Digital Capitalism and Critical Media Education

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Abstract

Digital capitalism has produced a new concentration of capital, knowledge, and power unprecedented in history. Quantification is fundamental to digital and capitalistic structural principles. In view of a comprehensive quantification and measurement of life and society, questions of meaning and significance must be asked beyond quantifying process structures.

The first part of the article identifies capitalistic and digital structural principles, showing affinities between both principles. The second part points out central challenges and problem areas of digital capitalism. The third part discusses the manoeuvres of the IT industry in Germany to gain more influence on the education sector. Against the background of these developments, the last part outlines the need for alternative pathways and presents dimensions of a critical media education.[2]

Keywords: digital capitalism, IT-industry, commercialization, digitalization, datafication, media education, media criticism, alternative pathway

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[1] Retired since 2017

[2] The article is based on two German language publications (Niesyto, 2017a, 2021).

Digital capitalism – selected aspects of analysis

The American scientist Dan Schiller published a book on Digital Capitalism in 1999. His analyses mainly refer to the development of transnational telecommunications companies and to the history of the Internet:

> In this book, I show that the Internet and, indeed, the greater telecommunications system with which the Internet has intertwined comprise a leading edge of this epic transnationalization of economic activity (...) Networks are directly generalizing the social and cultural range of the capitalist economy as never before. That is why I refer to this new epoch as one of digital capitalism (Schiller, 1999, p. XIV).

Schiller elaborates on how a transformation process is taking place through capital formation processes to a digital capitalism. He also addresses negative effects on education and social services: 'digital capitalism has already begun to prey on education, placing some of the most sensitive processes of social learning at the mercy of a proprietary market logic' (ibid.).

In the same year Peter Glotz (1999) published a book in German dealing with cultural struggles in digital capitalism. Glotz was a communication scientist and politician.[3] He analysed four basic trends that are closely linked to digitalisation: dematerialisation, decentralisation, acceleration, globalisation. Glotz referred to the 'point-to-point structure' of new, digital forms of communication and analysed the strengthening of a 'nomadic lifestyle'. Regarding the further development of society, at that time he predicted: 'Unchecked and uncontrolled, the development triggered by digitalisation will inevitably lead to a division of society: into an elite that willingly keeps up with the high (working) speed, and into a new underclass that will be fed to a large extent by dropouts and refuseniks' (Glotz, 1999).[4] This prognosis certainly contains elements of current developments.

In Germany, the sociologist of technology Ulrich Dolata had already presented a study in 2014 on the markets and power of internet corporations. This study analysed the global corporations *Google, Facebook, Apple, Amazon* and *Microsoft*. Dolata summarised:

> The five corporations studied not only shape the main services and markets of the internet. As operators of the central infrastructures, they also regulate access to the network, structure the communication possibilities of the users and are essential

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[3] Glotz was a member of the Social Democratic Party of Germany (SPD) and was the SPD's Federal Executive Director for several years.

[4] The citation is from the blurb of his book. Translation by H.N.; original Text (German): '*Ungebremst und ungesteuert führt die durch die Digitalisierung angestoßene Entwicklung unweigerlich zu einer Spaltung der Gesellschaft: in eine Elite, die das hohe (Arbeits-)Tempo bereitwillig mitmacht, und in eine neue Unterschicht, die sich zu einem guten Teil aus Aussteigern und Verweigerern speis*t'.

drivers of the innovation process. Not decentralisation, democratisation and cooperation, but concentration, control and power are, according to the thesis, the key processes and categories with which the essential development trends of the (commercial) internet can be adequately classified (Dolata 2014, Abstract).[5]

It is actually well over 20 years since the publications of Schiller and Glotz. Global digital capitalism has since developed as different variants and in several stages. Today, it permeates almost all areas of society. In the meantime, various analyses are available that accentuate different aspects and dimensions.[6] I would like to highlight the publication by the US economist Shoshana Zuboff entitled *The Age of Surveillance Capitalism* (Zuboff, 2019). As an important feature, the author names the expropriation and datafication of our experience as a free resource for the hidden commercial operations of surveillance capitalism. A 'surveillance economy' – according to Zuboff – is the origin of a 'new instrumental power' that claims dominion over society. And the German Sociologist Philipp Staab (2019) drew particular attention – in a continuation of the analysis by Dolada (2014) – to the system of 'proprietary markets' that characterise digital capitalism: 'Classical monopoly companies operate on markets; the leading companies of digital capitalism, on the other hand, *are* markets' (ibid., p. 30; italics by Staab).[7] In a recent publication, Oliver Nachtwey and Timo Seidl (2020) focus on the 'spirit of capitalism' and analyse normative foundations of entrepreneurial action in the digital economy.

These and other analyses from the field of cultural and media studies (e.g. Hepp, 2020; Stalder, 2018) illustrate the need to view digitalisation not primarily from a technological perspective. Without a doubt, a basic understanding of algorithmic processes, the approach of 'computational thinking' and the formability of digital-technological artefacts is also important for media pedagogy. However, technological developments cannot be detached from economic, political, cultural and social, ethical, and aesthetic questions. People's personal development and coexistence in communities and societies are inextricably linked with questions of enabling and limiting social living conditions, structures of economic and social inequality, power and domination relationships, and processes that promote and endanger democracy.

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[5] Translation by H.N.; original Text (German): '*Die fünf untersuchten Konzerne prägen nicht nur wesentliche Angebote und Märkte des Internets. Sie regeln als Betreiber der zentralen Infrastrukturen auch die Zugänge zum Netz, strukturieren die Kommunikationsmöglichkeiten der Nutzer und sind wesentliche Treiber des Innovationsprozesses. Nicht Dezentralisierung, Demokratisierung und Kooperation, sondern Konzentration, Kontrolle und Macht sind, so die These, die Schlüsselprozesse und -kategorien, mit denen sich die wesentlichen Entwicklungstendenzen des (kommerziellen) Internets angemessen erfassen lassen*' (Dolata, 2014, Abstract).

[6] See an overview of selected publications from various academic perspectives in Niesyto (2017a).

[7] Translation by H.N.; original Text (German): '*Klassische Monopolunternehmen agieren auf Märkten; die Leitunternehmen des digitalen Kapitalismus hingegen sind Märkte*'.

With the current efforts to describe and analyse the phenomena and structures of digital capitalism, it would not be helpful to refer in a generalised manner to a 'system of orientation' that was developed by Karl Marx (1867) about 150 years ago. This would not do justice to the multiple changes and the complexity of economic systems and social relations. This also includes a differentiated view of the mutual relations of 'base' and 'superstructure' and the overcoming of thinking in antagonisms and in categories of 'right' and 'wrong' consciousness. Different variants of capitalism have also emerged worldwide in the context of different political systems (from parliamentary-democratic constitutions to autocratic and dictatorial regimes).

Nevertheless, the question of the analysis and critique of certain structural patterns and the transformation possibilities that counteract a growing gap between rich and poor, a permanent educational disadvantage and an overexploitation of natural resources. Since the global financial crisis of 2008/09, basic capitalist structures and their effects on almost all areas of society have again increasingly become the subject of analysis, often in academic contexts. Important questions in this context are: which basic elements of 'classical' capitalism analysis are still relevant in today's technological, economic, and (world) social conditions? What has changed in digital capitalism?

Capitalistic structural principles

Different types, such as advanced capitalism, finance capitalism, free-market capitalism, or welfare capitalism have a few characteristics in common that can be summarised as follows (cf. Niesyto, 2017a, p. 16-17):

1. The principle of capital accumulation (pursuit of profit) on the basis of private property (land, raw materials, means of production, shares, etc.); linked to this: the principle of thinking in terms of quantitative growth.
2. The principle of monopolisation in order to achieve permanent dominance of the capitalistic structured (world) market through capital concentration processes; linked to this: globalisation in the sense of opening up and densifying globally distributed development, production, distribution, and sales locations.
3. The principle of reducing the costs of human labour in order to save capital in the long term through the use of new technologies; linked to this: acceleration and flexibilisation of work processes; computerisation and immaterialisation.
4. The principle of economising as many areas of society as possible in order to constantly open up new areas for the accumulation of capital; linked to this: quantification and measurement of institutions, 'consumers', and 'customers' – all the way into sensitive and intimate areas.

The thesis is that the outlined capitalistic structural principles are still valid, and that capitalism received a huge boost through the utilisation of digital technologies. One of the reasons for this is that these principles have an affinity with digital structural principles

and that digital technology has opened up new social areas for the accumulation of capital. It is about affinities; the connectivity of both structural principles. No determinant interdependencies are assumed. Digital technologies can be used for different purposes. This needs to be reflected again and again.

Digital structural principles

The following structural principles should be mentioned here in particular (cf. Niesyto, 2017a, p. 18):

1. The principle of binarisation: conversion of analogue signals into binary values (a complex series of 0 and 1 values), which appear only as grid points; numerical representation of data of the most varied kinds and their use, storage, processing, distribution, and representation in a binary coded form; binarisation as a precondition for the algorithmisation of processes and problems to be solved.
2. The principle of variability and simulation as the opportunity to enter into any media artefacts, to reprocess and change them bit by bit, to recreate imaginary spaces. Writing, sounds, images, moving images, graphics, language, sounds, and music can be electronically processed and recreated.
3. Principle of instantaneousness [German: *Augenblicklichkeit*]: information, sounds, images, and so on, are transported at the speed of light and enable interactivity and worldwide networking in real time (point-to-point accessibility).
4. The principle of miniaturisation of individual components into functional blocks whose temporal circuits are in the nanosecond range (billionths of a second), as well as the principle of modularisation, namely the arbitrary exchangeability and compilation of digital production elements.

Affinity between digital and capitalistic structural principles

Above all, quantification is a fundamental common feature: the *measurability* of processes, cost factors, and profit rates corresponds closely with numerical representations of data. Thus, Big Data projects in particular are in demand, which, in the face of huge amounts of data, enable targetted, rational, and efficient filtering and processing for various purposes on the basis of algorithmic procedures.[8] In combination with the digital structural principle of *instantaneousness*, huge capital profit can be achieved in the shortest possible time in these quantifying processes, for instance in high-frequency trading on the stock exchanges (cf. Vogl, 2011, p. 94, 107). This form of financial capitalism completely separates value creation processes from concrete objects and human labour and simulates financial worlds that have no equivalent in the 'real economy'.

In general, digital networking and interactivity enable the *constant and flexible*

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[8] On quantification, see also the analysis by Steffen Mau: *Das metrische Wir. Über die Quantifizierung des Sozialen* (Mau, 2017). [English: The Metric We. On the quantification of the social.]

availability of people and machines. In particular, spatial and temporal flexibility demands on manpower can be specifically implemented through the use of digital technologies. It is known from various fields of work that the constant accessibility, acceleration, and compression of work processes can lead to permanent overload and stress from the point of view of the employees concerned by the absence of regulations (time limits). The flexible, worldwide availability of people and machines is a central factor in being able to drive capital accumulation as a 'global player' in the direction of capital concentration and monopolisation (the search for the most cost-effective development, production, and distribution locations and their global networking).

The digital structural principles of *variability* and *simulation* fit very well with capitalist structural principles that aim for permanent adaptability, efficiency, and economic usability. The 'Internet of Things' is an area in which it is currently becoming very clear how the interplay of physical and data worlds (also simulations) is becoming ever more fluid and intensive. The measurement of almost all life worlds and of one's own body (self-tracking etc.) offer the optimisation of everyday life and the self (cf. Mau, 2016). However, they have a hard capitalist core: the development of new sales markets, the commercialisation of more and more areas of life, the control and surveillance of the body.

The *miniaturisation* and *modularisation* of digital components are important technological preconditions for reducing the amount of work and materials required, for computerising production technology and logistics in machine-to-machine communication (Industry 4.0) and for pushing the human–computer interface in the direction of human enhancement. Originally, the focus was on assistive computer technologies to support people with disabilities. In the meantime, numerous new fields of application are emerging. Keywords: artificial intelligence, robotics, data glasses, augmented reality.

Whereas in the past media technologies primarily enabled forms of *medial extension* (to reach into the distance, e.g. telegraphy, television), digital technologies now extend these possibilities into the body. This is what I would like to describe as *medial incorporation*. It can be assumed that bioinformatics in particular will be heavily courted by various commercial enterprises in the future in order to open up new markets through the use of corresponding technologies. Connected to this are fundamental anthropological, ethical, and social questions of being a human and a subject in digitalised societies. Keywords: farewell to the autonomy of the subject, new forms of totalitarian surveillance and domination (cf. Zuboff, 2019).

Digital capitalism – some challenges

The analysis of structural affinities between digital and capitalistic structural principles is important in order to recognise connections between technological, economic, political, cultural, and also socialisation developments. For example, the (cultural) sociologist

Richard Sennett pointed out as early as 1998 in his book *Der flexible Mensch. Die Kultur des neuen Kapitalismus*, the problematic aspects of a permanent pressure to which people are exposed in globalised network capitalism (see also Sennett, 2007). Structural principles such as constant, flexible availability and permanent adaptability promote a mode of socialisation that accelerates fragmentation in life-world contexts. What is required – according to sociologists Lothar Böhnisch and Wolfgang Schröer – is behaviour that is oriented from situation to situation, from point to point. People should be distracted from asking about the power structures associated with the demands for flexibility (Böhnisch et al., 2009, p. 133). Similarly, the sociologist Hartmut Rosa analysed increasing 'short-short patterns' of time perception: experiences remain episodic and are no longer linked to each other, to history, and to each person's own identity (Rosa, 2005, p. 470).

The structural principles and development trends outlined have the potential to fundamentally change everyday life and work as well as the way individuals live together in society. In particular, profit- and technology-driven models of the future that ultimately subordinate the complexity of being human to profit maximisation and the precision of algorithmic calculations and unambiguities are to be critically evaluated. At the same time, it should be noted that digital technologies are being used in numerous areas for enlightened, critical, democratic, and participatory purposes. We are dealing with a contradictory situation: on the one hand, capitalism proves its self-renewal power by placing the systematic utilisation of digital data at the centre of its capital accumulations and (so far) manages to sell data expropriation processes to large parts of the population as an unproblematic concomitant and even personal advantage, in accordance with the motto: 'I have nothing to hide, receive targeted information and offers in return, and can participate in the lives of many people'. On the other hand, the active use of digital technologies is associated with hopes and developments such as the sharing economy, decentralisation, cooperation, open access instead of the principle of ownership, democratisation of manufacturing, strengthening of social–ecological forms of economy, and so on. Identifying these contradictions and dealing with them is a social and educational challenge and task.

Personality development is inextricably linked to questions about social living conditions, structures of social inequality, power and dominance relations, and processes that promote and endanger democracy. Strengthening a perspective that is critical of society and the media is especially necessary in a situation where problem areas of digitalisation are becoming increasingly clear in the context of economic and political interests. The following problem areas are examples:

- the commercial expropriation and exploitation of personal data profiles and the enormous commercialisation of life worlds linked to this; keywords: commercialisation of media communication and social spaces, influencer advertising, spread of a market-shaped way of thinking in many areas of life (e.g.

Reißmann, 2014);

- the emergence of new, partly totalitarian power structures in connection with Big Data, including the filter bubble problem, social bots, micro targetting; new forms of social control, monitoring, steering, and manipulation in many areas, also in education (e.g. Pariser, 2011; Gapski, 2015; Zuboff, 2018; Iske et al., 2020);

- social inequalities and disadvantages, especially for older population groups and people with minimal formal education, or those who do not have sufficient resources and whose future is particularly uncertain in view of the digital transformation and new working relationships (e.g. Hargittai, 2002; Kutscher & Iske, 2020);

- the further technical and social acceleration of everyday life and work processes. Keywords: tendency to dissolve spatio-temporal continuities and social milieus, fluid relationships, fragmentation of public spheres, constant excitement of media attention, loss of reflexivity (e.g. Rosa, 2009; Niesyto, 2012).

The advance of the IT industry in the education sector has developed into a special problem area. It involves various dimensions ranging from the targetted use of the buzzwords 'digital education' ['*digitale Bildung*'] to broad education policy lobbying and networking as well as subtle and overt forms of influence and advertising at schools and universities (hardware and software, learning platforms, digital learning materials, certification of additional qualifications, free offers, etc.). Several analyses are now available under the term 'education industrial complex' or EdTech (Education Technology) Industry.[9] The following section focusses on some aspects of it in Germany and outlines how the buzzwords 'digital education' have developed into another 'approach lane' for the IT industry in the education sector in recent years.

The advance of the IT economy in the education sector

With the 'Digitalpakt Schule' ('Digital Pact for Schools'), the German government has for some time been making more public funds available for the digital-technological infrastructure equipment of schools. At the same time, considerably more public funds are needed for teacher training so that media-related education and learning processes can be supported. So far, the ministries of education and science in Germany have failed to establish media education either in teacher training or in schools in a broad-based and sustainable manner (cf. Niesyto, 2017b, pp. 182-188). Apparently, education policy is now

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[9] See, among others, the publications by Picciano & Spring (2013), Verger et al. (2017), Williamson & Hogon (2020). For publications in German language see for instance Förschler (2018), Münch (2018), Hug & Madritsch (2020), Bernhard et al. (2020).

counting on the IT industry to become more involved also in teacher training and 'digital education'.

The influence of the IT industry on education has increased considerably in Germany using the buzzwords 'digital education'. The prevailing education policy in Germany focusses primarily on 'digitalisation'. Everything is becoming digital, also research on 'digital education' is to be intensified (BMBF, 2020). It is true that 'digital education' is a catchy word that seems suitable for education policy arenas. But there are more and more critical voices. Among other things, it is pointed out that the adjective 'digital' is factually incorrect with regard to education because there can be no 'digital' theory of education. 'Educational processes remain educational processes – with or without the aid of digital technology', says the Council for Cultural Education in a statement (*Kulturelle Bildung*, 2019; p. 22; cf. also Fuchs, 2021, p. 163 and Kübler, 2018).

At the same time, the word 'digital education' shortens the view of the multidimensionality of the pedagogical task. Basic competences that are elementary for educational and learning processes, such as the ability to reflect and criticise, educational and learning theory basics, and elementary pedagogical-didactic and media pedagogical competences are increasingly marginalised (cf. DGfE, 2017). Finally, the digital hype overlooks the fact that besides change and 'disruption' there are also continuities. Digital technology and digital aesthetics change previous analogue systems of symbols and signs. It is important to acquire competences in algorithmic processes and in handling and creating with digital media. But digital techniques and aesthetics do not replace basic knowledge and competences in symbol and sign systems, for instance in the field of visual design and communication with photos and film/video.

In Germany, business-related initiatives, foundations, and platforms have been significantly increasing their influence in public education for some time. These include the *Bündnis für Bildung* [Alliance for Education], the *Bundesverband digitale Bildung* [Federal Association for Digital Education}, the *Forum Bildung Digitalisierung* [Digitalisation Education Forum] and the *Netzwerk digitale Bildung* [Digital Education Network] (cf. Förschler, 2018).[10] In the meantime, the IT industry, in cooperation with the *Gesellschaft für Informatik* (GI), has succeeded in gathering voices from various fields for the support of a 'Digital Education Charter'.[11] This charter focusses on 'digital competences' in connection with 'digital education' with euphonious words such as the 'ability to judge, creativity, self-determination, creative ability, sense of responsibility'. Media education is no longer mentioned in the charter – although there was previously an exchange between representatives of computer science and media education.[12]

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[10] cf. https://www.bfb.org/; https://bvdb.org/; https://www.forumbd.de; https://www.netzwerk-digitale-bildung.de/
[11] cf. https://charta-digitale-bildung.de
[12] cf. 'Dagstuhl-Erklärung' (GI, 2016), 'Frankfurt-Dreieck' (Initiative KBoM, 2019)

Media education has been increasingly marginalised in recent years, while the IT industry has spread into the education sector. This development becomes clear when one takes a look at the very important task of *media criticism* for media education, for example. Fundamental dimensions of media criticism and an analysis of questions of digital capitalism and data capitalism are not desired by the initiatives mentioned previously and lobby groups. An analysis of documents of business-related IT initiatives shows, among other things, that with the reference to 'digital sovereignty', it is primarily about an individual expansion of competences in order to constantly adapt to digital innovations and, in particular, contexts of economic exploitation (e.g. *Vereinigung der Bayerischen Wirtschaft* e. V., 2018, p. 60 f.).[13]

It is also no coincidence that at national and EU levels, corresponding policy papers and funding programmes are increasingly being used to realise interpretive dominance and to enforce objectives in the education and science sector that are closely oriented to the economy . A study by Altenrath et al. (2020), for example, comes to the conclusion that in the programmes and funding guidelines examined, economic competitiveness is the essential background for the argument (ibid., p. 6) and 'digital competence' is largely regarded as an individual prerequisite for employability (ibid, p. 8). Although critical or creative competences in dealing with digital media are mentioned, they are not a focus – it is more about technological sovereignty (ibid., p. 14).[14]

The British media educator David Buckingham comes to a similar conclusion: 'Advocates of digital education have increasingly recognized the need for young people to acquire digital media literacy. However, this idea is often seen in instrumental terms, and is rarely implemented in any coherent or comprehensive way' (cf. Buckingham, 2019). Concepts of 'media education' and a broad understanding of 'media literacy' play virtually no role in economy-related documents and strategies.[15] At the international political level (EU and UNESCO), there is now a tendency to equate 'digital literacy' with 'media literacy' (cf. Trültzsch-Wijnen, 2020, p. 218)—a tendency that has also been observed for some time in education policy in Germany.

While science ministries and most universities do not yet see themselves in a position to

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[13] Regarding these adaptations, see also Valentin Dander in his article on Ideological Aspects of 'Digitalisation'. In his summary, he states, among other things: 'The formative task thus consists primarily in the adaptation that institutions and individuals have to carry out, and hardly in creating contextual conditions that make the use of digital technologies more likely, for example for social justice' (Dander, 2018b, p. 271; translation by H.N.; original Text (German): *„Die Gestaltungsaufgabe besteht demnach primär in der Anpassungsleistung, die Institutionen wie Individuen an sich zu vollziehen haben, und kaum darin, Kontextbedingungen zu schaffen, die den Einsatz digitaler Technologien etwa für soziale Gerechtigkeit wahrscheinlicher werden lassen'* (Dander, 2018, S. 271). See also Dander's article in this issue of seminar.net

[14] See also the article by Altenrath et al. in this issue of seminar.net

[15] At both national and EU level, there are also other policy papers and funding programmes in various fields of action that pursue not only economy-related objectives. As an example, the following can be mentioned with regard to the EU level: European Guidelines for Digital Youth Work (2019): https://www.digitalyouthwork.eu/wp-content/uploads/sites/4/2019/09/european-guidelines-for-digital-youth-work-web.pdf

establish media pedagogy in a broad and obligatory way – especially in the form of *basic media education*[16] – in pedagogical courses, various IT companies offer schools workshops for teachers and teaching materials (in addition to selling hardware and software), including many free offers. There are now subtle and overt forms of influence via various advertising measures (Schmerr, 2019). Examples: *Apple* encourages teachers around the world to train as *Apple Distinguished Educators* in order to subsequently promote *Apple* products in schools and at congresses; in a similar way, *Microsoft* tries to gain influence in schools with its *Microsoft Innovative Educator Experts* program; *Google* also advertises its own devices and software products with free teaching materials in order to generate brand loyalty among children as young as elementary school age. Martina Schmerr analyzes that the interests of the digital economy in the education sector are manifold – they range from improving their own market position, image cultivation and early brand loyalty to collecting data from young people and lesson designs from teachers (Schmerr, 2019, 59f.).

At the same time, there is a lack of reflection and regulation to ensure the quality of digital educational media. In a dossier on the activities of the digital industry in the education sector, the *Gewerkschaft Erziehung Wissenschaft* (GEW, 2019) analysed the large IT corporations *Apple, Microsoft, Google, Samsung Electronics* and the lobby association *Bitkom* (Germany). With regard to *Bitkom*, the dossier summarises the association thus: 'A one-sided focus on digital media becomes clear, in line with the orientation of the member companies, whose use is exclusively and fundamentally evaluated positively' (ibid., p. 9).

Published in recent years, these in-depth analyses and articles are recommended on the topic of education, digitalisation, and the IT economy:

- Annina Förschler (2018) elaborated a critical and detailed policy network analysis on the 'Who's who?' of the German education digitalisation agenda. On the basis of a network ethnographic survey, it is shown that private-sector interests in the EdTech industry are becoming increasingly closely linked to education policy programmes. The influence of various EdTech actors is elaborated and detailed in particular using the example of the *Bündnis für Bildung* (BfB; engl.: Alliance for Education).

- In a study on the economisation of school education, Tim Engartner (2020) analyses, among other things, how extremely lucrative sales markets are being created for IT companies within the framework of the so-called *'DigitalPakt Schule'*. Engartner shows how digitalisation in schools has so far been shaped more by economic interests than by pedagogical concepts and how ministries have often

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[16] cf. Imort/Niesyto (2014), https://www.keine-bildung-ohne-medien.de/grundbildungmedien-uebersicht/ and https://horst-niesyto.de/medienpaedagogische-grundbildung/

declared the application and usability of education for the labour market to be the standard of school teaching and learning processes.

- Sigrid Hartong (2020) points out that a serious problem in the basic logic of digitalisation is the related datafication and algorithmisation of education. Hartong states that a debate 'about the powerful politics of modelling in educational software, school platforms, but also in school administration or school supervision software is so far almost completely missing' – 'And this although these systems increasingly influence decisions of educational actors' (ibid.).[17]

- In an article, Theo Hug and Reinhold Madritsch (2020) first summarise the previous international discussion on education industry developments and then analyse the situation in Austria. In their conclusion they state, among other things, that an 'intensified support of the globalised education industry has taken place without broad public discussion'.[18] They point out that there is much to be said against excessive outsourcing of the core tasks of the education system relevant to civil society and the rule of law to private service providers or tech companies (ibid., p. 35).

Antoni Verger et al. (2017) present an analysis of the rise and consequences of a global education industry (GEI), which describes new forms of private-sector, profit-oriented activities in education at the international level and explains this using selected examples (see also Bernhard et al., 2018; Münch, 2018). On the state of the development of googlefication of the classroom in the USA, Natasha Singer, among others, provides a (partial) insight into the state of commercialisation in the US education system: 'The tech giant is transforming public education with low-cost lap tops and free apps (…) Schools may be giving *Google* more than they are getting: generations of future customers' (Singer, 2017).

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[17] Translation by H.N.; original Text (German*): Hartong konstatiert, dass eine Debatte „um die machtvolle Politik der Modellierung bei Lernsoftware, Schulplattformen, aber auch bei Schulverwaltungs- oder Schulaufsichtssoftware bislang fast vollständig' fehlt – „Und das, obgleich diese Systeme in wachsendem Maße Entscheidungen von Bildungsakteuren beeinflussen' (ebd.).* See also earlier publications on the subject area by Sigrid Hartong: https://www.hsu-hh.de/sozgov/team/prof-dr-sigrid-hartong/. A recent article presents a study on the implementation and transformation of state education monitoring systems in Germany and the USA (Hartong & Förschler, 2020).

[18] Translation by H.N.; original Text (German): '*In ihrem Fazit halten sie u.a. fest, dass eine „intensivierte Förderung der globalisierten Bildungsindustrie ohne breite öffentliche Diskussion' erfolgte*'. See also the article by Theo Hug in this issue of seminar.net

Strengthening alternative pathways and critical media education

It is not only with regard to school education that the question arises of *alternatives* to the commercial offers of the large IT corporations that are suitable for educational institutions and do not involve the constant expropriation of data. Challenges are emerging here at various levels, including data protection issues, open access, and interoperability of systems. Europe has enormous research and technology capacities – why is it not possible for hardware and software systems to be developed at EU level that offer a real alternative to the commercial offerings of the global IT corporations in terms of usability which are at the same time compatible with local infrastructures? It also needs to be clarified how the *quality* of digital learning materials will be ensured in pedagogical contexts in the future. Various actors need to be involved in this, especially pedagogical specialists and teachers, and also pupils and students – not only the providers of materials and representatives of state administration. This also applies to materials and platforms offered in the context of Open Educational Resources (OER). Quality assurance also includes a ban on advertising IT industry products in public education institutions and various data protection issues. This requires, for example, data management systems that are compatible with the GDPR and whose compliance is also monitored (cf. Hug & Madritsch, 2020, p. 11 f.). And above all, there is a need for a *Basic Media Education* for *all* pedagogical staff and in-depth studies in media education (cf. Imort & Niesyto, 2014). Many fields of media education are still dominated by project-related funding and there is a structural lack of permanent staff positions.

To overcome the situation of dependency on the system of 'proprietary markets' of digital capitalism (Staab, 2019), *political and legal framework conditions* for global IT corporations are necessary. This is not only about addressing the economic power structures of IT corporations, but also the dependency structures that platform operators have now created via opaque algorithmic structuring of social relations and social communication (cf. Dolata, 2020). At the same time, the development of democratic, public welfare oriented digital infrastructures and resource-saving processes beyond the commercial-capitalist exploitation interests of corporations is urgently needed. Media and communication scientist Robin Mansell drew attention to the general need for dialogue on *alternative pathways* in connection with fundamental questions of the digital transformation:

> A dialogue is needed about possible alternative pathways, that is, alternative social imaginaries which themselves can start to shape action that leads to shifts in investment, in business models and in policies that will guide our choices about digital innovation pathways. (…) The 'datafication' of our lives is only a pre-determined outcome if we persist in believing that it is (Mansell, 2018, p. 61).

Political forces that are not part of the education industrial complex should support the development at an EU level of an alternative infrastructure to the data capitalism of IT corporations to be made available to public education as soon as possible. In this context, we need a discourse by society as a whole on the guiding principles of future social, economic, and media development – and also in its importance for the education system. For example, schools should open up substantially more new spaces for the experience of self-efficacy and for social participation and use the potential of digital media for this. It is a very important task of media education to participate in this discourse with a strong voice and to articulate its own proposals and demands.

Developing media education as a critical media and social analysis and at the same time as a subject-oriented, reflexive science of action and a pedagogical work area is not a contradiction. Both are necessary: on the one hand, an orientation towards people, their needs, interests and ways of life, ambivalences, and contradictions is needed and on the other hand, the investigation of social media patterns and structures that influence people's perception, thinking and actions. It is necessary to strengthen a media-critical perspective as an elementary task of media pedagogy (Niesyto & Moser, 2018). In the following passage, I will outline three dimensions that, in my view, are primarily associated with 'media-critical'.

First of all, it is about a *critical-reflexive basic attitude* (cf. Niesyto, 2012, p. 48f., 59f.). The Latin root of 'reflection' goes back to '*reflexio*': to turn, to bend. To turn a thought and a position back and forth (re-flect), to put oneself in another position, to look at a situation from different perspectives is part of the standards of good education and science. This process of re-thinking is inseparably linked to the ability to criticise. The Greek root of 'criticism' goes back to '*krinein*': to distinguish, to decide, to separate. It is about distinguishing, comparing, evaluating facts, objects, actions. In the process of turning and comparing a thought, a thing, a situation ('*reflexio*') we discover differences. At the same time, we need criteria, standards for evaluating and classifying differences and for the question of what we decide ('*krinein*'). The naming of criteria or standards is linked to norms and values, which are an important part of choice and evaluation processes. These processes are complex and also require (media) ethical reflections. It is not only a matter of conscious, rational considerations, but also of dealing with emotional-affective attitudes, unquestioned patterns of perception and behaviour, socialisation, and individual characters and dispositions.

Another dimension refers to the *subject matter of media criticism*. In an academic context, media criticism is a term used in various disciplines, especially in media and communication studies, journalism, and media education. Media criticism in *pedagogical contexts* emphasises above all a quality-related analysis of social media offerings and reflection on one's own use, production, and communication with media. The broad spectrum of media-critical analyses and activities ranges from the analysis of stereotypical

images of roles and society in the media to the discovery of media sound and image manipulation possibilities in addition to reflexive phases in projects of active media work and the evaluation of various media products by children and young people, for instance in the context of film juries, reviews of computer games, or the evaluation of digital learning materials.[19]

In current discourses it becomes clear that media criticism in pedagogical contexts has additional requirements especially for well-founded *data and technology criticism* (e.g. Dander, 2018a; Iske et al., 2020; Knaus, 2020) and of a critical analysis of media and society (e.g. Niesyto, 2020). In this context, it is also about questions of social situations and educational inequality (permanently inadequate cultural, social, media, and economic resources), the explanation and reflection of normative orientations, and media criticism as part of a political-cultural and milieu-sensitive media education. For this, it is necessary to promote the ability of media criticism in a vivid and practical way in connection with one's own media productions – especially in structurally disadvantaged educational and social milieus (Niesyto, 2017b, ch. 4-6; cf. also the approach *'Digital Citizenship*', Moser, 2018).

Finally, a critical media education is faced with the task of positioning itself more clearly again in the social context of *education and professional policy* (cf. Niesyto, 2021). The goals and structures of profit- and technology-driven digitalisation must be questioned, also in connection with differentiated technology impact assessments. Media education should actively participate in this. Many initiatives and fields of inquiry have developed to support *Education for Sustainable Development* (ESD). In German-language media education, there are currently contributions that also refer more strongly to these activities under media aspects (e.g. Barberi et al., 2020; Ring, 2020; Schluchter, 2020). Overall, it is about addressing social imbalances in the relationship between people, the economy, technology, culture, and nature, and about aspects of sufficiency in the production, use, and disposal of media as well as the development of alternative pathways to capitalist forms of digitalisation. For this, a broad alliance of media education with interested partners in as many areas as possible is essential to gain more attention and influence in the public and political sphere. Without such a broad alliance, it will hardly be possible to realise sufficient infrastructural framework conditions for a considerably broader support of media education in the long term.[20]

At the *European level*, it would be desirable for media educators to become more involved in discourses and networks supporting alternative pathways (Mansell, 2018) to the current

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[19] For theory, research and current discourses regarding media pedagogical media criticism, see Niesyto (2020). See also a compact presentation on the net: https://de.wikipedia.org/wiki/Medienkritik_(Medienpädagogik).

[20] See, among others, the demands and proposals of the initiative *No education without media!*: https://www.keine-bildung-ohne-medien.de

mainstream of strategies of digitalisation. In a report in the context of the Corona crisis, Williamson & Hogon (2020) clearly make reference to a tension in view of increasing commercialisation in education:

> The shift in authority from the state to private actors might make sense on efficiency grounds, but also entails the undermining of democratic control of public education. (...) The commercial activities we have documented in this report indicate an emerging tension that will be at the core of any debates about education after the pandemic has passed: a tension over the very purposes of education, and of what knowledge or skills should be taught in schools to achieve those purposes. Will this continued shift in authority to private actors further undermine democratic control of public education? (Williamson & Hogan, 2020, p. 66 f.)

In this situation, it is an important task of scientists to articulate themselves publicly and, on the basis of a well-founded analysis, to oppose the increasing commercialisation in education and to participate in the development of alternative pathways.

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