And: technology, which the author refers to as an "extreme science", was turning away from traditional "patient exploration of reality, in order to become part of general virtualization" (2000, p. 10). Truth was disappearing under its influence. Virtual reality was ousting reality, even deleting it. Virilio can feel that his earlier assumptions have been confirmed in full.

Speed of light

On the basis of his theory of acceleration, Virilio must also understand the realization of the speed of light in the Internet as a tremendous verification of his predictions. He describes digitalization, which enables people to overcome the greatest distances on earth and in the stratosphere in seconds with images, videos, sound and interaction, as a "dramatic moment" in the history of mankind. In his opinion, we have reached the limits of speed, whereby historical concepts are being thrown away and the relationships of people with their world are becoming disordered.

For Virilio, the most important change that was brought about by this tremendous acceleration of information is the perception and the consciousness of "real time", which, according to the author, is raised above local and regional time conditions, is becoming more and more dominant and is bringing about the loss of the horizon. "Time is passing less and less as successive cycles, it takes place as medial simultaneity. And what is presumed to be a blessing is transformed into a curse" (Karcher, 2002). In addition, Virilio registered the loss of the "dimensions of the earth", the "geographical basis of the continents" and the "end of geography" (2000, p. 15 f.). With regard to real space and the geosphere, real time had already become dominant. In the "permanent feedback of human inactivity" he detects the "invisible danger of a disaster". An example that he gives is that special general interactivity "of which the stock exchange collapse could have been a symptom". (2000, p. 16). The essence of "national and social identity" was changing. The perception and inclusion of real time will influence "political and military strategists" to a great extent (2000, p. 16). In view of such never before known possibilities, Virilio sees real time as a characteristic of a new age.

Virilio describes the consequences of these new situations as follows in an essay with the significant title *Speed and Information: Cyberspace Alarm* (1995):

1. We are experiencing a fundamental loss of orientation that, among other things, has led repeatedly to catastrophic collapses of financial markets.
2. The scenario of our activities is doubled by its splitting into a real and a virtual world.
3. Traditional individual behaviour is being lost completely.
4. The individual now exists only at a location and place in the direct present.
5. The traditional relationship of people to others and to the world is being destroyed.
6. Cyber democracy leads to the loss of political orientation.
7. Global real time enables a new form of tyranny.
8. The simultaneity of global real time and local time, the interpenetration of the two time perceptions, will have consequences for coexistence.

Catastrophe consciousness

For a researcher who, like Virilio, already believed in the decline of society and culture even before the invention of the Internet, digitalization in the 1990s must have had the effect of a shock of recognition, because under this aspect as well, earlier assumptions were confirmed to an enormous extent. Virilio sees the dangers that storing and lightning-fast transmission of huge amounts of information conjure up, and finds an extreme name for this situation not only by referring to the "data flood" the way that other critics do, but also speaks drastically of the "information bomb". *La bomb informatique* is the title of his book published in 1998.

The more the new technologies, in particular information interactions in real time, dominate our lives invisibly, the more they will be used by terrorist forces to establish a new and never previously known form of war, examples of which are supplied by the attack on the World Trade Center in New York and the never-ending chain of suicide bombers in Iraq and in Afghanistan. However, the strict control of the press during the Iraq war shows the enormous potential for change of the exchange of information in real time and its dangers. But this is not enough, and Virilio recognizes the danger of an explosion of the information bomb, which will cause unimaginable damage, as with the explosion of the atom bomb. Together with the "demographic bomb" and a population explosion this will cause, this would bring mankind poverty and misery in the future. In the 21st century, society was drifting towards a "global catastrophe". Virilio evokes this by placing these three "historical explosions" next to one another and correlating them.

Special critique

In an interview broadcast in November 1995 by the French-German television channel *Arte*, in which the Berlin media expert Friedrich Kittler spoke with Paul Virilio, there was a series of critical formulations by the author that cannot be found anywhere else in their contents-wise and formal originality. Because they were expressed verbally, they reproduce his convictions concisely and firmly (Arte, 1995).

For example, he observes with the keen eyes of a professional urban planner how the town is dissolving as a result of its virtualization, and this unsettles him. He interprets the supermarket, for instance, at the edge of town or on a greenfield site, as a "town centre without a town", and as the first step to the virtualization of buying and selling. The next step is teleshopping, and he asks himself where this development will end (Kittler, 1995, p. 1). As an urban planner he is also shocked by the disappearance of space. He complains that, in the Internet, space has stopped existing "in its expansion and duration". In this way, the real world is reduced "to a nothingness". According to Virilio, this is a "fundamental loss". He thinks this development through to its final consequence and asks whether "we are not putting an end to ourselves and to the world?" (Kittler, 1995, p. 7).

Virilio takes up a clear position against those protagonists of digitalization who expect much from a future "virtual society" or "virtual democracy". He regards their hopeful visions as false, because in this way society is robbed of its reality. Votes on the formation of a government could then degenerate into opinion polls (Kittler, 1995, p. 2). His proposal to develop deterrence strategies to prevent the information bomb from exploding is extremely unusual. In his opinion, just as strategies of atomic deterrence were developed after Chernobyl and applied successfully, special deterrence measures must be taken before the information bomb explodes, in order to prevent its damaging effects and

aftermaths. By this he means, for example, "social disintegration, the collapse of society and structural mass unemployment" (Kittler, 1995, p. 5).

Virilio believes that there is already a new "caste of technology monks", who are getting a new civilization "off the ground" in the seclusion of their institutes that had nothing more to do with the "civilization of our memory" (Kittler, 1995, p. 14). Here, a "technical fundamentalism" is being developed that is permeated by "information monotheism". This monotheism is based on information in the broadest sense "without memory and past" (Kittler, 1995, p. 14).

Reception

The culture philosopher Claus Morisch (2006) regards Paul Virilio as "one of the most important contemporary authors with regard to our medial living conditions". In a television film broadcast by Arte, the French-German culture channel, Virilio was referred to as "one of the greatest thinkers of the present" (Arte, 2009). And for the communication scientist John Amitage (2000) he is "one of the most significant French cultural theorists writing today". The American Informatics Professor Eric Stolterman (2010) regards him as "a fascinating and highly challenging thinker". In the completely opposite direction, Joseph Nechvatel (2002) describes Virilio as a "now famous reactionary technophobe". And after reading *The Information Bomb*, Hunter Callaway, a blogger, pulled out all the stops as follows: "Horrible bullshit. One of those all-is-lost postmodernists". The two last rejections show how deeply faithful protagonists of digitalization must be affected by Virilio's critique.

In contrast the *Frankfurter Rundschau* evaluated Virilio's book *Information and Apocalypse* as a "somewhat solitary polemic against top scientific performances" (Heinrich, 2000).

Comments

Paul Virilio has grappled with the subject of the digitalization of our lives in various ways. However, all his thoughts and arguments are not to be understood solely as a reaction to the precipitate development and proliferation of the Internet and its revolutionary effect on society. As with Baudrillard, they acquire their significance and depth because they are regarded as confirmation of his theories, which were developed long before the closing in of digitalization. All the same, digitalization fits exactly into his particular interpretation of our world and its history.

His specific approach amazes us because it deals with unusual contents and imparts them in a challenging way. He interprets our culture namely by detecting its actual origin in its wars. Wars for him are also the cause of constantly changing and developing technologies. Even the establishing of towns and cities served a military purpose, because they were intended in the first place as a means of retaining power and of defence. In the course of history technologies facilitated the continued increase in movement and information. Speed meant power.

In the present era, the amazing maximization and optimization of technologies led to the military-industrial complex, which itself has both direct and indirect effects on culture. It was the military-industrial complex that developed the technological possibilities of the Internet and digitalization in the first place, and did this again for warlike purposes, which has been shown above all by the wars in Kosovo, Iraq and Afghanistan. All the

subsequent digitalization in the civilian world and the changes to our lives that this brought about had their origins here. On the basis of this widened perspective this critic is occupied not only with technological, but also with cultural, social and philosophical developments of our society. Here as well, speed and its acceleration played a part in the retention of economic power and success in war.

Basically, Virilio does not put isolated consequences and those with negative connotations in the digitalized space under the microscope, but takes a global view in order to detect what is fundamental. He concludes this from interrelations and interprets it in the framework of his own overview, whereby the past and the future are included as well. In doing this, he makes use of his "seismographic feeling for invisible figurations within the visible" (Tholen, 1999). As a phenomenologist, he wants to push forward to the pure intuition of essences. The critical situations that are determined in this way weigh a great deal more than the details of daily dealings with the Internet that are criticized by other authors. This research method, which Virilio has practised for decades, may be the reason for his global impact. The reader is naturally affected by his culturally pessimistic attitude that determines the characteristic style of his representations everywhere. But this is by no means new or singular, because it can look back at a long tradition in the history of ideas. Virilio not only continues this but surpasses it at the same time (cf. Gunia, 2005, p. 176). Because what we are experiencing at present appears to confirm Virilio's prophecies in full: warfare in the form of terrorist attacks, super-MCAs in industry, uprisings and blasts in the suburbs, mass revolts against dictators, fundamentalist Islam, the consequences of the climate catastrophe and, not least, financial crises. Virilio sees in them the harbingers of the announced catastrophe that trigger panic in the metropolises. For Virilio, panic has become a "modern anthropological form of life" (Leick, 2005). His last book is entitled *Ville panique* (2004).

On first reading it is impossible not to be impressed by Virilio's style of writing as well. He heats the situation up and is provocative. He crosses lines and makes statements about the future that many find it very difficult to comprehend. He tends to think spontaneously rather than systematically. Above all, he loves to exaggerate. It is true that exaggeration is unusual for a scientist, and can reduce the value of his research results, but in his case exaggerations are not only an expression of a specific intellectual-mental attitude, but also a stylistic device of the critique, a "rhetorical strategy" (Gunia, 2005, p. 176), a method with which perceptions can be evoked. In this way, Virilio propounds his outrageous ideas blatantly obviously and forces the sceptical reader into understanding. Günther Anders and Jean Baudrillard proceeded in the same way in their critical writings (Kramer, 1998).

Virilio is an out-and-out pessimist and apocalypticist, who prophesies the end of society and its culture, but he does not do this unscrupulously. There is always a residue of hope in his consciousness that it may be possible to save and retain the humane in people's lives. Otherwise he would not also suggest measures to deflect the prophesied dangers, e.g. the demand for an informational deterrent and the suggestion that a "university of disaster" be established. In this institute, scientists who were not obliged to the military-industrial complex would analyze the negative, harmful and dangerous consequences of technization and digitalization and the catastrophes that they have caused, "in order to dissuade the future from happening" (Quarti, 2008). In his work *La vitesse de libération: essai* (1995) (*The speed of liberation, essay)* his moral-political misgivings even lead him to recommend an "ethic of refusing to perceive". We should pretend to be blind with regard to the glut of information. Virilio, the great pessimist,

has therefore not abandoned all hope when he writes "people must again become aware of their mortality, and for this purpose they need belief, religion, or at least metaphysics, because only an eye for the transcendental can maintain hope" (Leick, 2005).

Paul Virilio's critique is not superficial and selective but profound and in a global context. The results he achieves serve as the foundation for his philosophical interpretation of the fate of humankind. He thinks through the development of technological apparatuses and systems to the bitter end and warns about the decline they caused that will end in the apocalypse. On the whole, he is not merely a clear-sighted and trenchant critic of digitalization, but also a "great sceptic of modernity" (Quarti, 2008) and an influential cultural philosopher. With the global dissemination of the critique of digitalization he has rendered incomparable service, similarly to Baudrillard.

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20 The intellectual gamester: Miriam Meckel

From the corporeal world to the system world

The well-known German communication scientist and publicist was born in 1967 as the daughter of a head teacher. At present, she lives and works in St Gallen and in Berlin.

Biographical background

Miriam Meckel studied Media Studies and Communication Science, Sinology and Law at Münster and Taipei (Taiwan) Universities. In 1994 the University of Münster awarded her a doctorate based on a study of European television. She then worked as a reporter, editor and presenter for several TV channels. In 1999, she accepted a position at the University of Münster as Professor of Media Studies and Communication Science. She was thus "the youngest professor in Germany" (Beyer & Voigt, 2010). In 2001, she became a spokesperson and later state secretary in the government of North Rhine-Westphalia. Since 2005 she has taught and researched as Professor for Corporate Communication and Director of the Institute for Media and Communication Management at the University of St Gallen. She is a Faculty Fellow of the Berkman Center for Internet and Society at Harvard University.

Up to now, she has written nine books in which she deals with the following subjects: media communication in world society, international communication, the media mythos, news journalism in television, editorial management and experiences with a burnout. The following are relevant for the subject of this book: *"Das Glück der Unerreichbarkeit. Wege aus der Kommunikationsfalle"* (The happiness of being beyond reach. Ways out of the Communication Trap) (2007, 2009), *"Web 2.0: Die nächste Generation Internet"* (Web 2.0: The Next Generation Internet), an anthology that she published together with Katarina Stanoevska-Slabevka (2008), and *"NEXT – Erinnerungen an eine Zukunft ohne uns"* (NEXT – Memories of a Future without Us) (2011).

Motivation

Miriam Meckel dedicates herself to her tasks with zeal and great aspiration. We can feel her keenness to play an important part in the scientific community with her talent, her intelligence and her expertise, and to influence the public. As an important motive for the excessive use of digital media she once found: "We want to receive attention, to take part in the game of what is importnant and noticed" (2009, p. 24). She also referred to herself with this finding, in particular as she confessed in an interview that she used many communication appliances "excessively … as far as some friends are concerned" (Borchert & Liedtke, 2007). Behind this is a heavily developed interest in her fellow humam beings, whose experiences, world view and communication requirements she wants to get to know (Böckem, 2011).

As a communication researcher she is naturally interested in analyzing the phenomenon of digitalization in depth and multilaterally. In spite of her generally positive attitude to digitalization, she has the gift of seeing its disadvanatges, isolating them, and describing them skillfully. Her incisive understanding and her imaginative capability enable her to

describe future possible developments of digitalization along general lines, and at the same time in amazing detail.

Critical basic assumptions

Undesirable side effects

Even the title of Miriam Meckel's book *"Das Glück der Unerreichbarkeit. Wege aus der Kommunikationsfalle"* (The happiness of being beyond reach. Ways out of the Communication Trap) contains indirectly a critique of digital communication. Because this refers to the whole book, it might be thought that the author has a basically critical attitude. The subtitle *"Wege aus der Kommunikationsfall"e* (Ways out of the Communication Trap) intensifies this impression, and chapter headings such as *"The Tyranny of the Decision"*, *"The Myth of Multitasking"*, *"Digital Time Thieves and Squatters"* and *"How Technology Determines Our Lives"*, are along this line as well. Many headings, e.g. *"Technically Reachable"*, *"Socially Isolated"*, *"Information as a Drug"* and *"The Sisyphos Syndrome"* also indicate undesirable developments that are deserving of criticism. Part of the author's strategy appears to be to arouse her readers' interest by referring to those difficulties with digital media, to get started as it were, with things that most users have to cope with. Some of the critical points dealt with will be referred to here, before the main subject.

Alienation from those we are close to. In complete contrast to what protagonists of digitalization promise, the modern flexible way of life in the Internet does not lead to psychosocial well-being, or even to a specific feeling of happiness. Alienation from relatives and "occasionally from oneself" is caused by the dissolution of boundaries, which itself leads to acceleration (2007, p. 143).

The border between private and public is becoming blurred. In the chapter entitled *"Ego-Exhibitionism in the Internet"* the author draws our attention to what happens when sexual representations in the Internet are disseminated further by the traditional media books and television. What was first thought of and conceived in the Internet as a "private exhibition", becomes public in a completely different manner. Private and public, previously strictly separated, start to mix and, even more, have "changed fundamentally" (p. 232).

Borders become blurred. In the chapter entitled *"Sexual Confusion"* the author examines what the exchange of intimacies in the Internet actually means for the actors, and comes to this conclusion: the borders "between love and passion, between real affairs and digital flirts, between faithfulness and unfaithfulness" and even "between the sexes" are becoming blurred (p. 232).

Demystification. "The miracle of global networking was bought with demystification of our central life and identity constructs: romantic and physical love have become the product love" (p. 195). However, the author herself regards her provocative thesis as exaggerated and she refers to the general change in human relationships in the reality of life, in which this digital "demystification" merely aligns itself.

Liquidation of private secrets. The Internet has personal information available, and uses it, that belongs to users alone. Because it notifies us of private matters about other people, the mystery of these persons is lost (p. 234).

Internet addiction. Of the 190 million Internet users, six to eight per cent worldwide are "addicted to the Internet, or at least seriously at risk of addiction". The author informs

us of this on the basis of estimates. It is assumed in Germany that there are about 30,000 "online sex addicts". These users stumble into a process that is geared towards "more and more" – without ever finding fulfilment. This finding can be verified with other dependencies as well (229).

Deceleration. In the chapter *"The Rediscovery of Slowness"* the author addresses the attitude that our life and work processes are subordinated to the laws of the networked market (p. 153) and pleads for attempts to decelerate it, at least after burnout situations. In contrast to the age of industrialization, digital communication technologies put us in a position in which we can decide autonomously when the computer can be switched off, when we can take a break, and when work processes can be interrupted (p. 157).

The drifting apart of physical and mental presence. Mobile phones are also changing the quality of relationships between people who meet face-to-face to discuss things. Often, they place their Smartphones on the table in front of them, or hold them in their hands, always in the expectation of new information. In case of lectures and talks, many listeners do not concern themselves with the speaker in front of them, but receive messages on their laptops. They are physically present, but a part of their attention and expectations is elsewhere (p. 189).

The "happiness of being beyond reach"

The much-vaunted advantage of lightning-fast and all-round communication with other users inveigles us into a communication density that is impossible in the real world. However, this proves to be a serious disadvantage if, for example, the number of incoming emails or text messages exceeds the usual volume. Users then frequently become stressed. By implication, we could then refer to the "*unhappiness* of permanent reachability". Miriam Meckel's decided critical judgement here is: "Anyone who is permanently reachable is really there for nobody and nothing" (2007, p. 16).

The author describes this situation in more detail by complaining about how much the large volume of incoming emails and texts messages determines the lifestyle of users and thwart their personal communication plans. Users feel that they are absolutely obliged to answer. She registers: we let ourselves be tyrannized, and even tyrannize ourselves (p. 24). In this way, we turn into "slaves" of our technical networks. Persons who can always be reached have to interrupt their own work again and again, never take breaks and in the end lose track of things.

Consequences of the compulsion to increasing and increasingly faster communication, which we accelerate even more "like a hamster in its wheel" (p. 146), are feelings of overload, frustration and stress (p. 145), even, in fact, of "deracination" (p. 138), which lead in the end to *information fatigue syndrome* (p. 50). In this way, normal rest and recreation periods are reduced. Participation in communication becomes superficial. An increase in such stress situations can easily give users the impression that they will never finish their work. This leads to a clinical picture that the author calls an "informational Sisyphus syndrome" (p. 35).

As a way out she recommends something outrageous: we should "switch our mobiles off occasionally" (p. 27), avoid the "excesses of technical networking" (p. 16), stop and reflect (p. 25). Only then, she adds, will we be not only *technically*, but also *socially* linked to one another. However, the problem is not solved simply by switching off by

itself. Users must also attempt to clarify their position in the networked society (p. 27). In order to process or life problems, we need in addition "successful" and "perfect" communication. Only in this way is it possible to regain our "informational self-determination" (p. 46).

However, breaks that can be used to reflect and for concentrated work do not emerge from nothing. They have to be planned, organized and cordoned off (p. 47). First of all, "intelligent unavailability" has to be deployed (p. 27). The author is annoyed about those frequent flyers who stay in the Internet to the very last moment even when boarding. "What is so terrible", she admonishes, "about simply staring ahead and letting your thoughts roam. A break like this in the mobile lifestyle is by no means senseless luxury, but an increasingly necessary precondition for equanimity, creativity and social compatibility" (p. 146).

The author recommends her own strategy for safeguarding rest periods. She reserves and secures times that belong to her alone, she does not answer every email immediately, she refuses to read emails that have more than three addressees, she separates her professional from her personal communications, and takes up a "stoic attitude" towards those persons who attach a "high priority" status to their mails (p. 137 f.).

All users have to come to terms with the difficult task of balancing the communication demands that come crashing in on them from the outside against their "own peace and needs for concentration" (p. 46 f.). In the final chapter of her book, the author deals with this problem on a more general and higher level. Here she thinks that it is difficult to escape the pressure that "information overload" and the "communication avalanche" (p. 245), as well as their own striving for achievement, exercise on conscientious users. Every piece of information, no matter how small, demands our full attention. We do not want to miss anything.

It is important to become clear about the functions of interruptions and breaks. The reason that was already referred to, namely "pausing" from time to time, was necessary in order to reflect more deeply, does not cover all its qualitative advantages. Miriam Meckel thinks here more thoroughly, and sees a fundamental need for the hygiene of a successful life behind taking breaks. According to this, it is breaks and interruptions that provided users in the first place with "individual organizational spaces" that were necessary to "experience happiness and to achieve a fulfilled life" (p. 245). However, this way was blocked off for those people who are steeped in the ethos of "readiness for work and performance of duty" and who suffer from the "haste and hustle" of work processes.

Miriam Meckel therefore pleads for a "culture of slowness", because resistance to excessive reachability can grow from this (p. 250). However, the time gained by switching off has to be used intelligently – for "contemplation", "real conversations" and "enjoyment" (p. 250). Here, the stress caused by constant, all-round reachability should not be blamed on digital technology because, according to the author, "technologies cannot take over any responsibility" (p. 251). As a critic, in this case she is not attacking technology per se, but a serious error on its use.

How did this happen? The initially minor stress caused by digital communication gradually increased and has finally become intolerable for many through the use of numerous additional digital media. However, because we are "creatures of habit", we put up with this without noticing, and gradually thought it was normal. It is exactly this adjustment to the new and complete forms of communication and of life that has to be

breached. Only in this way is it possible to keep a distance. Not until the communicative calm that is gained through this can we ask the question: "Where's the road to life, please? Where is there enough time and quiet in order to turn towards people and things that are important for our lives, who have earned the right to be considered with attention and time, because only then can its value for ourselves and for others develop" (p. 252 f.).

This question contains an indirect fundamental critique not only of communicative overload but also of the digitalization of our lives generally.

The restriction of our perspective

In an essay published in *Der Spiegel* under the title *"Weltkurzsichtigkeit"* (*World Short-sightedness)* (Meckel, 2011a) on the occasion of the publication of her book *NEXT*, Miriam Meckel introduced previously unseen consequences of digitalization. In this essay, she scared her readers with this statement: "We are dying the virtual death of predictability. And dying started at the end of 2009" (p. 120). Why did she refer to this date in particular? At the time, Google replaced *standardized* searches for information with *personalized* searches. From then, questions from users were no longer answered neutrally or as objectively as possible – without regard to the person – but in a new way. Information was filtered out of the volume of stored information, and selected as the answer, that matched the "profile" of each person. In doing this, the search engine takes account of the questioner's special interests, inclinations, preferences and attitudes.

On the surface, this looks like an additional and refined service. However, Miriam Meckel detects the start of a catastrophic development. If a user only receives information in answer to his questions that is customized exactly to his own interests and preferences, a narrow perception of the world is formed in him. The status quo is confirmed. There are no longer any coincidences, and no surprises either. We can no longer encounter the unexpected. But these experiences are necessary in order to get to know new information, people and things. If this is no longer possible, our lifeworld is changed. The author judges: "Our worldview is starting to suffer from short-sightedness caused by the Internet" (p. 121). To characterize this process, Miriam Meckel uses the metaphor of Narcissus, in love with his own image in the mirror. The algorithms of the personalized search engine also let a digital mirror image of himself be created before the user's eyes. Like Narcissus, he is also doomed to die because, over time, a living user turns into a completely predictable entity. Here the author touches on the major theme of her next book.

A digital world without us

In her main work, *"NEXT. Erinnerungen an eine Zukunft ohne uns"* (2011), Miriam Meckel draws up a fictional scenario that gives us an idea of a much advanced future state of digitalization. The title *NEXT* refers to a Hollywood film that was made on the basis of a science fiction short story. In addition, *NEXT* is also the name of Apple's second computer. The title arouses associations with the book *"Studien zur nächsten Gesellschaft"* (*Studies on the Next Generation)* by the sociologist, Dirk Baecker (2007), who examined how society will have changed "dramatically" as early as in the next generation because of its computerization. Miriam Meckel's work also shows clearly the decisive changes that digitalization may have taken in the distant future, if the previous changes to our digitalized lifeworld were to be continued and radicalized in the same way.

Here, the author anticipates very far ahead, because the scenario refers to countries that were formerly called "USA" and "Germany".

Starting from this imaginary future time she describes in detail the stages that had to be passed through in order to transform the analogue world into a fully digitalized system world, and how people had to change while this was done. She imparts her futuristic ideas on this *indirectly*, by describing the process of change from two perspectives: from the perspective of a "human algorithm" and that of a "last human". These communicate with the reader over three hundred pages in the form of "internal monologues".

The "human algorithm" is a being that, like the computer, knows everything, can calculate everything comprehensively and deterministically and can also report to us – thanks to the human component. In contrast to this is the "last human", whose biological system of data processing has already fused so far with the digital system of data processing that it is about to step over the dividing line to complete digitalization, namely – and this is really the major point for the author – by abandoning his body. The completely digitalized world takes place, as indicated in the title of Merkel's book, "without us".

In this scenario the talk is of two worlds – the "bodily world" and the "system world". Both the "human algorithm" and the "last human" look back at the long struggle between the concept of organic human life and that of its complete predictability, each from its own particular point of view. The human algorithm remembers the technological progress that was made over a long period of time up to shortly before the access to the system world. The last human also remembers the losses that people had to suffer during this time. In his report there are moments in which he regrets this and asks in bewilderment why all this happened the way it did.

Her book's fictional character and its relation to the future do not minimize Miriam Meckel's contribution to the critique of digitalization, but intensify it further. The author does not give her imagination free rein to surprise or amuse the reader, but describes situations that could be regarded with dismay as possible in the end on the basis of everything that we have experienced up to now with networked computers. Because she was able to achieve this effect she has already provided an original and arousing contribution to the critique of digitalization.

Internal monologue 1

"Progress" on the road to the system world

The human algorithm appears self-assured and poised in the pose of the victor. He is convinced of the absolute predictability of all phenomena and of the superiority of his world view, and believes that he has almost achieved his goal. In his opinion, compared with humans he has several advantages: he is not bound to a material environment, he is ubiquitous, has a much greater comprehensive faculty, never forgets and is immortal. In contrast, he regards humans as "incomplete creatures" of a "defective species" (p. 131), above all because they can never decide finally and stick to incomprehensible ideals. However, for the human algorithm humans must always be "predictable", because only in this way can they be controlled. For decades he has pursued the goal of integrating human information processing into the digital operating system and of "merging" the two systems (p. 125). He wants to "include" humans in the digital existence (p. 14).

In the process, it was at first only a question of using the algorithmic calculating model for human decision making, and to "make humans dependent" on us algorithms (p. 24). After this came the next step, namely "the glorious destruction of the human individual and his identity" (p. 14), because these two are sources of errors in calculations and considerable risk factors. Consequently, the human body was abandoned in the end.

In its review of the transition of humans to the mathematical mode, the human algorithm thinks that the following progress was achieved, among other things: it started with data processing and calculating, whereby particularly great success was achieved in the credit card business, in trading in shares, the transport system, semantic searching and empirical sciences (p. 25). Later on, the following steps were important: the systematic gathering of "information on preferences, likes and dislikes, attitudes, convictions, patterns of behaviour and idiosyncrasies" of users (p. 66); the development of algorithmic models for reading and writing texts and for creating works of art (p. 66); the fusion of the human body with computer technology by implanting electronic chips (p. 52). A further drastic step was the implantation of communication technology itself in the human body. For example, nano-SIM cards were implanted in the human brain (p. 59). Finally, software was programmed in order to capture human emotions mathematically, such as, for example, guilt, love, envy and greed, as well as such difficult phenomena such as coincidence, fate, freedom and free will. However, serious difficulties were encountered during the calculation of human life, because it was not straightforward and was endangered by environmental influences and disease. "The only possibility to get rid of this fundamental problem of physical vulnerability to failure consisted of shedding the human body itself" (p. 52).

In the end, the human algorithms see themselves as the victors in the development of their quantitative-deterministic thinking. They now regard themselves as "the determining moment of all existence, including human existence" (p. 18). They have "demystified" the idealistic ideals of human beings (p. 121). Their principle is: anything that cannot be calculated with algorithms can be done without. Human beings can think, but have not understood the process of the perfect mathematization of the world (p. 45). This is why it was easy for the human algorithms to gain the upper hand. All they needed to do was to let things take their course, because in the end humans did not know what it was about (p. 45). What it would mean for humans in the end went unnoticed for a long time. And when they finally noticed it, it was too late.

However, the victory of the algorithms is not complete. At end of its internal monologue the human algorithm registers something unexpected. He of all things was who is always boasting of how "precise, targeted and comprehensive" his calculations of humans are (p. 128), receives error message after error message. These faults occur because residues of the "human legacy" (p. 144) are still having an effect in the system.

Internal monologue 2

On the road to the digital system world: experiences of loss

People in the "corporeal era" initially understood the Internet simply as a platform to which specific human functions could be outsourced. However, the "last human" regarded this as a failure to recognize what digitalization could actually do. In the system era namely not only are specific functions of human beings outsourced, but, and

this represented the actual sea change, *networking has become life itself* (p. 236). As he can see with hindsight, with the steady progress of networking everything moved in the direction of the system time (p. 243).

Before the final entry into the system world, the last humans are in fact filled with confidence and satisfaction about what has been achieved, but at the same time they have a feeling of uncertainty. Although they register and accept with pleasure the profound changes, they in fact have occasional melancholic moods when memories of life in the corporeal world emerge fragmentarily from the large digital archive. Then they believe they wish earlier experiences and feelings back, and that they have suffered losses. Déjà vu experiences of this kind are described along with the depiction of successful steps in the direction of the system era.

The actual reason for the uncertainty of the last human is easily discovered. He does not know exactly whether he still has the original contact with the things in his material environment, and whether he still has his own nerve cells and his own body. He does not know whether he still clings to the material environment, or is "floating in a virtual space". When he touches the grain of his wooden table top, he does not know whether he actually still feels it the way he used to, or whether corresponding sensory impression is imparted virtually on the basis of complex physical-psychological calculations of previously stored contacts. As a result of this uncertainty, he asks himself what actually still remains of his body. However, he really does not want to know this exactly, because he is afraid that he is only "a grey mass of brain cells in a nutrient solution", which is linked to a "world of total networking and calculating", and is located "in a gloomy, dark, endless space with similar manifestations" (p. 157). His thoughts and feelings have then dissolved. He has lost confidence in himself.

In this situation he describes how life in the digital system world differs from that in the corporeal world of long ago. He asks himself how such drastic changes could come about, and why people allowed "our world to melt into the digital" (p. 159).

A catalogue of fundamental losses

The last human judges that the digital documentation of our lives gives the snapshots of our lives permanence, because they are stored in the Internet "for all eternity", in other words beyond the death of our bodies as well (p. 167). This was disadvantageous in many cases, but there was no use revolting against this, because most people welcomed this documentation and approved of it.

In addition, he complains about the following twelve losses:

1. We can no longer "forget", because forgetting is "technically obsolete" (p. 171). Consequently, coincidences and surprises are now longer possible. Because everything is predictable, there is no longer the "unpredictability" that determined life in the corporeal age. Under the impression of this loss the last human remarks: "Forgetting must have been something beautiful" (p. 173).
2. The development of man and society is determined. Where access can be had to everything planned, all correlations, all occurrences, there is nothing new, only new calculations of the familiar. Looking back, the last human believes that a "special magic" had been inherent in the previous "imperfection and unpredictability" (p. 179).

3. There are no secrets anymore, because in the Internet everyone can access everything that is linked to everything else. In the corporeal age we were able to encode and decode our messages. The last human senses that as a "curious loss", as a "remembrance of a lost condition" (p. 183).
4. In the corporeal age we understood our life as an "endless evolutionary process" (p. 185). This "existential paradigm" no longer exists in the system age. We have not really understood the significance of this change and the loss that we suffered through it (p. 185). "We humans should have known better" (p. 186).
5. The difference between *private* and *public* has finally disappeared. We can blame this on ourselves, because we gradually entered more and more personal data in the Internet. In this way, man has "revealed himself as an overrated species. Man, who is capable of self-reflection and driven by reason, was unable to protect himself from himself" (p. 193).
6. Life online is now the "norm and permanent condition". In this way, our "profiles" gain considerable significance. They are not only important when we buy something, negotiate contracts, make friends or apply for a job, but also for the development of our existence. The "epistemological ego" created from various data that have collected in the course of time reacts permanently to the "ontological ego". The last human remembers: “I became more and more my digital profile” (p. 199).
7. The last human knows neither place nor time. This means that he is freed from the necessity of "locating" himself again and again. He is in favour of the advantages that this brings, and feels that this lack of necessity is in fact a liberation. But he still has the feeling of being a prisoner of the "lightness of the systemic existence". In a melancholy mood he thinks: "To get out of this 'flow' just for once, to comply for once with the necessity of having to locate myself – in order to achieve this I would do without many an opportunity that has long since become a matter of course for us" (p. 253).
8. The last human feels the consequences of immaterialness. Of course, he is relieved about the lack of any diseases, but the inability literally to "grasp", and thus to "understand", material things is regarded as serious. Language thus remains fixed, to an extent "frozen" and must therefore become atrophied (278). The "capacity of the spirit" is restricted (p. 279).
9. In the corporeal age people were dependent on their bodies, which influenced their attitude to themselves and to others. This attitude is missing in the system age, and this loss is extremely irritating. The last human has to ask himself: "What is my attitude today to my lifeworld […]?" (p. 279).
10. The last human asks himself why the difference between analogue and digital material did not become clearer to us during the corporeal age. While it is true that digital material was more comfortable in many aspects, its quality was often limited. Today he has a feeling that he lacks something that can only come into existence through the connection of body and mind. He asks himself: "Are we still human beings – or are we functioning monsters that can see, hear, feel, because the stimulations of our brains from the network enable this?" (p. 287).
11. The gradual integration of man and machine was brought about above all with regard to medical progress. It started with chips that were implanted in human brains, continued with neuro-implants that were used to alleviate Parkinson's disease. Finally, nanobots were inserted into the human body in order to monitor its health development better. In the end, integration culminated in the successful downloading of functions of the human

> brain onto hard disks. In this way, the immortality of human thinking and knowledge was reached. As a result of the enthusiasm that this progress triggered, the last human had to confess on entering the systemic era: "We did not discuss sufficiently whether we really wanted what was doable" – "We made 'a terrible category error' at the time" (p. 288).The last human researches in the large archives of the corporeal age and perceives the great extent of the loss: "We wagered the human spirit and even the concept of humanity and lost" (p. 292). Mankind was "always an intelligent species", but at the same time was "seducible" and "open for self-delusion" (p. 293). The process of transition from the corporeal age to the system age started almost without notice and proceeded stealthily. This is why people located the end far in the future, or did not even regard it as at all possible. The last human has to ask himself with horror why people did not hold on to what was unique to them: understanding, creativity and empathy. These skills could have been developed still further over time in their original meaning. Instead, in their blind enthusiasm people decided on characteristics that basically largely contradicted their essence: perfection, quantifying and predictability (p. 299).

Reception

The book that was introduced first, *"Das Glück, unerreichbar zu sein" (The happiness of being beyond reach)*, achieved great resonance, which can be seen simply from the fact that it became a best-seller. The philosopher and media theorist Norbert Bolz (2007) found that it was "wittily, intelligently and elegantly written". The *Neue Zürcher Zeitung* praised it for being "authentic" and posing "self-critical questions". (Russ-Mohl, 2007). And the *Hamburger Abendblatt* called it an "entertaining plea for switching off" (Altrock, 2007). Obviously, many readers see themselves reflected in the book, because they too suffer from being prisoners of the "information trap".

The author's last book, *"NEXT. Erinnerungen an eine Zukunft ohne uns"*, was also received with great approval. The *Kieler Nachrichten* regarded this "reflection on the rapid social change" as an absolute gain. "But the loss of humanity, as we are familiar with it, will cause most readers to shudder" (Gramm, 2011). *Deutschlandfunk* judged: "Not a light diet, but a visionary book that wants to, and can, galvanize …" (Krauter, 2011). Deutschlandradio was more reserved. Its reviewer did refer to the book as a "draft of the social future", but thought that is was "not very gripping". And she missed a "constructive examination of technical media" (Linß, 2011). We can see here how greatly enthusiasm for technical media can colour someone's judgement.

On the whole, the critique of some aspects of digitalization that the two books contain was hardly contradicted at all, which can be interpreted as a general acceptance of these critical objections.

Comments

The two books by Miriam Meckel, Professor for Corporate Communication at the university of St Gallen, are extremely remarkable, and above all because of their special communication forms.

For her book *Das Glück, unerreichbar zu sein* the author chose a light, catchy and almost colloquial style, something that is unusual for a university teacher. She wanted to reach a large circle of readers, she aroused interest as a first step by placing the focus on a problem that affects most users: the stress caused by too many communication requests

from the Internet. Even more attractive for them is the almost continuous reference to the person of the author herself and her own experiences with digital media. As a result of this personalization the text acquires liveliness, and this is also because readers gain insights into the way of life and working of a successful prominent scientist.

However, the book's stylistic lightness is deceptive. In reality, the information that she passes on is consistently substantiated and evidenced carefully with notes. This leads to the conclusion that she deals profoundly with each object she discusses, and is very well-read. The connection is made to the more recent international discussion in specialist literature and in the media in this (concealed) manner. With this book, Miriam Meckel has made an original and extremely successful contribution to discussions on the prophylaxis for states of digital exhaustion.

In her main work, *NEXT. Erinnerungen an eine Zukunft ohne uns*, Miriam Meckel has once again developed a form of representation that is out of the ordinary for the treatment of a topic by an academic. As a communication scientist, she has a good eye for the way in which she can offer a current critique of digitalization to a broad public. In view of the critical consciousness in questions of digitalization that is still poorly developed in Germany, a scientific treatment obviously appeared to her to be not very promising. The book was to be read not just by experts, but by as many users as possible. The transformation of society brought about by digitalization is after all a mass problem, and basically concerns everyone. For this reason, on the one hand she chose, and this is unusual and courageous in the scientific community, the form of fiction and the easy to grasp internal monologue, which is presented gently and emphatically in the audio book in the author's own voice. She also uses the literary genre of science fiction, which is very popular with many readers. This unusual strategy actually enables her to get readers thinking about the subject who are very reluctant to deal with the critique of digitalization and gradually to lead them close to the abyss that could face digitalized society at some time. She has thus dealt with the currently particularly important subject of digital human and social transformation in a "fascinating mind game" (Rösslitor, 2011) "entertainingly and convincingly" (Hamann 2011, p. 78).

Critics could now ask where the critique of digitalization is to be found in a fictional vision of the future like this. It is true that this is not articulated explicitly, and is not substantiated either. Instead, the imagined view of the future life of mankind is designed coolly and detachedly, even though it is not without empathy in parts. In spite of this, this mind game contains probably the most stringent critique of digitalization. It achieves its extraordinary effect because it comes implicitly dressed as a parable. Critical thought are triggered by shock, and are created as if automatically in readers' heads. "Our awareness of changes that are actually taking place" is heightened (Bernet, 2011). This type can be more successful than if it were open, straightforward and, in addition, warning and accusing.

This astonishing result is brought about by the following elements:

- The presentation arouses emotions: the reviewers referred to above stated that Miriam Meckel shakes people awake, unsettles them and makes them shiver. The interview partners Geyer and Haas (2011) even reported, "Meckel's forecast of loss does in fact make the blood freeze in your veins". No other critic can achieve such a deep effect on the feelings of reading users.

- Although the author would have had every compositional freedom because of the fictional nature of her book, the reports of the two figures that were introduced follow the previous steps in the development of digitalization with scientific precision, and thus remain hard by the reality that we have already experienced with digitalization. This appears convincing.
- The choice of the on-going internal monologue shows how a technical development can be made to come alive from a personal aspect. This personalization increases the reader's interest.
- While the reader is following the two internal monologues, the thought keeps crossing his mind regarding how far we have already become victims of those steps in development that are described down to the last detail and continued exaggeratedly to the bitter end.
- The special structure of the book also arouses the user's interest. It makes clear just how far digitalization has already changed our thinking and creative writing. The book title NEXT, which points to the future, consists of letters made up of an abundance of tiny zeros and ones, which therefore hints at the binary representation of computer information. There is no traditional hierarchical outline, and this is replaced by a network of terms, all of which are linked to one another, thus referencing the interlinking of digitalized knowledge. The titles of the individual chapters always appear first of all as binary barcodes, before appearing in traditional letters. All this arouses in the reader a feeling of having entered a sphere that is new, completely different and, yes, "digital". It is very difficult to imagine a better attunement to what is then offered in the struggle of the algorithms for domination. The reader is offered a creative introduction here that brings the transformation sensuously into plain view and thus convinces. It gives the book the nimbus of uniqueness.
- The idea of the loss of our bodies in the final stage is naturally scaring. But even up to now, and this has to be admitted, one important bodily function after the other has been transferred to the Internet. And many of our wishes and actions are already influenced by networked computers through recommendation systems attuned to us, or controlled by calculations. Even those who regard the actual loss of our bodies as exaggerated, unlikely or absurd, have to sense how we are inevitably coming closer and closer to such an ominous target without noticing, knowing or judging it.
- The author has the gift of observing and assessing the complex development of digitalization as a whole. At the same time, she has a special analytic ability to describe details precisely in their effects. She has admirable powers of imagination, with which she suggests to readers, and in part almost convinces them, just where the development of digitalization must necessarily lead us.
- The thoroughness and precision with which the author thinks her way into future and recent developments of digitalization and describes them in many details is unique.

If it was the author's aim to shake those people awake who, as if in a trance, welcome the current transformation of people and society unhesitatingly and support it enthusiastically, or even simply put up with it, she has been completely successful. She guides her readers skilfully into the complex field of digitalization, moves from the familiar to the less familiar, and arrives with them gradually, step-by-step, at the "abyss of the digital future"

(Hamann, 2011). Coolly, she talks of "the digital terror by name" (Geyer & Haas, 2011). In this way she forces us to reflect vigorously and to revise our previous digital definition of location and goals. A self-elaborated critical attitude such as this is anchored more easily in our consciousness than information that is imparted merely objectively and abstractly.

No one has derived and forecast the absolute domination of the digital machine world over human beings so consistently, and aroused its horrors so emphatically in readers' consciousness, the way she did. In particular, no one has characterized the process by which people are increasingly internalizing digital technology mentally and physically in the way she has. No one has addressed the possibility of the system-contingent disappearance of the human body as thoroughly and as detailed as she has. Her findings remind us of the apocalyptic visions of Virilio and Baudrillard, which envisioned, even more radically, the end of humanity itself (cf. Chapters 18 and 19). When she describes, with the help of logical extension and pointed emphasis of previously experienced developments, how everything is tantamount to the loss of the human body, this is absolutely understandable and to be feared. Two experiences simplify this: firstly, the system age has in part already started, and, secondly, no digitalization expert has ever described where digital development must actually and inevitably lead. All that is ever said is that this development is unstoppable and irreversible.

As a result of the further advance of digitalization we will enter into new and structurally different phases of human development. They are not only unknown, but may be potentially dangerous and inhumane as well. Those who have read this book by Miriam Meckel understand this.

Miriam Meckel is a self-confident, independent, courageous, intelligent, creative author, and is not afraid to try out new things. She stands out from the critics presented in this book because, as a communication scientist, she provides original examples of successful, addressee-related text presentation. She is particularly successful here because she positions scientific findings on grave social changes adroitly in the thoughts of very many readers, without them being actually aware of this. She does not warn about undesirable developments, does not accuse their perpetrators, and neither does she judge the emerging dire consequences. A bitter critique of digitalization appears in her book in the form of a fictional play with ideas, a catastrophe, as it were in lightweight garments. In this, the loss of humaneness becomes the central point of her critique. The alarm that is generated in this way leads readers to pose critical questions themselves, and fosters critical attitudes to the personal and societal digital change that is taking place. In this way, the author proves not only to be a brilliant writer but also, indirectly, to be a courageous and genuine critic of digitalization and at the same time of our culture generally.

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21 Advice from the experts

Withstanding cognitive dissonances and emotional ambivalences.

Some critics of digitalization have abandoned all hope regarding its positive further development, because they are deeply convinced of its grave undesirable developments and disadvantages. If we believe, as, for example, Baudrillard or Virilio do, that our society is on the road to catastrophe, measures for improving digitalization no longer appear reasonable. All the same, Virilio believes he can set "hope against all hope" and, as will be seen, suggests some measures for alleviating the consequences of digitalization. In addition, he thinks that in this precarious situation people need "belief, religion, at least metaphysics, because only the regard for the transcendental can maintain hope" (Leick, 2005). But this is poor consolation for him as well. As other authors, he is basically of the opinion as well that the further intensification of the digitalization of our lives is unstoppable and will need in a catastrophe. It is no use to make a stand against the enormous change with improvements here and there. A pessimistic undertone of this type can be sensed in many contributions. Consequently, recommendations for improved dealings with networked computers cannot be expected in most cases from them.

However, in spite of all their critiques of digitalization, ten authors have provided suggestions for reducing the described disadvantages and dangers: Paul Virilio, Susan Greenfield, Nicholas Carr, Susanne Gaschke, John Palfrey and Urs Gasser, as well as Frank Schirrmacher, Miriam Meckel, Botho Strauß and Hartmut von Hentig. They are shown here in context.

In order to postpone the collapse that is regarded as inevitable, **Paul Virilio** (1992) wants to have a "university of disaster" (2008) established, in which all catastrophes caused by technology are examined with regard to their causes and strategies are drawn up for preventing them. He argues for the development of an "informational deterrent", which is to function somewhat like the nuclear deterrent during the Cold War. And, finally, he postulates an "ethics of rejection of perception" (1995) to combat the information flood. This calls to mind the Harvard sociologist Danah Boyd, who, in her distress, prescribed herself a "four-week email sabbatical", in which every incoming email was automatically delayed (Schnabel, 2011).

Susan Greenfield suggests the establishment of a Science Peace Corps in order to cope with the tasks ahead of us, above all with regard to the "vast majority" of people in developing countries. We in the West, however, who live "in technological luxury" are faced with the enormous challenge of asking ourselves "what we expect from life and, in the end, who we are" (2003, p. 270). These are critical questions for Greenfield, which have to be answered if we want to measure up to the further revolutionary developments of digitalization and to survive them. Our "private ego, the most valuable thing that we have" must be preserved. And our personality should "not be merely retained, but celebrated" (p. 271). A "'eureka' identity was necessary to master the tasks of the future (Truelove, 2008).

Nicholas Carr (2010) is initially concerned about enlightening "unconcerned Internet enthusiasts and incurious users" about the disadvantages of digitalization. Following this, it was necessary to rethink the media revolution caused by networked computers and, as the

case may be, to challenge it. It was important to confront the following developments in particular: the disappearing use of old media, the increasing turning away for reading printed material and continuously spreading use of work with snippets of text. In addition, an attempt has to be made to limit or stop annoying distractions through links, pop-up adverts and the cacophony of additional stimuli. Finally, we must work against the lack of concentration, increasing superficiality, the lack of deepening involvement with contents, and the lack of contemplation.

Susanne Gaschke (2009) has drawn up "strategies against digital stultification". The main points are: measures against the uncritical use of the Internet; reduction of the "crude commerce of the Internet"; resistance to the frustration of pedagogical and didactic processes "by the commercial interests of multi-billion dollar software producers and Internet operators"; enlightenment about the fundamental importance of reading books and newspapers for the cognitive and emotional development of the personality; stressing the cultural and civilizational significance of the "old" media, in particular print media and television; resistance to the now extensive dissolution of the traditional meaning of education; rejection of the image of humanity emerging in the digital era, according to which the "flexible human being" is regarded as the ideal "in a flexible working world of flexible capitalism" and in addition "is linked to world knowledge through a digital superbrain". Preconditions for the success of these efforts were, however, some changes in attitudes. We had to stop aiming for "change for change's sake". Critics should not be accused of pessimism, because in view of the technological catastrophes this was justified. Objections to disadvantages of networking may not be demonized, but must be recognized as necessary.

Miriam Meckel describes "ways out of the information trap", according to the subtitle of her book *"The happiness of being beyond reach"*. She recommends that those users who are stressed by the information overload should "step away from the flow of information from time to time" (2007, p. 25). We should take a break and reflect, so that we have time to contemplate. This is reminiscent of Sherry Turkle, who called to overstressed users two years later: "Take a break!" (Drösser, 2011, p. 42).

Basically, Miriam Meckel's whole book was written to inform readers how they can escape the "excesses of technical networking" (2007, p. 16). She provides them with a five-stage avoidance strategy. However, switching off by itself is not enough, because breaks have to be planned and organized. The time that is won here should be used for "contemplation", for "genuine discussions", "enjoyment" and "concentrated work". It has to be said that this requires "a clear idea of how one's own life should be like and which private needs one would like to satisfy" (p. 47). In addition, users must be aware of their relationship to the Internet, they must have taken up a position with regard to it. It is important to create a distance (p. 250) in order to acquire leeway for our "own way of life and our individual life happiness" (27). The author pleads in this context for a "culture of slowness" (p. 250) and thinks it is necessary to develop an "information and communication ecology" (p. 48). The objective of all these efforts has to be to regain "informational self-determination (p. 46).

Frank Schirrmacher (2009) is occupied in detail and in depth with the question of "how we can regain the control over our thinking that we have subjected to the computer". He demands "new thinking", in which strengths are developed and strengthened that are peculiar to human beings only, and that the computer is unaware of: self-control, own will, self-regulation, quick-wittedness, creativity and tolerance. The following activities can counteract typical negative consequences of working with computers:

- intensified self-control against exhaustion of the ego through constant attentiveness;
- will-power and self-regulation against the burnout syndrome;
- self-confident change of perspective against the compulsion to the unambiguity of information and against dependence on the computer;
- "rules of thumb, intuition and gut feelings" against alleged statistical security and the dominance of algorithmic thinking.

In this context, Schirrmacher recommends "weight training for the muscle of self-control", the "slowing down of work processes" and playing the "trump card of the personality". According to Schirrmacher, such measures would enable users to liberate themselves from close dependency on the computer and to make themselves the masters of digital happenings (pp. 161-224).

Botho Strauß has passed on the following recommendations for a modus vivendi for persons who have to live in the "secondary world" (2009, p. 104):

- Do not collect things all the time but "leave them there, forget them, misplace them".
- Handle "data and objects" on a grand scale, the little "here and there" has to subordinate itself here.
- When reading, "stop briefly" in order to slow down minimally (p. 97).

In addition:

- Do not step onward, but stop, reflect.
- Do not let yourself be overpowered by time; instead, prefer standstills, experience "fulfilled" time, and leave time unused as well.
- "Resist all rapid stimuli".
- Share in the family situatedness.
- Don't create something new but vary and refine something old (see Krause, 2009, p. 31).

In their book, **John Palfrey** and **Urs Gasser** (2008) have drafted a programme for a systematic and highly reflected reform of the weak points of digitalization. They stress the necessity of starting immediately with this, and also indirectly indicate the direction. In their opinion, we are "legally, politically and socially at a crossroads". "Two possibilities have arisen for the further development of digitalization. Either we destroy what is fantastic about the Internet through interventions, and prevent young people from using it in accordance with their own ideas, or we make intelligent decisions, and move a good step closer to a bright digital future". "There is a lot at stake with this course setting, because it also governs how our children and grandchildren will lead their lives, work out their identities, protect their privacy and fend off dangers" (2008, p. 7).

Hartmut von Hentig (2002) recommends in general that as "political citizens" we should attempt "at least to cushion those developments that we cannot stop". A technical innovation should, he demands, "not only be possible, but also desirable, not only acceptable, but also harmless" (2002, p. 110). In this context he has made suggestions that are consistently thought through and intelligently substantiated down to the last

detail, in order to help users in their work with computers (see Chap. 11). It is true that he remains of the opinion that the development will run incorrectly "as long we have so little mastery of it" (2002, p. 111), but out of pedagogical responsibility draws up a programme to alleviate or reduce the most significant disadvantages of digitalization. He devotes himself to this task with commitment and conscious of his point of view. His book shows in fact "how we can remain a match for technical civilization". He provides detailed advice as to how readers might react to negative consequences of digitalization that are also detrimental to education. In doing this he also discusses separately questionable consequences of mediatization, rationalization, economization, collectivization and complexity, as well as of objectification and alienation. He describes the "task of humanistic education today" and proposes "a different method of pedagogics". His recommendations are based on a deep and differentiated analysis, as well as on a clear-sighted, clinical assessment of digitalization.

Conclusion

If we wanted to envisage positive developments on the basis of the criticized findings that were exposed in the book, the following consequences would be desirable. In general, it could be a matter of working out a theoretical balance between the amazing advantages and the considerable disadvantages of digitalization that are often ignored or denied. It would be important here to get to know its disadvantages and dangers exactly, and to consider them as well in the further development. In particular it would be necessary to take account of irritations, anxieties, partial objections, rejections and even resistance, above all when sound arguments are brought into play. This should encourage both practitioners and theorists of digitalization to expand their experiences and to include dangers that are already becoming visible in their calculations, as it were as a matter of habit. The following steps could be useful for achieving this goal: (1) The artlessly enthusiastic protagonist of digitalization starts to mix his feeling of elation about successful activities in the digital world with feelings of uncertainty and misgivings. (2) The hopeless optimist motivates himself to think through the possible future of digitalization realistically, in order to discover whether there are options that are not completely abhorrent to human nature and our cultural inheritance. (3) Computer experts no longer direct their interest and their creativity one-sidedly to the major advantages of digitalization and their optimization, but also to its downsides, in order to be armed against undesirable developments. (4) Education ministers no longer content themselves with the feeling of being in the vanguard of technological and pedagogical progress by targeted, massive support of digitalization, but also make special efforts to detect presciently undesirable developments that are stealing their way in and are already foreseeable and to steer them into beneficial paths for the well-being of our children and grandchildren.

Protagonists, supporters and users of digitalization would have to understand and endure the cognitive dissonances and emotional ambivalences that occur in transformation processes of this nature. The combination of advantageous experiences and exact knowledge of current and potential dangers could have a beneficial effect on the further development of digitalization. In contrast, incautious enthusiasm for progress and the unconsidered commitment to the digital world must be regarded as dangerous. They can lead easily astray and violate the integrity and dignity of the autonomous human being who should determine and be responsible for his actions himself, not only ideally but also in practice.

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Afterword

Social change

The authors described in this book discuss a great number of critical objections to the practised form of digitalization. Most readers will probably be surprised by the thematic depth and the urgency of their critique. But they also feel an irritating and alarming depth effect. The consonance of several contributions to the book makes them namely fully aware how great and inescapable is the social change brought about by digitalization – now and probably even more in the future. This social change is far more radical than most users suspect. It provides unforeseen advantages and at the same time has undesirable or even sinister secondary effects. This depth effect also arouses fears about what the future digital society will look like. The sociologist Niklas Luhmann (1997, p. 309f.) expects, for example, far reaching changes merely due to communication, through "social decoupling" and even more through the "decoupling from meaning" that is created through this. He writes, "What this can turn into evades at present even the wildest speculations". Depressive uncertainty is created here, because we have the feeling that the expected change is taking place in fact without our collaboration, let alone our control, and is therefore merely an inevitable consequence of digitalization.

This express reference is necessary because most people, including many experts, believe that technology – including therefore networked computers – is merely a neutral tool, which is simply used to achieve targets we have set ourselves. Nicholas Carr (2010, p. 46) calls such people "instrumentalists", and thinks that their view is so widespread because we preferred to believe it was correct. However, there is also a smaller group of experts that can be characterized as "technological determinists". For them, technology is an autonomous force that is effective beyond the control of humans and greatly influences their history. Most of the authors who have their say in this book are such determinists. Man, they believe, invented the computer and – in a certain sense – the computer is inventing man. Carr refers to this finding with the following ascertain: the close connection with our tools always has a two-way effect: "Just as technologies are extensions of ourselves, we are becoming extensions of our technology" (Carr, 2010, p. 209).

To make future unplanned and uncontrolled social change based on digitalization appear to be likely, and to impart an idea of its possible dimensions, we should remind ourselves of the consequences of another universal technical medium in the 15th century: printing. The German philosopher Peter Sloterdijk describes them as follows:

> "At the time there was an explosion whose tremors are still being felt today. We are now witnesses to a successor explosion that can release exactly the same unpredictable consequences as the previous one. When we consider that early printing is tantamount to the Reformation, nation states, the school system, general literacy and enlightenment, in other words a Pandora's box of ambivalent achievements, we have good reason to be just as expectant in view of the tremendous processes that are being implemented today". (Sloterdijk, in Eichel, 2010, p. 150)

It is not possible to show the extraordinary effect of the medium of printing more precisely and at the same time more comprehensively. This leads us as well to the question whether the upheavals and transformations that are to be expected in the next

few decades will be similarly profound. What new social, political and cultural tremors will digitalization set off? In view of the "follow-up explosion" of digitalization that has already taken place, we must not deny the expected social transformations, or overlook them, or play them down, in imprudent enthusiasm and undimmed progressive fervour – the way instrumentalists would. Rather, we must be braced for enormous structural changes. The consequences we can expect will also be "ambivalent", which is why we can perhaps again expect fantastic benefits, but at the same time will have to put up with painful disadvantages, which some authors introduced in this book have prophesied in outlines, and in some cases very precisely as well. Here, as well, we have to look at both the positive and the negative sides of digitalization.

Now that Sloterdijk has placed the dimensions of a possible social transformation in our consciousness, it is useful for the reception and processing of the criticized situation for us to be clear about the social change that is already taking place today. This has been diagnosed in different ways by the sociologists Anthony Giddens, Richard Münch and Richard Sennett (cf. Volkmann & Schimank, 2000). Anyone who analyses their findings recognizes the great extent to which negative consequences of digitalization conform to the equally negative consequences of social change. From this point of view, digitalization appears not only as a characteristic of post-industrial social change, but at the same time as one of its main agents and instigators. Such being the case, the additional significance that the critique of digitalization acquires becomes clear.

The following examples are indicative of this conformity:

(1) In his diagnosis of the present-day, *"Konsequenzen der Moderne" (1995) (The Consequences of Modernity)* the English sociologist Anthony Giddens named three "determining elements" that bring about the dynamics of the modern: the "decoupling of time and space", the "embedding of social processes" and the "reflexive acquisition of knowledge". In the decoupling of time and space, people are released from the "compulsions of place, bound habits and practices", which results in many opportunities for social change (Giddens, 1995, p. 32). In the "embedding of social processes" the latter are lifted out of "place bound interaction nexuses" (Giddens, 1995, p. 33), which means that they can be restructured without being bound by place and time. Familiarity becomes alienation, intimacy becomes impersonal commitment (1995, p. 174). The reflexive acquisition of knowledge becomes an "integral component of the reproduction of the system" (1995, p. 72). The constant adaptation of knowledge to given situations that this makes necessary does in fact lead to success, but makes it unstable (1995, p. 73). One important consequence is that traditional certainties no longer play a part. At present we are experiencing how the three named elements are being extremely ramped up, which is leading to radicalization of the transformation of society. According to Giddens, life in modern times "does not resemble a comfortable journey in a horse-drawn carriage, but a hazardous ride on a scarcely controllable missile" (Giddens, 1995, p.73).

It immediately becomes clear to everyone how digitalization fits perfectly into this diagnosis of present-day society. Time and space are in fact being radically separated, namely to an extent like nowhere else. From time immemorial linked to each other in conversation and in joint activities, people are now being dislocated with the help of networked computers, not just occasionally, but for any period of time as well. Social processes such as conversation, counselling, disputes, no longer take place face-to-face in the institutions made available and at locations set aside for them, but are

"disembedded" from the original social context and relocated elsewhere, which separates participants as well with regard to space and time. A drastic social change is taking place that brings not only benefits but also disadvantages: social relations are dissolved, familiarity and intimacy are no longer possible. Social processes no longer take place naively on the basis of practical experiences, but under application of reflexively acquired knowledge. The need to select from a huge store of knowledge and to adapt to current situations creates uncertainty. Traditional certainties are lost. We can see that on digitalization the same structural changes occur that Giddens diagnosed for the whole of society. The dynamism of these processes is not without danger. Giddens believes that it "will probably soon be stretched to its own limits".

(2) In his book *"Dynamik der Kommunikationsgesellschaft" (Dynamics of the Communication Society)* (1995), the German sociologist Richard Münch describes the current change from the industrial to the communication society. For him, the change in modern society is being brought about through "new communication boosts – as a result of new dissemination technologies". His thoughts therefore do not refer especially to digitalization, but in general to all forms of communication that have developed since the Enlightenment. At present, however, we were witnesses of a very special information boost, one that has never before been achieved, which drives the development of society on. Communication is compressed, accelerated, augmented and globalized. According to Münch, a threshold is reached in this way beyond which "evolved quantity turns into a new quality" (Münch, 1995a).

This new form of communication penetrates all areas of society. It changes industrial society into a communication society and leads among other things to the following changes: (1) The more we know, the more uncertain we become. There are no longer any clear rational decisions. (2) Individuals become free and unfree equally, because they enter into new dependencies. (3) Social relationships are becoming more flexible, short-term and superficial (1995, p. 80). (4) "Communication provokes communication. It is therefore to be assumed that increased communication always generates even more communication". (1995, p. 112). "In the world of total communication, communication becomes totally compulsory" (1995, p. 83). The communication society is falling victim to the danger "of increasingly blocking off access to reality, because the signs that point to reality are being replaced by simulacra related to themselves" (1995, p. 101). Münch registers inflationary processes to which, among other things, speech and power are exposed. He writes: "Communication develops its own dynamics that do not allow us to enjoy blessings alone. We have to look at their risks and downsides" (1995, p. 80).

Here as well, many of the disadvantages propounded by critics of digitalization prove to be compatible with *"Consequences of the modern age"*. It is precisely and above all digitalization, which is an unparalleled communication boost, whereby communication achieves its up to now highest degree of compression, proliferation, acceleration and globalization. The abundance of options that makes us uncertain with the inexhaustible range of information is deplored as an undesirable consequence. Users are exposed to a real flood of information and easily fall victim to the danger of having to search for more and more information and to upload more and more information about themselves to the Internet. They succumb to the "total compulsion" to communicate, and this also causes language to be neglected. They are liberated from traditional constraints, but stumble into new dependencies. Virtual social relationships become "more short-term,

more superficial and more flexible". Several authors in this book have bemoaned this, and for this reason called upon users not to neglect face-to-face conversation. In addition, to an increasing extent reality is being replaced by simulation. We live in a world in which signs and images increasingly stand for reality. The virtual world has taken its place alongside the real world.

(3) In his book *"Der flexible Mensch" (*1998*) (The Corrosion of Character)*, the American sociologist Richard Sennett describes how fundamentally living conditions have changed in the late phase of capitalism. The possibility of "orienting to long-term goals" has been lost in an economy that concentrates on the short term, on the "immediate moment". (Sennett, 1998, p. 12). The practice of pursuing a traditional career has been lost, whereby "a lifelong channelling for the economic efforts of the individual" (1998, p. 10) is meant. And what is also lost is the possibility of looking after "permanent human relationships". However, these three experiences of loss were detrimental, even damaging, for the formation of character and for the development of the personality. They caused *"The Corrosion of Character"* (1998). New occupational flexibility and mobility, and the necessity of changing occupations several times during a lifetime, make the development of a biographical identity difficult, or prevent it. This is why it is not possible to develop character traits "that bind people to each other and impart a stable sense of self to the individual" (1998, p. 31).

Sennett laments the disappearing role played in the flexible life by "narratives", consistent life narratives. They were important for the development of the individual because they enable the "movement of time" to be visualized, let "reasons" for a linear happening be detected, and confront listeners with their "consequences". "Nothing long-term" is today's motto (1998, p. 25). "In flexible networks, individuals are to become involved with everything that is new, and, in doing so, to throw their memories and habits over board" (Brüsemeister, 2000, p. 320). However, this type of flexibility generates uncertainty and deracination. The character is de-qualified. We live in a world in which the "self" has become superfluous (Brüsemeister, 2000, p. 307).

Several accordances with the criticized consequences of digitalization are apparent in this description of present-day society. Concentration on the here and now is typical of working with computers. Kaleidoscopic juxtaposition and confusion replace linearity. Past and future are blanked out. Working with fragmented pieces of text obliges this. The laments of the authors presented in the book are in unison regarding the dissolution of social ties. Users do not learn how to initiate and cultivate friendships and acquaintanceships in reality. Above all, the authors also lament the destruction of character. Again and again they criticize changes not only to thinking, but also to feeling and behaving. The extreme case for them is the development of new humans in the near future, who we would not recognize in the present day because they will be lacking individuality, character and personality. There are numerous declarations by the authors that for this reason they want to rescue human values from extinction: the individuality, the autonomy and the dignity of humankind. Hence, the social change characterized by Sennett confirms the fears of some critics of digitalization who insistently deplore for the future precisely the loss of "self". For example, Susan Greenfield prophesies that the idea of a constant and unambiguous individual self will become attenuated or even be destroyed (Greenfield, 2003, p. 171). And in her book she celebrated the individual human mind and made a desperate and deadly earnest plea, to that it survives into the future" (2003, p. XII).

Conclusion

The reader is shocked by the fundamental changes that the three sociologists diagnosed, and dismayed by the looming consequences. Because the subject here is nothing less than the human substance, in the way that it has been formed in a long civilizing and cultural development process. At the same time, it is becoming clear how the changes to society that have already occurred correspond to the changes that arose from digitalization: the dislocation from space and time, the arbitrarily large detachment, the disembedding of social processes, the application of reflexive knowledge, the disappearance of old certainties, the enormous importance of compressed, augmented, increased and global communication, the constant concentration on the direct present, the expansion of the simulated world, the inflation of language, and – most important – the destruction of characters. These radical changes bring forth consequences that have been sharply criticized in this book.

We can all see these named risks of this social development, whether they are described neutrally and objectively with the methods of sociology, or are actively to passionately criticized by the authors in this book. We are on the road to a dilemma that nobody as yet can avert. What is now important is to develop a consciousness of the crisis, so that we put ourselves in a position in which we can prevent the worst, or at least "cushion it", as Hartmut von Hentig qualified this possibility resignedly but appropriately (von Hentig, 2002, p. 110).

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