Trojan horse "Digital Education" – on the road to a conditioning institution set up in a school without teachers?

The efforts of Google, Apple, Microsoft, Bertelsmann and the Telekom to get education firmly in hand – and why almost nobody is taking notice of this infiltration

by Peter Hensinger, M.A.[*]

We have already had several school reforms, and now the "Kultusministerkonferenz" (standing conference of the ministers of education and cultural affairs) is announcing another one, namely "Digital education", i.e. lessons making use of digital media such as Smartphone and Tablet PC with WLAN.[1] The media as well as educational politicians preach to parents that their children will be without a chance at school and work, if they do not learn to programme apps already at primary school.

The main initiative of the digital transformation of education comes from the IT industry. The interim report of the platform "Digitital transformation in Education and Science" lists those who counsel and advise the Federal Ministry of Education and Research (BMBF), namely the players in the IT industry: They are all represented, starting with *Bitkom,* the *Gesellschaft für Informatik* (company for computer science, GI), and including *Microsoft, SAP,* up to *Telekom* (Federal Ministry 2016:23). Not represented, however, are paediatricians, educators, learning psychologists or neuroscientists addressing the consequences of the use of screen media for children and adolescents. The "New York Times" sounds the alarm in its analysis "How Google Took Over the Classroom" (13 May 2017).[2] Using elaborate methods and benefiting from the hype around digital media, Google is reaching out to take control of the US education system, and also control of the contents taught.

Anyone who, in the process of analysing and evaluating this development, only asks: "Are digital media useful for teaching?" loses the allover perspective, reduces the view to methodology and didactics, and does not consider the whole context. For the digital media are more than just teaching aids. The IT entrepreneur *Yvonne Hofstetter* widens the horizon away from this tunnel view. She writes in her book "The End of Democracy": "With digital transformation, we transform our lives, both privately and professionally, into a giant computer. Everything is measured, stored, analysed and predicted, in order to subsequently control and optimise it." (Hofstetter

"As a sphere in which people can do as they please without any kind of public being able to gain knowledge of it, the private spere provides that area of being in which perspectives and ways of seeing form and unfold, in which personalities develop and view points may be tried out. This is exactly what it takes to be a political citizen on the other side. All constitutional fathers and mothers of the American constitution were therefore aware of the necessity of absolute protection of privacy; that is why fundamental rights such as the inviolability of the home or the secrecy of correspondence are set down in every modern constitution. And that is precisely why all totalitarian thinkers and rulers were aware that privacy is the central obstacle to the assertion of total domination."

Harald Welzer

2016:37) The basis for this is data mining – the collection of data – for big-data analyses. The main scanning tools are the smartphone, the tablet PC and the WLAN network.

The super bugs smartphone and tablet PC as learning tools

It is planned to replace textbooks with smartphones or tablet PCs. In this way we give each pupil a super bug: "Smartphones are measuring devices, which can also be used to telephone […]. In doing so, huge amounts of data are generated which allow the analyst to draw conclusions not only about each individual, but also about society as a whole." (Hofstetter 2016:26) These devices override the constitutionally protected sphere of personal privacy. Yet this is a guarantee for the individual development of the personality.[3] Digital transformation has thus created a new condition of socialisation. Our children are growing up in a democracy under the conditions of a new kind of total surveillance. *Harald Welzer* calls this smart despotism.[4] Everything communicated by the individual user in the network, every Google click, every Facebook entry, is saved in order to create personal profiles – digital twins.

The personal data from Facebook, Google and Twitter are the gold of the 21st century, especially for the creation of consumer needs. The Federation of German Industries (BDI) therefore calls

for unrestricted authority over the data. It writes that the aim of Big data is "to gain control over the customer interface via direct access to customers.[…]" "An agent model of this type (!!!) is gaining in importance, as empirical knowledge about the customer and his needs is of enormous value." (RB&BDI 2015:8) This is a major reason why the industry wants to establish smartphones and tablet PCs in day care centres and schools. They facilitate the early collection of data at the point where the customers of the present and the future are being socialised: "The schools are in fact developing into the nucleus of a big-data ecosystem", says a book, which advocates big-data (Mayer-Schonberger 2014:52). Monitoring behaviour, communication, learning and development data and the trade with the digital twins is a billion-dollar business already today.[5] What is new is that every smartphone user today voluntarily supplies those data for being monitored, the gathering of which was so far only permissible in the case of criminal-relevant behaviour. This is a freedom trap.[6] It has lifelong consequences, whether in the case of job interviews, insurance, or contact with authorities. In 2017, the University of Munich (LMU) received the BigBrother-Award for the supervision of online study (MOOC courses) students and for providing these data to others[7].

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[*]   Lecture, given at a meeting of the "GEW-Kreisverband Böblingen" on 21 June 2017

The digital profile does not only give the staff manager transparent applicants, the algorithms even allow for predictions of their future development.

All this beats *Orwell*'s "1984". The Austrian Federal Chamber of Labour states in an impressive study: "The described developments and practices make clear that a kind of *monitoring society* has become reality, in which the population is constantly *classified and sorted* on the basis of personal data." (Christl 2014:83, Hensinger 2017). It has not even been investigated yet how the suppressed certainty of being constantly monitored is currently effecting changes in behaviour and political consciousness.

A fatalistic disenfranchisement of the self ("I have nothing to conceal, anyway"), an adaptation in which risks are suppressed, is already becoming obvious.[8]

Trojan horse "digital education": Big Brother is teaching you!

Big data is a core element of "digital education". What is "digital education"? This does not mean that teachers use digital media and software as a useful tool for their teaching, that students learn, for example Word, PowerPoint or Excel, evaluate experiments with the aid of special programmes, perform statistical calculations, or learn to shoot and cut films digitally. Today, all this belongs to the basic skills, which everyone should learn in the senior classes [in Germany 11.–13. class]. Stationary PCs are enough for all of this.

We are talking about a gradual reorientation of the educational system, namely the takeover of education by digital media beginning as early as in day-care

schools and nursery centres. Their potential of rationalisation and monitoring does not steer clear of the schools. Just as with the industry, where 4.0 robots control the production independently, computers and algorithms are to control the educational process autonomously. Professor *Fritz Breithaupt* discloses in the newspaper "*Die Zeit*", what kind of development is to be initiated in this way: "As early as in 2036, parents will subscribe to a virtual teacher for their five-year-old children. The voice of the computer will accompany us through life, from kindergarten to school and university and so on to vocational training. The computer recognises what a student can do, where he needs to catch up, how he can be motivated to learn. We will reinvent ourselves as learning human beings. The material to be mastered in the learning process will be completely customised to the individual." (Breithaupt 2016)

The "Bertelsmann Stiftung" think tank pushes "digital education" (Kraus 2017, Burchardt 2012). The Bertelsmann bosses *Jörg Dräger* and *Ralph Müller-Eiselt* are enthusiastic about the fact that the "Knewton" software screens anyone who uses the learning program. The software observes, collects, and records meticulously, what, how and at what pace a student learns. The user's every reaction, every mouse click and every keystroke, every correct and every wrong answer, every page call and every programme abort is recorded. "Each day, we collect thousands of data points of each student", *Ferreira* says proudly.[9] These data are analysed and used to optimise personal learning. Complex algorithms create individual learning packages for each individual student, and their content and tempo are continually adapted, if necessary every minute. […] Even today Knewton reliably calculates the probabili-

ty of correct and incorrect answers as well as the grade a student will reach at the end of a course. There will probably come a day when tests or exams will not be necessary any longer – the computer will already know what their result would be. (Dräger 2015:24)

By the way, "Bertelsmann" is one of the three largest data providers in Germany.[10] Let us keep an eye on the expected changes to be brought about by the digital transformation of schools:

- Students will sit separately, each with his or her tablet PC; they are monitored and controlled by algorithms. A speaking computer sets tasks and exercises.
- Digital education is a step towards a "school without a teacher". Teachers are replaced by autonomous digital technology and demoted to learning companions. Teachers now calling for digital media are cutting the branch they are sitting on: their own workplace.
- Creativity and cross thinking are no longer required. The software options developed by Google & Co. provide pre-programmed competencies. Posture and attitude are no longer taught but rather usable behaviour; that is the core of competence orientation.

Prof *Dirk Ifenthaler* (University of Mannheim) writes: "With the help of learning analytics, data-based information about learning behaviour, learning activities and attitudes can be recorded in real-time during the learning process and then taken into account later on. Thus, individual dynamic curricula and *real-time feedback* become possible. The comprehensive analysis of the learning context facilitates recognition of the learners' needs at an early stage and individual reaction to them. In the *ideal case,* the following data are included in the analysis at the learner level:

- Characteristics of *learners*: interests, prior knowledge, academic achievements, results of standardised tests, level of competence, sociodemographic data.
- Social *environment*: personal network, interactions, preferences regarding social media.
- *External data*: Current events, location, emotions, motivation." (Ifenthaler 2016:179)

The "ideal case" is the permanently screened student deprived of his privacy; big data as a basic principle of education: Big Brother is teaching you! Ostensibly, students learn individually with the help of digital media, but in reality, they are deprived of their right of decision. Professor *Ralf Lankau* (University of Applied Sciences Offenburg) calls this

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"What is 'digital education'? This does not mean that teachers use digital media and software as a useful tool for their teaching, that students learn, for example Word, PowerPoint, or Excel, evaluate experiments with the aid of special programmes, perform statistical calculations, or learn to shoot and cut films digitally. Today, all this belongs to the basic skills, which everyone should learn in the senior classes [in Germany 11.-13. class]. Stationary PCs are enough for all of this. We are talking about a gradual reorientation of the educational system, namely the takeover of education by digital media beginning as early as in day-care schools and nursery centres. Their potential of rationalisation and monitoring does not steer clear of the schools. Just as with the industry, where 4.0 robots control the production independently, computers and algorithms are to control the educational process autonomously."

"in essence totalitarian systems for mental and psychological manipulation and life-long control of humans. What is described here is the systematic rearing of social autists who listen to a computer voice and do what the machine says." (Lankau 2016:4) The educationalist Dr *Matthias Burchardt* (University of Cologne) comments: "In this way, the transparent student is exposed to the uncontrolled control of machines and algorithms. Their duty of care alone should motivate parents and educators to political engagement against this technology." (Burchardt,2017)

There is currently a break with the humanistic education mandate. We have now moved on to conditioning in the pure behaviourist tradition.[11] Behaviourism, a direction of behavioural research, maintains that everyone can be trained by positive stimuli, i.e. rewards, to show the desired behaviour in the context of application-oriented abilities. Modern competence-oriented pedagogy has been influenced by this ideology. The goal of education is no longer the Homo politicus educated according to *Humboldt*'s ideal, but the passively functioning Homo oeconomicus (Hensinger 2016). Yet the school does have a different mission. An educated and cultured person has a certain attitude and the ability to classify knowledge into a value system. Knowledge alone, so-called PC-mediated skills, without ethics, creates specialists, unscrupulous bankers placing wagers on hunger, ruthless engineers optimising weapon systems, sociologists and psychologists who design conditioning and manipulation systems, journalists responsible for the national dulling operated by RTL2 and the "Bildzeitung"-newspaper, or well aligned drudges. Surely, qualifications of that kind must not be a goal of education. School is thus more than competence orientation, it must convey attitude rather than adapted behaviour.

This behaviourist conditioning is planned, and it is also being perfected at German universities, e.g. at the University of Mannheim, as illustrated by the quote of Prof Ifenthaler (Schlieter 2015). Therefore, the PISA tests are also aimed at purely application-oriented competencies, i.e. at the education of one-track specialists; all other areas of culture are excluded. As early as 1961, the OECD, which enforced the PISA norms, formulated a guiding principle: "Today, it is self-evident that education also belongs to the complex of the economy, that it is just as necessary to prepare people for the economy as material goods and machines. So now, education is of equal value as motorways, steel mills, and artificial fertiliser factories. We can now assert […] with a good econom-

ic conscience that the accumulation of intellectual capital is comparable – and in the long run even superior – in importance to the accumulation of real capital." (Kraus 2017:16). "Digital education", as Prof *Jochen Krautz* described in his book "Ware Bildung, Schule und Universität unter dem Diktat der Ökonomie" (Education as a Commodity, Schools and Universities under the Dictate of the Economy) is based on this basic idea of the commodity- and exploitation character of human beings and education. The term "digital education" is revealing. It is characterised by the belief in the total measurability of the world, the belief,(and the hope of the ruling class) in the controllability of all living creatures, including their cognitive and social processes. *Descartes'* "I think, therefore I am" has mutated to: "my data define who I am." The data-self become an avatar, a life-long superego. The renowned Swiss think tank *Gottlieb Duttweiler Institute* (GDI) sees this development as follows: "Algorithms are increasingly helping us to look, think and decide. They analyse the data streams that we generate, decode behavioural patterns, measure moods, and deduce what is good for us and what is not. Algorithms become a kind of digital guardian angel that guides us through everyday life and takes care that we do not go astray." (GDI 2014:38)

There is no "digital education". Neither learning processes nor education can be digital transformed; at most this can be achieved with learning contents. Education has a social and a mental component. It is reflected in the development of the brain, of thinking and social behaviour, and there is nothing digital to this. What is praised as "individualised" instruction in the "digital" educational concept is in reality front-line teaching freed from the human being: the social counterpart is a speaking screen governed by algorithms. The socialising, community-building class organisation is omitted; a pedagogical atmosphere – produced by the teacher – gives way to isolation, technical coldness, predictability and conditioning. The curriculum no longer targets attitudes, but useable behaviour and knowledge instead. This is the core of competence orientation. This departure from the Humboldt educational idea, this dehumanisation of the education system, must inevitably have a detrimental effect on the teaching and on the pupils.

Does the use of digital media make for better learning?

"We have to see it as a reality that technology in our schools does more damage than good." (OECD-PISA-chief Andreas Schleicher)

Has it by now been proven by comparative studies that digital media lead to bet-

ter learning achievement than the previous "analogous" education did? No, on the contrary. In this context, I would like to refer to the contributions to the hearing in the Hessian State Parliament on 14 October 2016, on the subject of "To leave no child behind – framework conditions, opportunities and the future of school education in Hesse". The experts Burchardt, Lankau and *Spitzer,* who were present there, demonstrate that all studies up to date have shown that the use of digital media does not lead to better learning. (Burchardt 2016, Lankau 2016, Spitzer 2016). Let me present four examples:

1. In the foreword the OECD report "Students, Computers and Learning: Making the Connection" (2015), which was to prove the advantages of digital technology, the head of the OECD-Pisa programme Andreas Schleicher writes: "Students who use computers moderately at school tend to have somewhat better learning outcomes than students who use computers rarely. But students who use computers very frequently at school do a lot worse in most learning outcomes, even after accounting for social background and student demographics. The results also show no appreciable improvements in student achievement in reading, mathematics or science in the countries that had invested heavily in ICT for education. And perhaps the most disappointing finding of the report is that technology is of little help in bridging the skills divide between advantaged and disadvantaged students."(p. 3)[12] *Andreas Schleicher* is quoted in an Australian newspaper as follows, "we have to see it as a reality that technology in our schools does more damage than good." (Bagshaw 2016) What would help, on the other hand, is also reflected in many studies and articles. Qualified teachers, well-structured teaching, and, according to *John Vallance,* director of one of the most expensive private schools in Australia: traditional teaching methods.[13] Media pedagogue Prof *Paula Bleckmann* concludes in her evaluation of the study situation with the inclusion of the OECD report: "There is an increased risk of delays in language and movement development, of overweight, sleep disorders, loss of empathy and school failure." (Bleckmann 2016)

2. A study conducted in Hamburg with more than 1,300 pupils and covering a three-year period shows that the BYOD (Bring Your Own Device) approach does not meet expectations. The head of the project, Prof Dr *Rudolf Kammerl*, notes in his evaluation of the use of private smartphones and tablets that the BYOD project "does not lead to a measurably higher performance motivation of the participating students, and neither to a stronger identi-

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fication with their school". (p. 43) There is no improvement in the way sources are dealt with, "nor is a higher level of information competence" achieved (p. 92,

Kammerl 2016). Prof Ralf Lankaus comments, "a possible translation of BYOD from my point of view would be, 'Begin Your Online Disaster.'" (Lankau 2016b)

3. In the final report of the project "Learning in notebook classes. 1,000 x 1,000: Notebooks in school satchels" it

had to be stated that "due to the high distracting potential that notebooks have for the students in the classroom, the results show that students have a tendency to be less attentive in notebook lessons. […] In

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The basis for this lecture is the detailed analysis: Peter Hensinger (2016). "Homo politicus - Homo oeconomicus - Homo algorithmicus. Big data und der Wandel der Erziehung zur Konditionierung für den neoliberalen Wachstumswahn" (Big data and the change in education towards the conditioning for neo-liberal growth mania) (see below).

Articles by the speaker, which can be downloaded at *www.diagnose-funk.de:*

In German:

- "Steigende 'Burn-out'-Inzidenz durch technisch erzeugte magnetische und elektromagnetische Felder des Mobil- und Kommunikationsfunks (Rising "burn-out" incidence due to technically generated magnetic and electromagnetic fields of mobile communications). Warnke/Hensinger. In: *umwelt–medizin–gesellschaft*, 1/2013, Bremen

- "Risiken der Sozialisation von Kindern und Jugendlichen durch digitale Medien (Risks of socialisation of children and adolescents through digital media)". In: *umwelt–medizin–gesellschaft,* 3/2014, Bremen

- "Überwachung und Manipulation. Gefangen im Netz. (Monitoring and manipulation. Trapped in the net.)" In: *ÖkologiePolitik,* 163/2014, Berlin

- "Gesundheitsgefahren durch Mobilfunk. Dauerstrahlung, Dauerstress, Burn-out. (Health risks through mobile communications. Continuous radiation, continuous stress, burnout.)"In: *ÖkologiePolitik,* 164/2014, Berlin

- "Mobilfunk-Risiken und Alternativen. Eine kurze Einführung in die Auseinandersetzung um eine strahlende

Technik" (Mobile phone risks and alternatives. A brief introduction to the discussion about radiant technology); Gutbier/Hensinger, *Diagnose-Funk Ratgeber 2*, 2015, Stuttgart

- "Big data: Der Wandel der Erziehung zur Konditionierung für den Wachstumswahn. (Big data: Change in education towards conditioning for growth mania)" In: *umwelt – medizin – gesellschaft,* 3/2015, Bremen

- "Digital und kabellos lernen – Faszination mit Nebenwirkungen. Aufwach(s)en im Umgang mit digitalen Medien. (Digital and wireless learning – fascination with side effects. Growing up with digital media)" Lecture at the "mobile communications hearing" at the South Tyrolean regional government, 29 April 2015; published in the periodical "Aktuelle Analysen" (Current Analyses) by *Diagnose-Funk*

- "WLAN-Hype mit Nebenwirkungen" (WLAN-hype with side effects). In: *Gymnasium 11/12-2015,* periodical of "Philologenverband", Baden-Wuerttemberg

- "Homo politicus – Homo oeconomicus – Homo algorithmicus, Big data und der Wandel der Erziehung zur Konditionierung für den neoliberalen Wachstumswahn" (Big data and the change in education towards the conditioning for neo-liberal growth mania); Lecture at the Institute of Transcultural Health Sciences, University of Frankfurt/Oder, 2016; 2016 annual of the "Institut für transkulturelle Gesundheitswissenschaften", ed.: Jochen Krautwald, Florian Mildenberger; Also published under "Aktuelle Analysen" (Current analyses) at diagnose-funk

- Hensinger, Peter; Wilke, Isabel. "Mobilfunk: Neue Studienergebnisse bestätigen Risiken der nicht-ionisierenden Strahlung" (Mobile communication systems: New study results confirm risks of non-ionising radiation.) In: *umwelt–medizin–gesellschaft,* 3/2016, Bremen

- "Späte Lehren aus frühen Warnungen: Tabak, Röntgenstrahlung, Asbest und WLAN (Late lessons from early warnings: tobacco, x-rays, asbestos and WLAN)". In: *Naturheilkunde* 1/2017, p. 10

- "Zellen im Strahlenstress – Zum Stand der Forschung über Smartphones, Tablets & Co (Cells in radiation stress – To the state of research on smartphones, tablets & Co)." In: *Naturheilkunde* 1/2017, pp. 26–28

- "Zellen im Strahlenstress. Was WLAN, iPhone & Co mit unserer Gesundheit machen (Cells in radiation stress. How WLAN, iPhone & Co affect our health)." *Paracelsus-Magazin,* 2.17, pp. 18–22

- "Das Smartphone. Nabelschnur der Eltern oder der IT-Konzerne?" (The smartphone. Umbilical cordon of parents or IT corporations?) In: *Erziehungskunst* 04/2017, pp. 5–9

- Hensinger, P.; Gutbier, J. (2017). "Analyse des Gutachtens der Südtiroler Landesregierung zum Einsatz mobiler digitaler Medien und WLAN an Schulen" (Analysis of the expert hearing at the South Tyrolean regional government regarding the use of mobile digital media and WLAN in schools) Bolzano/Stuttgart *www.consumer.bz.it/de/unbrauchbares-landesgutachten-kein-freibrief-fuer-wlanschulen*

In English:

- Warnke, U.; Hensinger, P.: Increasing incidence of burnout due to magnetic and electromagnetic fields of cell phone networks and other wireless communication technologies. In: *umwelt–medizin–gesellschaft,* 1/2013

- Big data: A Paradigm Shift in Education from Personal Autonomy to Conditioning toward Excessive Consumerism. In: *umwelt – medizin – gesellschaft,* 3/2015, Bremen

- Hensinger, P., Wilke, I.: Wireless communication technologies: new study findings confirm risks of nonionizing radiation. In: *umwelt – medizin – gesellschaft*, 3/2016, Online: https://www.diagnose-funk.org/publikationen/artikel/detail&newsid=1141

In Italian:

- Hensinger, P. (2015). In: L'apprendimento scolastico con l'ausilio di mezzi digitali e wireless: tecniche affascinanti, ma non prive di effetti collaterali. Il rapporto con i media digitali: bambini e adolescenti piuttosto "svegli"; Lecture at "Landtag Südtirol", hearing mobile telephony, 29.04.2015; *https://www.diagnose-funk.org/publikationen/diagnose-funk-publikationen/dokumentationen*

- Hensinger, P.; Gutbier, J. (2017). In: Analisi della perizia commissionata dalla Giunta Provinciale sull'impiego di mezzi di comunicazione digitale e reti wi-fi nelle scuole della provincia di Bolzano, Bolzano, Stoccarda *https://www.consumer.bz.it/it/una-perizia-inutilizzabile-e-contraddittoria-il-wi-fi-scuola-non-va-bene *

the area of school performance, no differences were found between notebook and non-notebook students in mathematical testing […]. With regard to information and method competency, the overall results indicate that there are no or only slight differences between notebook and non-notebook students." (Schaumburg 2007)

4. "In 2012 in Australia, after a decline in the PISA ranking, approximately 2.4 billion Australian dollars were invested in laptop school equipment. Since 2016, the laptops have been picked up again. The students did anything on them but learning." (Spitzer 2017:212) Something similar is happening in South Korea, Thailand, the USA and Turkey.[14]

Some countries that are ahead of Germany concerning digital transformation have already corrected the digital transformation hype. Consequently, what is left of the argument that we should not miss the boat? Prof Ralf Lankau coined the term "Trojan Horse Digital Education". In phase 1, which we are currently experiencing, teachers are trained as technical coaches by IT providers. They learn to use the products of the different providers in the classroom. In phase 2, fully automatic eLearning systems with synthetic voices take over teaching. The teacher becomes a learning companion or redundant. What they are initiating in our schools at the moment can already be observed in the USA for example the googlification of the public schools in Chicago.[15] When it says "digital education" on the outside, Google and Telekom are inside. This is concealed because it is well known that the overwhelming majority of teachers will reject. Of course, some "third-party funds" experts "are serving this cover-up, and they have only recently revealed themselves involuntarily: On May 10, 2017, the "Aktionsrat Bildung" (Action Committee on Education) of the "Vereinigung der Bayerischen Wirtschaft – VBW" (Bavarian Economy Association), composed of 13 professors, published a press release distributed by "Deutsche Presseagentur" (dpa) and printed in many newspapers. It reports from an expert review that "even primary school students who work on the computer once a week have significantly better skills in mathematics and natural sciences […]." This message is wrong! In fact, it is stated on page 78 of the report that "primary school students in Germany using computers in their classes at least once a week have a significantly lower level of competences in the domains of mathematics and natural sciences than those primary school students that use computers less than once a week

in their classes."[16] So far, the VBW has refused to correct this. That is symptomatic: the hype is justified, the consequences are ignored or played down.

The irreversible brain damages

Today we are dealing with students

(i) who have already been shaped by the smartphone as a toddler, due to the user behaviour of their parents. This leads to negative, irreversible effects on brain development, as we know from neurobiology (Teuchert-Noodt 2016a, 2016b).

(ii) whose sensory experiences are largely reduced to screen wiping and

(iii) who thus are alienated from nature and conditioned early on consumption.[17]

I go into these three points because we get children in our schools that have already been pre-injured by the use of digital devices.

Neurobiological research shows why the use of digital devices causes irreversible damage. These findings should be the focus of a nationwide discussion especially among educators. The brain researcher Prof *Gertraud Teuchert-Noodt* describes the digital media as a major threat to brain development, because due to the overstim-

it even has a deeper effect on the parent-child relationship: the child is given a tablet PC to quieten it. The mother pushing the buggy communicates with the smartphone and not with the child. Each of you has seen such scenes. Thus, digitalisation supplants lots of emotional bonding factors between the parents and the child, the eye contact, the gesture, the facial expression, the attention, the emotional security. The children feel this, and a Swedish study shows: Parents on the smartphone make children depressed.[18]

Manfred Spitzer writes on the consequences in a recent analysis of the status of research: "Smartphones affect the development of the brain, attention, learning and thus the educational career […]" (Spitzer 2016a). The neurobiological research prove why he is right. The neurobiologist Prof em. Gertraud Teuchert-Noodt (University of Bielefeld) has investigated the causes of these risks. I am summarising her results (Leipner 2015:215, Teuchert-Noodt 2016b). Such as the whole of nature underlies an evolutionary blueprint, also the early childhood development of the brain is based on a construction and development plan, always following the same rules – and

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"The socialising, community-building class organisation is omitted; a pedagogical atmosphere – produced by the teacher – gives way to isolation, technical coldness, predictability and conditioning. The curriculum no longer targets attitudes, but useable behaviour and knowledge instead. This is the core of competence orientation."

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ulation they potentially attack the sub-systems of the brain, which are responsible for memory formation and cognitive performance. To explain the reasons for this, I have to go far afield. Let us start with the role of parents. The effects of digital transformation are illustrated by this poster: "Already talked to your child today?" It is very telling, of course, that such a government campaign is necessary. But at the same time, the State of Mecklenburg-Western Pomerania merits recognition for addressing this issue.

The toddler is shaped by the parents' attention and by what the parents do themselves. Children learn by imitation. The parents are the model. And when the toddler sees, its parents' most important object, they always hold in their hands, they always look at, with which they speak, from which it sounds and speaks and colorful pictures flash, is the small angular device smartphone, then the two-year-old child also demands it. And soon the child is sitting in front of the tablet, and – unconsciously – the parents have given control over the education to game developers, to algorithms or later to the Internet, to Microsoft, Google and Apple. But

generally can not be changed or accelerated. The physical movements of a child primarily determine how the first functional modules of the cerebrellum and cerebrum mature. For brainpower is stimulated by the cerebrellum and the downstream motoric neocortex of the brain through various movements. To this end, small children must exercise differentiated physical activities. They should use their hands to paint pictures, to mold or tinker plasticine figures. Children tumble, climb and frolic around – precisely in the critical phase, when at the same time fields of the cerebrum and the cerebrellum organise themselves functionally.

These sensory experiences are three-dimensional, and thereby only the spatial coordination in the maturing modules of the cerebral cortex is trained to an optimum, and this means determined by acitivity – utilising the child's behavioural repertoire. Space and time are the tools neural networks and functional systems communicate with each other. In other words, the forming of the space-time memory is fundamental to thinking, learning,

acting, and planning. If these neural processes, which bring about the cross-linking of the sensomotoric and associative cortex fields and at the same time leave the cerebrellum to mature, do not take place, they cannot be made leeway. If the spatial movement lacks, and if it is replaced by the one-dimensional tablet wiping, then the brain lacks the building material for the further development of the DENKAPPARAT – construction activity slackens: "For the first time in human history, this neural basis which is absolutely necessary for our thinking processes is being threatened by digital transformation." (Teuchert-Noodt) The abilities to concentrate and think stay underdeveloped.[19]

And that is not the only thing. Improper building blocks in brain development can cause addiction, anxiety and lifelong diminished learning and thinking abilities. One false building material, as Teuchert-Noodt calls it, is the permanent stimulus overflow by videos and pictures on the tablet PC. The rapid fireworks of videos and colorful animations, especially with tablet PCs, leads to a stimulus bombardment. Feelings of happiness arise – and demand for more and more – as more and more medial stimuli influx the child.[20] Children who are still at the development stage are exposed to visual media constantly firing off pathologically altered frequencies, massively overcharging the frontal brain at this age. Thus the reward system is overwrought and can trigger addictive behaviour. This is the background for a cognitive desaster beyond all expectations, because irreversible prevalences are defined for example for addiction.

This *new,* so far almost unnoticed *condition of socialisation* can be summarised like that: even small children are conditioned to a technical device, the smartphone/the tablet PC. This blocks the dynamic phase of the brain maturation, because the brain does not yet meet the requirements of the digital media (see Bleckmann's "Tower of Media Maturity" 2012), before the age of 12 within the cognitive and neural development. Teuchert-Noodt speaks of rhythm disturbances of the brain – manifesting themselves in headaches, lack of concentration, and sleep disturbances. Ms Teuchert-Noodt told me in a personal conversation that she was extremely concerned because thus irreversibly deformed brain structures were formed. From the point of view of neurobiology, a generation is growing up where many of prevalences are trained for addiction, learning and behavioural disorders such as ADHD. The extent of pathol-

ogisation, as demonstrated by science, is still not recognised by society.

The digital transformation of the natural

This direct influence on the development of the brain interacts with another *new condition of socialisation, the reduction of the sensory experience to virtual reality, world experience by wiping.* The use of screen media leads to alienation from nature. Because, whether be it smartphones, tablets or even the TV, they automatically restrict the movement behaviour because they often stop children from playing on the street, in forests, parks or on sports grounds. The "Jugendreport Natur 2016" made it clear that nature is no longer playfully discovered and experienced, but is "taught" in school lessons and in one's own room.[21] *Digital transformation of the natural* takes place. "It is not this result of the study, which makes thoughtful, but the rapid pace with which alienation from nature progresses," writes the "Stuttgarter Zeitung" (30.9.2016). "In the last few years it has been particularly speeded up with the new media," says one of the authors, Dr *Rainer Brämer,* on the causes. An ever growing part of the children is already tied to the virtual world created by the smartphone. The reduction of sensory experience on wiping and tapping undermines the development of mental abilities. This alienation from nature also has a great socio-political significance: one no longer appreciates nature and the values it conveys.

The *real creative game* among children as a crucial educational resource is replaced by playing in a virtual, wired or radio-based screen reality. When should be time for the real play when a child aged between 8 and 18 years is exposed to electronic media on an average of 7.5 hours per day? (Bleckmann 2012:127, Spitzer 2012:11) The often over 8-hour average screen usage period prevents real experiences. An investigation in Great Britain had the following result: "What chance does environmental protection, biodiversity, respect for the biosphere have when the youngest only stick to entertainment media and no longer rise to trees, when their radius of movement has decreased by 90% since the 1970s? If only a good third (36 per cent) of children between 8 and 12 years of age play out of the house once a week; only one in five knows how it is to climb a tree, and every tenth child is convinced that cows have winter sleep." (Pany 2010)

The permanent use of media cuts especially the city children out of real nature experiences. What is mainly lost is the cognitive ability to construct knowledge independently.

Here, the circle closes to the brain development negatively influenced by early media usage, the conditioning of the reward system to external stimuli (see above). This leads to a lack of orientation and helplessness, to being surrendered to the virtual world and its political manipulation techniques, which are also developed in German university institutes (Hensinger 2016, Schlieter 2015). *Miriam Meckel* describes in her essay "We disappear", how the algorithm of the personalized search on Google "subtracts accident out of our life". The "filter bubble" makes us identical with our digital twin, the creativity "dies the virtual death of predictability": "We become our profile." (Meckel 2013:33f.) That makes manipulable. The computer can now explain to the "digitally dement" how the world works, the algorithm of a group and its apps take over the education. They spit out profile-related consumer and fashion worlds, film and red-bull illusions. The medial produced virtual reality is a parallel world, which the adolescent compulsively follows because it appears to him as without alternative.[22] The run of adolescents on the Primark fashion chains is the result of such manipulation. Primark promotes low-quality clothing produced by slavery not via print media or TV, but via bloggers in social media, directly onto the smartphone. In the Google key novel "The Circle" by *Dave Eggers* it states: "The real purchasing habits of people were now marvelously traceable and measurable, and marketing for these real people could be done with surgical precision." (Eggers 2014:31)

Individualisation and digital personalisation have enormous social consequences. It isolates into consumers. *The smartphone has become the main instrument of capital- and consumer-oriented socialisation, the conditioning of children and adolescents to consumption.* Isolated on the smartphone, supervised and controlled by algorithms, the wishes are mediated and characteristics are trained to serve industrial exploitation and consumption interests.[23] The educational scientist Prof *Bierhoff* describes the psychological mechanisms that are internalized with that. They are forms of disciplining, "the social control [...] *mediated through consumption.* Through the use of advertising and marketing, people are softened for the overconsumption, they are isolated from the commonwealth and singularised, endowed with an apparent individuality that is insubstantial and unresisting [...]. Consumer capitalism is determined by an ever-increasing and widening alienation which is an alienation in abundance."[24] (Bierhoff 2016:7) The alienation of nature and the orientation towards the

hyperconsum does not allow environmental consciousness to arise, that should alert the environmental associations, especially BUND and NaBu.

Ten side effects already occurred

The three new conditions of socialisation presented until now, (i) surveillance, (ii) new external obstructive influences on brain development, and (iii) reduction of sensory experiences to the screen have already led to a multitude of measurable negative effects of digital transformation, which educational institutions have to meet:

First: decline in reading. There is a decline in reading: in 1992, 50% of all parents read to their children, in 2007, it were only 25%. The proportion of non-readers among children who never touched a book has almost quadrupled: in 2005, it was 7%, in 2007 already 17%, 2014 already 25% (MPFS 2013, 2014).[25] For many children school is the only place where they can be inspired to read books. The importance of reading ability for structured thinking and for learning all subjects is indisputable.

Second: inhibition of language development. Virtual communication via Facebook or Whatsapp inhibits language development. Playing, learning, and communicating via screen has a negative impact especially in children, because hearing is separated from the speaker, the corresponding body language, separated from the situational context, from mimic, tone, ambiguity, irony, warmth, cold. A new US study, presented at the PAS Meeting (Pediatric Academic Societies) 2017, proves the inhibition of language development as a function of the time of use of digital media.[26]

Third: loneliness and social isolation. Social interaction of children has fallen from 6 hours to 2 hours a day from 1987 to 2007, while the use of electronic media has risen from 4 to 8 hours, and continues to grow due to smartphones (Sigman 2012). With a surprising result: because of virtualization, social media lead to loneliness as evidenced by new studies (Primack 2017, McDoole 2016).[27] The "Stuttgarter Zeitung" reports on a US study: "With social media towards social offside. In many people, the intensive use of Facebook & Co. is associated with a feeling of loneliness and isolation. The more time young adults spend in social media, the more they feel lonely." ("Stuttgarter Zeitung" from 13.3.2017)[28] Permanent surveillance as a superego changes behaviour, e.g. to a fatalism of self-incapacitation or retreat into apathy. Swiss think tank "Gottlieb-Duttweiler-Institut" (GDI) sees the development as follows: "We enter into an age of self-chosen lack of indipendence – to a certain extent a childhood lasting throughout life. Big Brother turns into Big Mother, who takes care of us and makes complex decisions for us. Less prosaic: We are mothered by a surveillance device. In psychological discussions of the social consequences of such a system, the word "apathy" often appears. It is important to consider this collateral damage. "(Celko 2008) However, in a controlled, throughly economized society of everyone for himself the individual can also react contraryly. Careers in the capitalist selection processes require aggression to achieve the own interests. This leads us to point four.

Fourth, digital transformation goes hand in hand with a **loss of empathy,** a fundamental element of our social coexistence. The study by the US psychologist *Sara Konrath* revealed that "Today's college students are not as empathetic as college students of the 1980s and 1990s, a University of Michigan study shows. "The study, presented in Boston at the annual meeting of the Association for Psychological Science, analyses data on empathy among almost 14,000 college students over the last 30 years." […] "We found the biggest drop in empathy after the year 2000", said Sara Konrath, a researcher at the U-M Institute for Social Research. "College kids today are about 40 per cent lower in empathy than their counterparts of 20 or 30 years ago, as measured by standard tests of this personality trait."(Konrath 2011; Rosen 2013:131)[29] Konrath et al. write in their study "that the increasing importance of the personal use of technology and media in everyday life probably contributes to the reduction of empathy […]. Furthermore, in a world full of unbridled technology, which is always about personal needs and self-presentation, they [the people, the author] simply do not have the time to approach others and express empathy." (Rosen 2013:132)

Fifth: addiction. In his book "Digitale Junkies", the psychiatrist and media therapist *Bert te Wildt* describes the smartphone as an addictive drug and a gateway drug. Deliberately built-in rewards tie to the devices, turn off self-control. This is confirmed by the results of the BLIKK project: "More than 60% of 9-10-year-old children can occupy themselves less than 30 minutes without using digital media." (Drug Commissioner 2015) According to a new DAK study, 8.4 per cent of the male children, adolescents and young adults aged 12 to 25 meet the criteria for a dependency on the so-called "Internet Gaming Disorder Scale".[30] These are epidemic proportions. Based on the 10-29-year-olds, more than 1.5 million addicts exist in Germany.[31] Because Internet and game play are growing dramatically, the *Deutsches Ärzteblatt* sound the alarm in December 2016. We now know that Internet dependency is "often associated with suicidal ideation, depression, attention deficit hyperactivity syndrome (ADHD), autism, aggressiveness, [deviant behaviour, the author] and substance-related addiction." (Bühring 2016)

Sixth: attention disorders. The digital media cannibalize the time. In order to cope with all seemingly necessary tasks, the way out is to multitask, that is, to do homework, tweet, email, whatsapp, liken, listen to music. The human being, however, is not capable of multitasking. The ability to concentrate on one thing, to sink into it is an elementary prerequisite for successful learning and working. On the other hand, multitasking is a training for addiction and attention disorders.[32] According to a study by the smartphone manufacturer *Nokia,* young people use daily up to 150 times their smartphone, which means on the average other activities are interrupted every 6 minutes. In his book "Digital Burnout", Prof *Markowetz* (University of Bonn) describes this as living in an interruption mode that prevents productive flow. This leads to "collective functional disorders" and to burnouts (Markowetz 2015:19, Werner 2017). Mul-

> "Anybody claiming now, in view of all these coherences and negative effects of digital transformation on privacy, the development of brain, learning and consciousness, digital trainings would democratize educational opportunities, increase educational options for educationally alienated classes through the use of digital techniques and remove the alleged digital divide, deliberately and intentionally passes the reality."

titasking is a killer of concentration, attention and learning.

Seventh: continuous stress. People are grown together with their smartphones. It controls and manipulates them, dictates adapted behaviour. When a teenager arrives with his parents at an alpine farm, the first question is: Is there reception? If not, he falls into a crisis. For his reward and social system of reference is missing. Switching off means for this teenager to miss out, to experience isolation. The holiday destination is arbitrary, all that counts is whether the online communication is secured. This new stress condition is called *FOMO, Fear of Missing Out.* It is the fear of being socially isolated without the possibility of a real-time reaction. (Dossey 2014, Knop 2015:51, Spitzer 2015c).

Therefore, the permanent use of the media itself is a stressor. An autonomy of the technology unfolds. Under the stress of permanent data flow, information from the working memory is no longer stored in the long-term memory. "What the children learn at school in the morning and process during their homework will be transferred to the long-term memory within the next twelve hours." (Korte 2010:274) The resting and processing phases, which are necessary for this, no longer exist due to the continuous communication. 73% of the 18-24-year-olds pull their smartphone out of the pockets when they have nothing else to do (Drösser 2015). Moments of creative boredom, of musing – reflecting on the meaning, often also a source of new ideas – are driven away. The school break, which was used for playing and raving in the yard, while the brain processed the material, turns into smartphone time. The data flow and the stimulus overflow continue. From the flood of information knowledge is not stored in long-term memory, but superficially appropriated facts remain, education is prevented.[33] The too early media consumption therefore precisely displaces the key qualifications needed to master the media.

Eighth: children out of control. Parents are giving their child a smartphone because they believe that availability at any time provides security in an unsafe world: the smartphone as an extended umbilical cord. What, how often and for how long the child played on the stationary PC parents could still control. They usually have no control over the mobile smartphone. This can be seen, for example, in the fact that the majority (!!) of children and adolescents call on youth-endangering pages – especially on violence and pornography.

The media office Return writes: "Almost half of all eleven to thirteen-year-olds have already seen pornographic pictures or films, with the 17-year-olds it is already 93% of the boys and 80% of the girls (Dr Sommer study 2009). Porn consumption jeopardises the ability to relate, promotes sexual violence and has a high potential for addiction."[34] This surfing behaviour is also stored at the Big Data via the back channel, in order to strengthen these habits in the users. Once on these sites, they are flooded with online sex advertising. These sites which are harmful to young people can have a traumatic effect and lead to misconceptions, misadjustments and disruptions of relationships.

Ninth: The rapid rise of headaches and insomnia in children and adolescents[35] is correlated to the use of digital media. The DAK study 2016 showed that weakness in concentration, behavioural abnormalities, movement deficits and related health problems among elementary school students have increased considerably over the last decade. 91 per cent of the teachers surveyed describe as the cause the media stimulus overload.[36]

Tenth: electro smog. Smartphones and tablets are used proximally, initiated by the Apps they send and receive almost incessantly using a pulsed, polarized micro wave radiation. The research results on the effects of electromagnetic WLAN-fields (at 2450 MHz) on humans, especially on children and adolescents, are unambiguous: findings from more than 60 investigations are accessible, documented in the WHO database, provide evidence that the normal load can lead to concentration disorders, headaches, ADHD, sperm damage up to DNA strand fractures and thus to cancer.[37] Electro smog is a stress for the cells. On a high scientific level, in the Springer reference-book "Systems Biology of Free Radicals and Antioxidants" (2014), a metastudy of WLAN effects, it is pointed out that especially weak WLAN radiation is harmful to health.[38] According to this state of scientific results, the introduction of WLAN-based learning equipment is a decision against one's better judgment (Warnke 2013, Hensinger 2016). Especially since a very likely harmless alternative to WLAN, the optical communication via light, VLC (visible light communication), will be on the market in near future. The schools should be waiting for this step ahead and initiate pilot projects already now.[39] No WLAN is necessary to learn to use digital programs, stationary PCs are sufficient. It is therefore to agree to the recommendation of the German Environment Agency:

"Wireless access points, WLAN routers and base stations of cordless telephones are best placed in the hallway or another room where one is not constantly staying. Bedrooms and children's rooms are not suitable. WLAN routers can be switched off if they are not used. Especially at night this is recommended" (Environmental Office 2013). This recommendation and warning can be transferred to classrooms: 30 students and their teachers, working online, are exposed to a radiation storm. In a letter from the physicians research group Digital Media Stuttgart to the Baden-Wuerttemberg Ministry of Education and Cultural Affairs, it has been pointed out what the findings are and one has warned of the consequences already in 2014.[40]

Social inequality is intensified and educational gap is getting bigger

Anybody claiming now, in view of all these coherences and negative effects of digital transformation on privacy, the development of brain, learning and consciousness, digital trainings would democratize educational opportunities, increase educational options for educationally alienated classes through the use of digital techniques and remove the alleged digital divide, deliberately and intentionally passes the reality. This argument is also an obscure marketing concept. Especially socially disadvantaged children own more consumer electronics (smartphones, tablets, WiFi games) and spend more and uncontrolled time with digital media.[41] They are all media competent, in the technical sense, it is not a problem for children to deal with the increasingly user-friendly devices. This requires no school and no programming skills.[42] But they are not media-literate, but become dependent. This is precisely why the digital devices are deepening social divisions, because children of these classes are more affected by negative effects than children from parents' houses, where a lot is spoken, played, sung, tinkered, in which sports are driven, books read or played. Those who want to increase educational opportunities must invest in teachers and fostering programmes.

iDisorder – "… as if we all had ADHD!"

These ten side effects illustrate the risks for children and their development. And this is by no means a too pessimistic view: "Almost one in three first grader in Germany has problems with learning to read, write and do simple math – with worrying consequences for their individual development and society as a whole. One out of two school children have so severe problems that they get diagnosed with a developmental disorder in reading, writing or

mathematics. These are findings of an international study conducted by the German Institute of International Educational Research, the universities of Hildesheim, Frankfurt and Oldenburg, sponsored by the Federal minister of education."[43] Why are findings of neurobiological research stubbornly ignored, which indicate that digital media consumption leads to physiological dependence in children because of alterations in the limbic system of the children, resulting in addiction, attention deficits and learning difficulties? Only traditional schooling activities stimulate language and writing skills in ways, which are appropriate for children with their high degree of cortical neuroplasticity. In this setting, the consumption of digital media is counter-productive. Especially the frontal cortex is prone to irreversible developmental damage leading to difficulties in social behaviour later in life. This is now officially approved, so to speak.

The 2017 BLIKK study of the federal government confirms some serious sequelae: "Federal government drug commissioner *Marlene Mortler* has warned against leaving children alone in the 'digital cosmos'. 'Toddlers do not need smartphones', Mortler said, 'before they have learned to walk safely through the real world.' More than 600,000 youths and young adults in Germany are regarded as internet addicts and 2.5 million show problematic internet usage patterns. 'We have to take health hazards of the digitalization serious', Mortler explained. According to the recent BLIKK study, 70% of toddlers use the smartphone of their parents for more than half an hour per day. 'This leads to disturbed development of language skills and attention deficits, motoric hyperactivity, restlessness and aggressive behaviour. Even babies suffer from eating and sleeping problems if their mothers use digital media while caring for them.'" (ZDF-text, Second German national television text, 29 May 2017).

Uwe Büsching, board member of the society of German paediatricians, commented on the study as follows: "Children do not need mobile phones prior to their 12th birthday." The professional journal *Ärzte Zeitung* ("Springer Magazin") wrote in its newsletter: "We have a new fast-food epidemic, this time regarding spiritual food for the soul." (29.5.2017) We experience an epidemic disease mongering of the society. Dr *Larry Rosen* investigates the consequences of digital media consumption on the psyche in his book "The distraction trap" and defines a new disorder, which is characterised by elements of many psychiatric diseases and which he calls "iDisorder" (Rosen 2013:4). Symptoms include obsessive staring at the mobile phone, panic attacks when the mobile phone is not at hand – "Fear of missing out" or FOMO –, disinhibition in virtual communication, increasing narcissism and maniac behaviour due to self-exhibition in social media, stress, loneliness, attention deficits, loss of empathy and addiction. The technology addiction makes us all "behave as if we had ADHD". (Rosen 2013:110)

"Brave new world?" Critics line up: No googlification of education!

The digital mobile devices come with enormous side effects which society, teachers, educators, and parents have to deal with – often with little success. A whole industry of media education apologists thrives on promoting its uninhibited consumption. Everything that Prof Manfred Spitzer in his books "Digital Dementia" and "Cyber-sick" had warned against years ago, has unfortunately come true. But even the regional media centre of Baden-Wuerttemberg ignored those risks and had argued against Prof Spitzer with polemics at the lowest level.[45] Digital transformation causes *harm in 4 different ways:* (i) the cognitive development of the children is impaired, see "digital dementia", (ii) consumerism and environmental damages, (iii) surveillance and smart dictatorship, (iv) health hazards from radiation. The first step is to be aware of these risks and face them instead of denial. Government bodies ignore the risks because they themselves participate in the million-dollar business of surveillance.[46] Attention is directed from articulation of underestimated psycho-social risks and educational challenges towards discussions of potential benefits. There is no question: We cannot leave our youths and children alone when they are dealing with influences and changes brought about by new digital media. However, without offering solutions for those risks we effectively do leave them alone. That is the situation. The mainstream of media education scientists, several teachers' unions, regional media centres, and government agencies not only fail to answer the burning questions but actively promote the un-reflected consumption of digital media instead of working on positive solutions. They open the gates to turn schools into profitable surveillance, advertisement, and most of all marketing assets for the IT industry, furthering media dependence. Is that progress? 37 university professors and education experts warned against the so-called "Digitalpakt#D", a deal between federal government and IT industry. They characterised it as the dehumanisation of schools under the headline "Trojans from Berlin: the Digitalpakt#D" (November 2016): "The 'Digitalpakt#D' is part of a re-def-inition of school and education, a roadmap towards a fully automated, digitally controlled 'learning factory 4.0' . Teachers get down-graded to 'social coaches' and 'learning attendants'. Rather than education, automated instruction by computer software and voice systems is the aim. These concepts have not been developed in education science but in cybernetics and behaviourism theory. […] 'Internet corporations and intelligence services want the remote-controlled human being'. European Union president *Martin Schulz* wrote in 2014, 'if we want to remain free we have to fight back and change our policy'. This is especially true for education policy, which once again ought to focus on human beings and their learning and education processes rather than being obsessed with digital technologies – if we want a humane life in democracy for our future generations."[47]

Hundreds of colleagues endorsed the protest. Considering the side effects, the hope of many parents to secure a good start in life for their children by early digital media consumption has turned out to be a disastrous error. On the contrary – although nobody ever dreamt to let 8 year olds get a driving license in order to provide them an early start into the technological world, or give them alcohol to make sure they will be good costumers of the beverage industry later in life – still many consider the smartphone a good choice for the same age group despite its sophisticated challenges of information processing. "Saving their human psyche while using digital devices will be the main challenge for people in the 21st century", IT-Professor *Alexander Markowetz* writes in his book "Digital Burnout". (Markowetz 2015:25)

Lembke and *Leipner,* the authors of "The Lie of Digital Education" claim: "The best start into the digital era is a childhood without computers." Gerald Lembke is an IT Professor in Mannheim. And the Neurobiologist Prof G. Teuchert-Noodt writes: "We really need digital-free safe-havens in kindergartens and in elementary schools. Only this would give higher schools the chance to establish a proper media competence in youths and young adults – including digital media." (Teuchert-Noodt 2016b).

Considering the great importance of digital media it is urgently required to establish and apply concepts for an education towards media competence. The concepts do exist, however, they are ignored in the ministries of education. Bertelsmann and the IT corporations are sitting at the table there, ideologically if not literally. Former mayor of Stuttgart *Wolfgang Schuster* chairs the Telekom endowment now and mutated into the lobbyist-in-chief

"Trojan horse …"
continued from page 25

for digital education. Federal minister for education and research *Johanna Wanka* calls Bertelsmann CEO Dräger her "best friend" who convinced her of the advantages of digital education programmes.[48] Economisation of education is on the neoliberal agenda. Thanks to "Big data" new education techniques emerge in order to streamline human behaviour smoothly into the algorithms of consumer society. What digital education aims for, could be referred to as the conditioned homo digitalis. (Hensiner 2016) So what should we, and especially the teachers, do? An unholy alliance of governments, corporations, and corrupt education scientists got us into this mess. It is necessary that teachers and teachers unions first become aware of this development towards googlified kindergartens, schools and universities, then criticise it and start a campaign to inform the public with the help of independent education scientists, psychologists, neurobiologists, and sociologists, in order to reverse this trend – and finally present alternative concepts. "A roadmap towards a school without teachers?" We cannot tolerate this, nor the degradation of teachers into learning coaches. Instead of wasting billions for technical devices, which only serve the profit of corporations we need to invest in more, well-trained teachers, more social workers and psychologists in schools, smaller classes, funding for music and theatre workshops, for project activities and renovated school buildings. But there is more at stake. As Dr Matthias Burchardt put it, the final question has to be: "Considering all this, we should not ask, what does digital transformation of education achieve, but: Do we actually want to live like this?" (Burkhardt 2017)

Five theses

1. Before digital media may be implemented, two legal requirements have to be provided:
   - A special law to protect children's privacy has to be passed, similar to the Children's Online Privacy Protection Act (COPPA) which restricts data tracking and saving by children under the age of 13 years in the USA.
   - The prevention principle has to be established and measures to minimize radiation exposure to children have to be defined based on independent analysis of relevant research findings regarding biological consequences of non-ionizing radiation, especially of WLAN, but also other frequencies (GSM, UMTS, LTE). Radiation protection means: Wiring is the favourite option for digital

media, new optical methods such as Visible Light (VLC, Li-Fi) are promoted.[49]
2. Children need firm roots in reality before being exposed to virtuality. Without hindrance of real world experience by tablet PC's or smartphones their brains will develop better. We need digital-free zones for up to at least elementary school to enable children to make the learning experiences that suit their cognitive development.
3. Starting at about the age of 12 years, digital media may be introduced slowly gradually as auxiliary methods. Pupils have to know both their potential benefits and their risks. Media maturity is a crucial element of media competence. Both is required so that young adults may actively use digital media in their studies and professional life rather than being stressed and manipulated by them.
4. Government agencies for education have to set up plans for the introduction of digital media into the schools, which take recent findings of brain research and learning psychology into consideration and respect the children's rights to a natural development. The school plans must not be rewritten as to make them compatible with the goal of economic profit maximisation to the detriment of the children by conditioning into consumerism and the ideology of unlimited "Higher, Faster, Further".
5. The complex challenges and risks of the internet age call for sensible teachers. We need to invest into smaller classes and more teachers instead of securing more billions of sales for the IT corporations.   •

Annotations

1   https://www.kmk.org/presse/pressearchiv/mitteilung/kmk-laender-bekennen-sich-zu-eckpunkten-des-digitalpakts-schule.html; https://www.kmk.org/aktuelles/artikelansicht/digitalpakt-bund-und-laender-setzen-arbeitsgruppe-ein.html

2   https://www.nytimes.com/2017/05/13/technology/google-education-chromebooks-schools.html?

3   The social psychologist *Harald Welzer* writes in the newspaper "Die Zeit", "As a sphere in which people can do as they please without any kind of public being able to gain knowledge of it, the private spere provides that area of being in which perspectives and ways of seeing form and unfold, in which personalities develop and view points may be tried out. This is exactly what it takes to be a political citizen on the other side. All constitutional fathers and mothers of the American constitution were therefore aware of the necessity of absolute protection of privacy; that is why fundamental rights such as the inviolability of the home or the secrecy of correspondence are set down in every modern constitution. And that is precisely why all totalitarian thinkers and rulers were aware that privacy is the central obstacle to the assertion of total domination." Welzer, H. (2017). "Schluss mit der Euphorie (No more euphoria)." "Die Zeit", 27 April 2017, p. 6

4   Harald Welzer writes that, unlike past dictatorships, digitalisation creates "a much more discreet and effective means of power, namely the domination of the channel of response, i.e. of all responses to the offers and developments of the smart dic-

tatorship. Such domination can control what those who are being controlled believe and want to be. From the point of view of technical dominion, this is the most innovative transition zone into totalitarianism. We have not known anything like this yet." (Welzer 2016:234)

5   Data traffic is a booming, discreet business, which has increased eightfold from 2011 to 2016, from a turnover of EUR 23.6 billion in 2011 to 160.6 billion euro in 2016 (Bitkom 2015). "The consulting company McKinsey assumes that the marketing of (geo-) data over the next ten years will bring enormous added value. It is estimated that global sales of over $ 100 billion on the provider side and about $ 700 billion by consumers and users will be generated (Manyika et al., 2011)." (Rothmann 2012: 7)

6   The philosopher *Byung-Chul Han,* who teaches in Berlin, writes: "You subject yourself to the context of power while consuming and communicating, and even when you click a like button … We are dealing today with a technique of power that does not deny or oppress our freedom but exploits it. This is the present crisis of freedom." (*Der Spiegel,* 2/2014)

7   *https://bigbrotherawards.de/2017/bildung-lmu-tu-muenchen*

8   *Heribert Prantl* analyses the importance of this development for the democratic consciousness in the *Le Monde diplomatique:* "This surveillance corrodes the free spirit of the formerly so-called free world because surveillance prevents one from being creative. Creativity requires that deviant behaviour to be allowed so that mistakes may be made. If you are being monitored, you conform. This is the real danger of mass monitoring. It provides for conformity. It cultivates pre-emptive obedience. It propagates self-censorship. The dynamics of self-censorship develop independently of whether there is actual surveillance present in a specific case. The abstract-concrete possibility of being monitored is enough, because it withdraws the certainty that one will be left in peace and quiet. And so privacy disappears; and with it the open mind. The loss of unselfconsciousness is a form of captivity; it is the loss of freedom. The monitoring power causes people to take themselves into captivity." Prantl, H. (2015). "Bürger unter Generalverdacht (Citizens under general suspicion)". In: Edition *Le Monde diplomatique,* No 16, 2015, p. 57

9   *Jose Ferreira,* former CEO of the US company Knewton and previous to that banker at Goldman Sachs, *John Kerry*'s nephew and election campaigns strategist (source Wikipedia)

10 The Bertelsmann company AZ Direkt offers data of 30 million Federal citizens, and up to 600 items of profile information are assigned to each person (Christl 2014:54)

11. Behaviourism is a branch of behavioural research. *B. F. Skinner* was the most famous representative of behaviourism and was designated by the American Psychological Association as the most important psychologist of the past century. Behaviourism scrutinises the behaviour of humans, limited to the responses of organisms to stimuli. The brain is defined as a black box; any desired behaviour can be achieved with positive stimuli. Modern behaviourists are investigating how thinking can be eliminated and behaviour can be manipulated by means of rewards. In his novel "Walden Two"(1972), B. Skinner describes the vision of a non-aggressive society: A management group, trained in the techniques of conditioning, controls the behaviour of everyone through positive stimuli (rewards). Parallels to smartphone conditioning are obvious. Skinner's group of managers is today realised by self-learning algorithms. See the book by taz editor K. Schleiter, *Die Herrschaftsformel* (The formula of dominion), Frankfurt / Main (2015). Scientology is based on behaviourism: Keltsch, J. (1999). "Was ist Scientology? Die Fabrikation der Mensch-Maschine im kybernetischen Lernlabor (What is Scientology? The manufacture of the man-machine in the cybernetic learning laboratory)", "Bayerisches Staatsministerium des Innern"

[12] p. 3

[13] *Bagshaw, E.* (2016). "Private, Catholic and public schools are reducing their reliance on laptops and tablets following a damning international assessment and concerns over the impact of social media on learning." "Last week, *John Vallance,* the principal of one of Sydney's most expensive private schools, Sydney Grammar, said that laptops were not necessary in class and that more traditional teaching methods were more effective." "The reality is that technology is doing more harm than good in our schools today", the Organisation for Economic Co-operation and Development's education chief Andreas Schleicher told world leaders at a global education forum this month.

[14] According to the "Süddeutsche Zeitung", this is confirmed by further current reports: "Despite research findings, politics is firmly committed to digitalisation. Perhaps with a view to foreign countries, where so many nations are already considerably further developed than the Germans. As early as the middle of 2011, it was reported that South Korea would have converted all schoolbooks to e-books by 2014. In 2012, the Thai government began distributing tablets to all first graders. At the beginning of 2013 high-ranking Apple representatives went to Turkey to negotiate with the government about equipping all schools with iPads. Moreover, in 2013, the city of Los Angeles began to dispense iPads to all students. Nevertheless, all the projects failed. After a year and a half, the South Korean government decided but to keep printed books, too. In May 2014, the Thai President was deposed by the constitutional court of her country, and the children had to return their tablets; the money would flow into the expansion of schooling. Nothing was heard further of the Turkish iPad plans; and the project in Los Angeles was stopped after a short time, as there were problems with the learning software, as many schools did not have WLAN which was fast enough, and as students had briskly broken the encryption and were using the iPads for surfing." Schwenkenbacher, J. (2017). "Mischen und Wischen (Mixing and wiping)", 5 April 2017

[15] "Chicago Public Schools, the third-largest school district in the United States, with about 381,000 students, is at the forefront of a profound shift in American education: the Googlification of the classroom ... Today, more than half the nation's primary- and secondary-school students – more than 30 million children – use Google education apps like Gmail and Docs, the company said ... Schools may be giving Google more than they are getting: generations of future customers … That doesn't sit well with some parents. They warn that Google could profit by using personal details from their children's school email to build more powerful marketing profiles of them as young adults." ("New York Times", 13.5.2017) *https://www.ny-times.com/2017 /05/13/technology/google-education-chromebooks-schools.html?_r=0*

[16] Press release of the German Teachers' Association: *https://www.diagnose-funk.org/publikationen/artikel/detail&newsid=1193*. Blosfeld H.P. et al (2017). "Education 2030 – changed world. Questions on education policy." The expert committee of the "Aktionsrat Bildung (Action Committee on Education)" of the "Vereinigung der Bayerischen Wirtschaft – VB (Bavarian Economy Association)" is composed of: Prof Dr Dieter Lenzen (Chair), Prof Dr Hans-Peter Blossfeld, Prof Dr Wilfried Bos, Prof Dr Hans-Dieter Daniel (since 2009), Prof Dr Bettina Hannover (since 2008), Prof Dr Olaf Köller (since 2015), Prof Dr Detlef *Müller*-Böling (2005 to 2008), Prof Dr. Jürgen Oelkers (2005/2006), Prof Dr. Hans-Günther Rossbach (since 2011), Prof Dr Tina Seidel (since 2015), Prof Dr Rudolf Tippelt (since 2011), Prof Dr. Manfred Prenzel (2005 to 6/2014), Prof Dr Ludger Wössmann

[17] *www.natursoziologie.de/NS/alltagsreport-natur/jugendreport-natur-2016.html*

[18] *http://www.liliput-lounge.de/news/eltern-smartphone/*

[19] Teuchert-Noodt, G. (2017). Interview: Digital media – the great danger to our brain: "The sensomotoric cortex fields of the child's brain are laid out to an optimum within a definded time window. Only the fully developed primary and secondary nerve networks in these cortex fields allow the adult to be creative in abstract thought patterns and also to deal sensibly with the digital media, or perhaps even write programs and algorithms himself ... It is a fallacy to assume that the modern child could take over the handling of digital media directly from adults, due to the minimal technical effort. According to the knowledge of brain research, the child's brain will not be prepared for a contentual dealing with the media in the next thousand years! For cognitive performances are dependent on the prolonged and intrinsically induced maturation of primary and secondary nerve networks in the child's cortex in order to perform associative mental work later on. At this point, it must be emphasized that digital media act as extreme acceleration factors on the maturing functional systems of the cortex counterproductively by producing a kind of maturation in need of the nerve networks and cause irreparable addiction. ... If we let things run like this, a whole generation of digitised children will be thrown back into the Stone Age. It has long been apparent that even the adult is not infinitely up to the growing acceleration in the technically highly equipped working world. After all, psycho-cognitive functions remain subordinated to defined biological conditions against the background of a spatio-temporal work of the nerve networks. For the first time in human history, this neural basis which is absolutely necessary for our thinking processes is being threatened by digitisation". *http://visionsblog.info/2017/05/20/die-cyberattacke-auf-unser-gehirn/*

[20] "The brain is thrown out of the rhythm. Prof Teuchert-Noodt on the stimulus overflow", *Frankfurter Rundschau,* 5.7.2016, download of: *https://www.diagnose-funk.org/publikationen/artikel/detail&newsid=1112*

[21] *http://www.stuttgarter-zeitung.de/inhalt.jugendreport-natur-2016-bananen-wachsen-im-wald-und-baeume-haben-eine-seele.963b3c36-b7ab-474c-94bb-43b4745ad44c.html http://www.natursoziologie.de/NS/alltagsreport-natur/jugendreport-natur-2016.html*

[22] "In the digital and media world, as mediated to us every hour, we meet a permanent production of supposed authenticity. A presumptuous audience expectation, which can be described with words as authentic, spontaneous, and natural, is answered here with corresponding staging, and is largely satisfied. For a long time, the media dramaturgy seems to us to be more genuine than our own lifeworld and the actual reality, if it exists. In the final medial age of an electronically mediated world image, it is now increasingly difficult to separate reality and fiction from one another. And it is difficult to make a valid decision about what is genuine and real – because the media staging puts reality far behind the shadows. The fact that due to perfect technology in the result between the original and the copy can no longer be distinguished, is wanted: The fact that originals have ceased to exist, there are no forgeries. And thus also no 'fake news', but only alternative information that cannot be measured against any reality. The digital medium does not need any message, it is the message itself, and only a medially constructed world is today considered a reality. Then it is only a small step from the post-factual to the anti-factual, from the truth to the alternative facts in the style of *Donald Trump,* which can be called embellishment, if it's popular. The Lie is the message! The word lie, however, is used less frequently today, because – what is truth, where does reality begin and where does it end?" Allerbrand, R. (2017). "Ich bin dann mal weg (I'm off then …)", *SWR2 Aula,* 11 June 2017

[23] The sociologist Harald Welzer writes in his book *"Selbst Denken* (Self-Thinking)": "Consumerism has become totalitarian today and is driving self-incapacitation by turning consumers (which is you, the reader!) to their actual products, by providing you with ever new desires, desires of which you have not even guessed that you would ever cherish them." (Welzer 2013:16)

[24] "They are infantilised and brought to the point of establishing themselves in the world of consumption, with the feeling of freedom, without feeling the 'false self' which was given to them in the form of uniformity and conformity as with no alternative. Attitudes are created which are characterised by competition, impotence, boredom, apathy or resignation and lead to victories or defeats in the world of consumption. Consumer capitalism is determined by an ever-increasing and widening alienation, which is alienation in abundance." (Bierhoff 2016:7)

[25] "The proportion of non-readers in the boys is with 24 per cent more than twice as high as in the girls (11%). Across all age groups the highest proportion of non-readers with 25 per cent is among the 16-17 year-olds. There are striking differences among the non-readers with regard to the level of education. 44 per cent of pupils with formally lower education never turn to a book in their spare time. Compared to 2012 a significant increase of ten percentage points is visible. Among the high school students, only one in ten has any interest in books." (Korte 2010:168, see also also MPFS, Jim Study 2013:20; Spitzer 2012:145 pp)

[26] Smartphone&Co. delay linguistic development in children. In: *Münchner Merkur,* 9 May 2017 *https://www.merkur.de/leben/gesundheit/smartphone-verzoegern-sprachliche-entwicklung-kindern-zr-8282376.html, https://registration.pas-meeting.org/2017/reports/rpt-PAS17_abstract.asp?abstract_final_id = 1380.1 http://www.aap-publications.org/news/2017/05/04/PASScreen-Time050417*

[27] McDoole, PP. et al. (2016). "Our results suggest that spending more time on social networks reduces the satisfaction that children feel with all the aspects of their lives, except for their friendships; and that girls suffer more adverse effects than boys." Summary report: *https://www.theguardian.com/society/2017/apr/09/social-networks--children-chat-feel-less-happy-facebook-instagram-whatsapp*

[28] "But in the oscillation between sensation and boredom, reality is reduced to mere stimulus values. On blasé people one can observe particularly well that boredom arises from lack of intention. Nothing captivates the attention. That is, attention is not an objective, one cannot focus. And this is characteristic of the mass society of large cities, in which we are flooded by stimuli. Here – to put it with an unwieldy, but exact notion of *Hans Blumenberg* – no 'long-phrase intentional chains' can arise. Anyone who is bored has lost the rhythm of a self-assured, well-disposed life. One can also say that his consciousness of time is disturbed. Telecommunications is pestering the whole world to us, breaking news series shock to shock, and mobile communication through smartphones enforces our permanent accessibility. This pace of modern information processing is a grotesque disproportion to the biological rhythms of man. And so he experiences the present as a slack. Since then, the existence has always been boring. Everyday life longs for the exceptional state of exhilaration. The comfortable life calls for the excitement of pleasure. Where is the 'action'?" Bolz, N. (2017). "Lob der Langeweile (Praise the boredom)", *SWR2 Essay,* 27 Februar 2017

[29] cf. Rosen, L. (2013), pp. 131.

[30] *https://www.diagnose-funk.org/publikationen/artikel/detail&newsid=1155*

[31] The proportion of 10-29 year olds in Germany in 2012 was 18.05 million. If you take 8.4 per cent of that it makes 1,517,284 people.

[32] Multitasking can also be a way to addiction: "We're making a wrong concentration training. Instead of exercising, concentrating on one thing for a long time, we train to be briefly attentive, to look at somewhere else. This also means that since the brain is always rewarded in each of its channels – a response to an e-mail, to be the first person who has learned a novelty – this is understood as a reward and can lead to an increase in the risk of addiction." (Korte 2014:4)

[33] "For a long time, children can pick up only one or two elements in their internal memory, and five elements from the age of 12. It is only at the age of 25 that the working memory achieves its optimum performance." (Korte 2010:67)

[34] Folder of the "Medienstelle Return (Media unit Return)": *http://www.return-mediensucht.de/wp-content/uploads/RT_Fit4love_Folder.pdf*

[35] Increase in sleep disturbances: The German Medical Journal ("Deutsches Ärzteblatt") writes: "The number of people with insomnia has increased in Germany. Compared to 2010, when 47.5 per cent suffered of insomnia and sleep disturbances in 2016 it were already 78.9 per cent." (15 March 2017). *https://www.aerzteblatt.de/nachrichten/73627/Immer-mehr-Bundesbuerger-schlafen-schlecht*. According to the DAK study in Baden-Wuerttemberg, the insomnia of professionals rose from 47.7% (2009) to 80% (2016): "The Professionals in the southwest should care less about their smartphones and more about themselves", says *Siegfried Euerle*, head of the national representation of DAK Health BaWü (health authority) (*Stuttgarter Zeitung,* 12 April 2017, p. 24). Increase in headache: "In the period from 2005 to 2015 alone, the proportion of the 18-year-olds with headache diagnoses increased by 42 per cent ... According to this, 1.3 million young adults are now affected by a medically diagnosed throbbing, tapping and stinging in the head, 400,000 more than in 2005 […]. The sharp increase in headache diagnoses among young adults aged 18 to 27 is all the more worrying against the background that the number of diagnoses over all age groups has 'only' increased by 12.4 per cent ... 19.7% of women in this age group are suffering. 13.8 per cent of men are concerned. "Certainly, many more young people are struggling with headaches than we know from medical diagnoses. […] The prescription rate of migraine remedies increased by 58 per cent for the 18-year-olds in the period from 2005 to 2015. Viewed across all age groups, there was only an increase of 9.9 per cent." (*Barmer Arztreport* 20.2.2017) *https://www.barmer.de/presse/presseinformationen/pressemitteilungen/pressemitteilung-barmer-arztreport-2017-99200*

[36] For *DAK-Studie* see: *https://www.diagnose-funk.org/publikationen/artikel/detail&newsid=1073*

[37] Diagnose-Funk (Ed.) (2013a): "Tablet-PCs und andere WLAN Geräte: Ein Bildungs- und Gesundheitsrisiko für Kinder und Jugendliche (Tablet-PCs and other WLAN devices: An educational and health risk for children and adolescents)", "Brennpunkt" Edition 9 May 2103, Stuttgart

[*http://www.diagnose-funk.org/assets/df_bp_wlan_2013-05-09.pdf.*] *http://www.diagnose-funk.org/ueber-diagnose-funk/brennpunkt/experten-warnen-vor-digitalen-medien.php.* A meta study wrapping up 52 studies can be downloaded: *https://www.diagnose-funk.org/ratgeber/vorsicht-wlan.!/einfuehrung*

[38] Naziroglu, M., Akman, H. (2014). Effects of Cellular Phone and Wi-Fi-Induced Electromagnetic Radiation on Oxidative Stress and Molecular Pathways in Brain. In: Laher, I. (ed.) *Systems Biology of Free Radicals and Antioxidants,* Springer Berlin Heidelberg, 106, pp. 2431 – 2449. Quote: "Studies have shown, that neurological damage can be observed at exposure levels at 0.12 mw/kg (Eberhardt et. al., 2008). This is less than one eighth of an average exposure level of 1 mw/kg found 150 – 200 m from a mobile phone mast. The researchers concluded, that "the weakest fields are the biologically most harmful." (p. 2435) In March 2015, a replication study by the German Federal Office for Radiation Protection confirmed the threat to UMTS as well. Far below the limit values, at a SAR value of 0.04 w/kg, the radiation affects tumor growth, which means that it acts as a cancer accelerator, so the result. Lerchl et.al. (2015). Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans. Published in: *Biochem Biophys Res Commun 2015.* In particular, I refer to the article by Prof *Michael Kundi* (Vienna) "Do children have an increased risk for the health consequences of mobile phone exposure?". In: *http://www.pandora-stiftung.eu/archiv/2014/drei-vortraege-der-tagung-der-kompetenzinitiative.html*

[39] VLC (Visible Light Communication), see 2 television reports, the last 5 minutes of each: *http://www.rbb-online.de/ozon/archiv/sendungen/suchtfalle-smartphone.html, http://www.rbb-online.de/ozon/archiv/sendungen/Die-Revolution-des-Lichts.html http://www.hhi.fraunhofer.de/fileadmin/user_upload/Departments/Photonic_Networks_and_Systems/Research_Topics/Optical_Indoor_Networks/Optical_Wireless_Communication/Download/cc_flyer-vlc-de.pdf*

[40] The letter can be downloaded from *https://www.diagnose-funk.org/publikationen/artikel/detail&newsid=530*

[41] Prof *Paula Bleckmann* presented this at a hearing in the "Bundestag": "Children from disadvantaged conditions have by a factor of three more television and by a factor of four more game consoles in their own room. This has a dramatic impact, well-established by media impact research. There is an increased risk of delays in language and movement

development, for overweight, for sleep disturbances, for loss of empathy, and for school failure. [...] The OECD report summarises: 'The social-class-specific differences in the ability to use digital media for learning is mainly, if not completely explained by differences in traditional basic competencies. The promotion of basic skills in arithmetic and writing contributes more to the approximation of educational opportunities than the extension and subsidisation of access to high-tech equipment and services.'" (Bleckmann, statement on the TBA report, 2016, p. 2). The statement is available for download on: *https://www.diagnose-funk.org/publikationen/artikel/detail&newsid=1110*

[42] Spitzer, M. (2017). "First of all, according to the study, the proportion of those who learn to use digital media at school is permanently decreasing (8, p. 25). Was it 21% in the OECD average in 2003 and 10% in Germany, it was 8% in 2009 and 4% in 2016. Accordingly, anyone who claims that school must teach the students how to deal with digital media is talking about one in 25 students!"

[43] *https://www.bmbf.de/de/kinder-fruehzeitig-und-individuell-unterstuetzen-4289.html; 6 June 2017, press release of the BMBF : 059/2017*

[44] *http://www.t-online.de/-/id_79772292/tid_pdf_o/vid_81303476/index*

[45] h*ttps://www.lmz-bw.de/medienbildung/aktuelles/mediaculture-blog/blogeinzelansicht/2012/stellungnahme-zumanfred-spitzers-thesen.html https://www.lmz-bw.de/medienbildung/aktuelles/mediaculture-blog/blogeinzelansicht/2012/der-spitzer-geht-um.html*

[46] The late *Frankfurter Allgemeine Zeitung* editor *Schirrmacher* wrote that the "state of the future" will be "a gigantic commercial, real existing Internet […]. Predicting what one is doing, buying, thinking, making a price, this view connects military, police, financial markets and all digital communications." Schirrmacher, F. (2013). Ego, pp. 101

[47] Complete statement on *www.bildung-wissen. eu:https://bildung-wissen.eu/kommentare/trojaner-ausberlin-derdigitalpaktd.html*

[48] *https://netzpolitik.org/2016/wankas-bildungsoffensivesprung-nach-vorn-irgendwann-vielleicht/*

[49] The Fraunhofer Heinrich Hertz Institute (HHI) in Berlin has developed the VLC data transmission technology, which uses the light of conventional LED lamps, which are used for room lighting, with an embedded microchip as a data carrier for mobile communication. The health-threatening microwave technology of the current mobile radio could thus be replaced. Initial pilot projects with VLC are already being carried out.

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From the preface to "The Trojan Mouse"

Many will know the story [of the Trojan Horse] from the Greek legend world. [...] When this book's title is "The Trojan Mouse", it is quite analogous to the process from the antiquity that is mentioned above. For today, many schools get with the information and communication technologies a facility into their classrooms, without guessing the fatal consequences of such a step. What comes in harmless as an improvement in the existing school, as an adaptation to the modern world and preparation for the future, reveals itself on closer inspection as an eminently political process, with which our primary and secondary school opens to a radical transformation and the diktat of the glo-

balised economy. What is clear at the same time is that the "well-being of the children", which is constantly made use of, is merely a pseudo-argument which cannot withstand a closer examination.

To present the background of this development objectively was long overdue, and the book fills this important gap. It would be desirable for all parents and teachers to deepen themselves into this book in the interest of the children and the adolescents. It is recommended as compulsory reading to those responsible for education in politics, before they make decisions in the name of the citizens who have chosen them. Not only huge investments in tax money are due, but the future of our youth and our educational institutions is also at stake.

"Die Trojanische Maus. Lernen für die Zukunft." ©2002, "Komitee für eine demokratische Volksschule", Zurich.
This book can be ordered for CHF 10.-/EUR 10.- inclusive postage and dispatch at the publishing house Zeit-Fragen/
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