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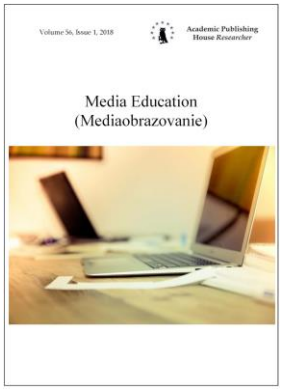
Published in the Slovak Republic
Media Education (Mediaobrazovanie)
Has been issued since 2005
ISSN 1994-4160
E-ISSN 1994-4195
2020, 60(1): 100-106

DOI: 10.13187/me.2020.1.100
www.ejournal53.com



Philosophical Reflection of the Influence of Digital Media on Current Education

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Abstract

Over the last 2-3 decades, we have witnessed unprecedented changes in culture that also influencecurrent education. The main carriers of these changes are digital media that change human cognitive abilities. Traditional media such as the spoken word, written word and printed word supported the ability to concentrate, improve memory and verbal skills, which was a prerequisite for educating the intellectual elite. We can say that the 2.5 thousand-year-old European education, or Western education, grew up on rhetoric and book culture. New digital media, on the one hand, weaken these abilities, but on the other hand they develop some other abilities and possibilities, such as rapid availability of information and ability to share it collectively. Nowadays we are in a state of transition between two cognitive-educational systems, sophilosophy should currently be challenged to find the optimal solution. Philosophy could build on the ancient wisdom of "nothing too much" because no extreme is good. Neither total shift towards the new forms of media and elimination the traditional education, nor denial of the new forms of media and education is desirable.It seems that the ability to employ a cross-media attitude and thus take advantage of various regimes of perception and thinking will gradually become a desirable virtue. In this context the Welsch's philosophical concept of transversal rationality still seems to be valid.

Keywords: media, cognitive abilities, concentration, memory, verbal abilities, education, philosophy, transversal rationality.

1. Introduction

Over the last two or three decades we have experienced great cultural and social changes that came with the Internet, or broadly speaking, the digital media. T.H. Eriksen (Eriksen, 2009: 17) even claims that the 21st century started with the beginning of the Internet in 1991. Media act as the principal generators of socio-cultural changes. According to J. Lohisse (Lohisse, 2003: 167), "media shape the way of thinking, steer our imagination, determine understanding of the world" and thus they consequently change collective mentality (culture) and social organisation (society). Similarly, M. McLuhan (McLuhan, 2011: 32) states that "technology does not influence only our opinions orideas, but steadily and without any resistance italters theproportion of individual aspects and models of perception." It takes just a small step and changes in perception trigger changes in thinking (Bystřickýet al., 2008: 19) and behaviour.

However, changes in media do not bring changes only in thinking and learning, but also education. We can now come across various contradictive opinions, both pessimistic and optimistic, on how digital media change education. For example N. Negroponte and P. Lévy

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represent optimistic approaches. Negroponte (Negroponte, 1995: 230) states that humans become "digital entities," which is something that also the educational process should respect, and children should be taught through digital media.Lévy (Lévy, 2000: 155) then argues that education should be based on cooperation in cyberspace and contribute to the growth of collective intelligence. On the other side, there is a group of pessimists, for example M. Spitzer, M. Bauerlein, N. Carr and S. Greenfield. Spitzer (Spitzer, 2014: 88) states that modern information technology does not improve school education, in reality it degrades the process, "leads to superficial thinking and distracts attention." Basing on a research study conducted by students in the USA, M. Bauerlein (Bauerlein, 2010:19) came to the conclusion that "thinking of young people stagnates on the level of an 18-year-old individual in areas such as history, civic education or mathematics." N. Carr (Carr, 2011: 131) then describes the Internet as a "a machine geared for dividing attention" because real concentration is *conditio sine qua non*for any education. S. Greenfield (Greenfield, 2016: 106) claims that digital media bring the state of emptiness (they emphasize impressions, feeling of here and now, little significance, high levels of dopamine...), which is in direct conflict with what education requires.

What is the influence of digital media on cognitive abilities and education then? What role should philosophy have here? The aim of this text is to search the answers to these questions by using philosophical approaches and methods, specifically the phenomenological and hermeneutical method. Using a phenomenological method, we would like to observe the basic structure of media and reveal which cognitive abilities are promoted and which are suppressed. A hermeneutical method will then be used to highlight differences between various forms of media. However, both of these methods are complementary, as they are interconnected and mutually supportive.

2. Materials and methods

J. Lohisse, but also S. Harnad (Harnad, 1991: 40) regard three traditional forms of media – the spoken word, written word and printed word – to be the fundamental, or even revolutionary forms of media. They are revolutionary because each one of them has brought considerable changes into collective mentality and organisation of society. Media, collective mentality and social organisation are, according to Lohisse, three apexes of a triangle, where relations are reciprocal. However, in this triangle, it is media that trigger changes. This is the reason why it is important to learn the basic structure of media.

We can study the basic structure of each kind of media from the phenomenological aspect (Gálik, Gáliková Tolnaiová, 2015: 6). This means we can refine the principal structure (eidos) of any media form. The primary form of media is simply human speech, as the "mother" of all forms of media. Human speech is characteristic for articulated interpersonal communication. Within this comes auditory surrounding that invites participants to share this mutual dimension. This form of communication overlaps time frames of the present and past because memories of the past are presented now. If there is no other form of media in a given society, this structure of speech and interpersonal communication will constitute a similar model of collective mentality and social structure. This model then typically manifests features such as cyclic time and social unity. Individual members see each other primarily as something that makes a collective (Lohisse, 2003: 14-30).

With the entry of the written word, especially its phonetic version, comes also change in collective mentality and organisation of society. The basic structure of phonetic writing is characterised by external and visual sequence of symbols from left to right, for example Greek of Latin texts. In contrast to the spoken word, writing and reading demandstricter discipline, deeper concentration and logical thinking. In collective mentality, such a structure supports the idea of linear time, while in organisation of society it favours a hierarchy-based social system because the written word introducesalienation in communication and consequently growing power and authority (Lohisse, 2003: 49-55).

The printed word, which came to life in the middle of 15th century, introduced some tendencies and changed the others. Unlike the written word, the printed word is standardised, spreads fast and anonymously over a large space. The subject-object dualism deepens as the authors are more separated from their machine-printed work. Similar to the situation with the written word, the printed word develops discursive and abstract thinking. In the context of collective mentality, the printed word supports abstraction and unification of time-flow as people across a big area read the same content. According to T. Dvořák (Dvořák, 2016: 25) the printed

word, and later on also radio and television, represented the most common forms of social synchronisation and unification of individual regimes. This lead to homogenisation of thinking throughout the society and formation of the so-called public opinionand mass society in the Early modern Europe. On the one hand the printed word supported individualism (one can read independently from the others) but on the other hand it also supported nation states based upon a common language.

Domination of the traditional media, especially the printed word, ceased with the end of the last decade of 20th century. From the formation of the first Greek alphabet in the 6th century BC until the end of the 20th century cognitive abilities were shaped by the spoken word, written word and printed word. There were twoimportant features that were being systematically developedin education. The first one related to verbal abilities – rhetoric. We can see rhetoric trainings for example in the early modern European universities. Robert S. Rait (Rait, 1912: 145–146) points out that the students had to learn the morning speech of their teacher in one day. Thus they were both deepening their knowledge and learning to formulate a sequence of ideas and arguments, which exercised their memory and verbal abilities. The second feature –the book culture – complemented the first feature and supported perception, thinking and argumentation. This trend continued in the Early modern Europe, therefore we can say that the 2.5 thousand-year-old European education, or Western education, grew up on rhetoric and book culture.

3. Discussion

With development of technology in the 20th century and especially in its second half, came also television and radio. Especially television had a great influence on cognitive changes and education. M. McLuhan was optimistic regarding education with the help of television: "Our educational system is based on reaction, orienting towards past values and technologies. ... a child influenced by television desires deep engagement and not linear isolation and uniformly arranged, sequential schemes." Yet, also some negative influences were observed, so introduction of a school subject called media education in the 60s was not coincidental. For example N. Postman (Postman, 2010: 95–96) criticised television for being a form of media that aims towards entertainment: world shown through a kaleidoscope, with images appearing for a short time and then disappearing. It is a world almost without any coherence and meaning, world that does not expect us to interfere and in fact does not even allow it. A world that is, just like a kaleidoscope toy, a single-purpose one. And just like our kaleidoscope, it is very entertaining." Similarly, also G. Sartori (Sartori, 1997) criticises television because it forms new cognitive abilities in people, new anthropogenesis with turn from *homo sapiens*to *homo videns*, which naturally influences also education. Despite these changes J. Lohisse (Lohisse, 2003:167) states that the Internet is paradigmatically a new form of media, because unlike television, it is interactive. In his opinion, traditional television and radio belong to the era of mass consumption, in which the main position was occupied by the printed word.

The Internet, or speaking more broadly – digital media, which have been being developed since the beginning of 1990s, have changed our culture and society considerably (Fedorov, 2019a). This is the reason why it is very important to learn about its basic structure and consequently also about its influence on cognitive abilities and education. Digital media are advanced as they are made of hardware, software, the Internet and so on..., but in order to identifytheir influence, we only need to use aphenomenological approach that will help us study the basic structure ofwhat will make its way through the so-called interface into the world of human symbols. The thing is that human is not influenced by something that is hidden, for example software that consists of zeros and ones, but by something that people come in contact with in their daily life. Using thephenomenological approach, we can identify the basic structure of digital media, structure that consists of several aspects, such as network structure, multimedia nature, interactivity, communication speed and dominance of images.

1. *Network structure.* The Internet communication is, unlike communication in the linear era of the written and printed word, based on network. Symbols found on the Internet are arranged in a hypertext and manifold manner and communication is established through a non-linear combination of symbols and images. G. Deleuze and F. Guattari (Deleuze, Guattari, 2010: 30) identified developing non-linear communication systems as early as in the 1970s and came with the term of "rhizome." This term describes a variety in combinations of symbols. In this context, U. Eco

(Eco, 2012: 58) speaks about a maze, or labyrinth-like thinking that opposes the arborescent thinking.

2. *Multimedia nature*. M. Charvát (Charvát, 2017: 42) characterises the new digital media as multimedia because one form of media may include various applications. These applications are linked to each other through software, so it is possible to move within this system. Choosing discontinuous types of media, such as text, mail or video, promotes multitasking..

3. *Interactivity*. According to van Dijk, as Charvát (Charvát, 2017: 41) notes, interactivity is one of the three principal characteristics of the new forms of media: "These media are integrated, interactive and use digital code ... For example, we can definitely mention traditional television, as it integrates image, sound and text, even though it is not interactive." Interactivity gives the users of digital media a possibility to actively influence the content on the Internet and share it with other people that use the Internet or social networks. Interactivity thus supports formation of collective thinking or, as says P. Lévy (Lévy, 2000: 26), collective intelligence.

4. *Communication speed*. The speed of digital communication on the Internet is close to the speed of light,so communication appears to be instant for a typical media user. This speedy communication also speeds up life of a modern man. T.H. Eriksen (Eriksen, 2009: 56) talks in this aspect about speeding up the time andwidening the gap between the fast time (work) and slow time (family, holiday), or extending the fast time at the expense of the slow time.

5. *Dominance of images*. In communication on the Internet (especially on social networks) there is a dominance of images (photographs, videos and so on).In connection with this, A. Martinengo (Martinengo, 2013: 309) speaks about a pictorial turn, while in the context of traditional television, G. Sartori comments the beginning of digital era as a new anthropogenesis of man towards homo videns. The attractiveness of image content deepens the degree of immersion in cyberspace, which both disintegrates the linear time and supports the simultaneous time.

From the user's view, which is identical with phenomenological approach, we can characterise digital media as network media, multimedia, with fast and interactive communication, dominance of images and considerable amount of immersion. However, each and every new aspect of communication in the cyberspace fosters some cognitive abilities and suppresses others, which has a great influence on modern education.

4. Results

As early as in the 1960s M. McLuhan (McLuhan, 2011: 60) noticed that media were becoming a new extension of man, because one had to adapt to them or even "serve" them. "By accepting new technology, we become its servomotor. In order to be able to use these extensions at all, we have to serve them and take them as our religion or God." When we adapt to the new technology, we also change the way we perceive and think. The same happens when we use the modern digital media.The user needs to adapt to the speedy network and multimedia-based communication that is interactive and features dominance of images. Each aspect of such communication brings both positive and negative changes in cognitive abilities and consequent influence on education (Gálik, 2017: 35).

We can speak about these positive aspects:

1. Fast communication and access to information. This is undisputedly and advantage of communication in the cyberspace of digital media since it removes time and location limitation. Regarding education, fast access to information is a benefit that simply was not here in the pre-electronic era. People looked for information in libraries, had it sent by a postal service or people had to look for it in universities and so on.

2. Increase of collective intelligence. Communication across time and space can increase collective intelligence, and hence creativity and invention. Modern education emphasises team cooperation (*team building*, *team training*), which can ensure better results than in the case when people study or work independently. For example, M. Marcelli (Marcelli, 2018: 86) believes that collective intelligence has a potential to solve also global problems, while individual people do not.

3. Visual creative thinking. Taking advantage of digital technologies (technologies can be active and for example start actions or offer solutions) can be creative and innovative for our thinking. Creativity in the cyberspace of digital media usually comes combined with innovative combining of images, which increases associative thinking.

Regarding negative changes, we can speak of these aspects:

1. Weakening of discursive thinking. Network, or rhizomatic communication in the cyberspace of social media weakens logical thinking (deduction) and discursive thinking. Eco (Eco, 2012: 61) even states that "to think in rhizome means to proceed randomly, i.e. be guided by assumptions."

2. Weakening of concentration and memory. According to N. Carr (Carr, 2011: 131) "the Net is, by design, an interruption system, a machine geared for dividing attention."Interactive digital media and multimedia can continuously stimulate our brain and make us addicted, which deprives our brain of the ability to concentrate deeply on one thing. The impaired ability to concentrate comes hand in hand with impaired ability to remember. Beside this, our memory is also weakened when we rely on supplemental sources of information, for example a USB memory stick or a website.

3. Disintegration of linear time. The high level of immersion into the cyberspace of digital media favours the present (simultaneous) time and disintegrated the linear time. This means information and knowledge is not passed from one person to another one, but spread horizontally across cyberspace and time transmission is unimportant. Consequently we see disintegration of the traditional view of historical events and cultural tradition.

The traditional European system of education, based on rhetoric and written word, cultivated concentration, memory and verbal abilities – rhetoric. Modern media weaken these traditional cognitive abilities. A number of research projects published by M. Spitzer and S. Greenfield reveal that present-day students indeed concentrate less and remember less than in the past. Average students would now probably not be able to compete with average scholastics from medieval universities, as students at that time excelled in concentration and had exceptional memory, which showed for example in rhetoric, back then an important artistic subject. On the other hand however, nowadays students employ associative thinking, fast communication and cooperation, which are skills influenced by the modern media and communication in cyberspace. This is something that the students of medieval universities could not train. The ability to communicate fast and effectively in cyberspace means a new collective influence that exceeds everything that is individual, whether we speak about communication and organisation or information and education structure. We can mention arecent pursuit in the so-called "cleaning up our planet"that is not organised by anybody and yet it is spreading across the Earth (see *World Cleanup Day*: https://www.worldcleanupday.org/). Then we also speak about information and knowledge that is instantly accessible and which, when selected and processed properly, may constitute an enormous source of information. This is made accessible for example through the Google search engine or alternatively Web of Science or Scopus, which index scientific facts.

E. Betti (Sousedík, Betti, 2008: 164), in the context of hermeneutics of history knowledge, realised this potential and noted: "Thought the wealth of ideas collected using exceptional effort of all human race does originate in humans, it is extremely important... this, according to Geothe's claim, leads to something that exceeds humans." We may add that Betti is even more right regarding the modern tendency to use knowledge stored in the cyberspace of digital media effectively and without any delay.

5. Conclusion

Digital media on the one hand weaken our cognitive abilities that would be the foundation of the traditional European education, but on the other hand they encourage abilities that may introduce new forms of education (Fedorov, Levitskaya, 2018: 18). However, the exceptional speed of this process seems to cause problems as the culture and society has experienced unprecedented changes in the span of mere 2 or 3 decades not only in Europe, but all across the globe. Thought it is obvious that the traditional forms of education that are based on media such as the spoken word, written word or printed word and that formed our rhetoric and verbal skills and also concentration and memory are being weakened, the new ones are not fully developed yet. We could describe this stage as the stage of transition and transformation in all branches of culture, including education. Therefore philosophy should reflect on this reality, analyze it and assess it. Philosophy has considerable cultural heritage at its disposal, this can be used and certain decisions can be made. Obviously, in this case, philosophy could build on the ancient wisdom of "nothing too much" because no extreme is good. Neither total shift towardsthe new forms of media and elimination the traditional education, nor denial of the new forms of media and education is desirable. At the present time we quite clearly see dominance of digital media, therefore we need to learn how to

mistrust them to certain degree or, in other words, stay sober and learn about information hygiene in order to keep balance (Fedorov, 2019b: 247, Gáliková Tolnaiová, 2019: 17). Still, we will also need to support the original forms of media (the spoken, written and printed word) that would help us develop our verbal ability, concentration and memory, as these are very important for traditional education. It seems that the ability to employ a cross-media attitude and thus take advantage of various regimes of perception and thinking will gradually become a desirable virtue.In this context the Welsch's (Welsch, 1995: 9) philosophical concept of transversal rationality still seems to be valid: "We become to understand it perfectly normal to switch between various forms of reality. Our cultural formation grows more and more transcultural."This is something that the future social and intellectual elite will probably have to accept because, apart from being skilled at using communication technology, we will quite possibly need good memory, master focused thinking and verbal skills.

6. Acknowledgements

This study was elaborated as a partial outputof the project supported by the Grant Agency of the Ministry of Education of the Slovak Republic (KEGA) No. 010UCM-4/2018 titled "Material and didactic support of the teaching of media education through the media training center at FMC UCM".

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