The Effects of Digital Media on the Brain

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This interaction seems useful to us, but we should not underestimate the risks inherent in the freedom of communication presented by the Internet. For people responsible for the formation of the Internet environment—the creators of services and their users, journalists, politicians, lawyers, educators, psychologists, and, in general, adults—it is important to ensure that the network space is safe for the younger generation.

Section 2: Topic Summary

The brain is the most complex organ of man. How he learns and manages and how these processes affect one another is explained by Manfred Spitzer in his books and speeches. Digital media is doing mental work for us. What we used to do with the help of our brain today is taken up by computers and smartphones. This is fraught with great danger because it causes addiction and harm to the body: memory weakens, nerve cells die, and children and adolescents lose their ability to learn. The use of digital devices is harmful to humans: there is a tendency to violence, a sense of fear and indifference, depression, and much more. We are obliged to protect our children from the media and communication (Shanmugasundaram and Tamilarasu, 2023).

Dementia is not only forgetfulness. For me, the phenomenon of digital dementia means not only that today's young people are becoming more and more forgetful (this was first pointed out by Korean scientists back in 2007). To a much greater extent, we are talking about a reduction in mental capacity, loss of thinking skills and the ability to critically assess facts, and inability to navigate the flow of information.

Technophobia or a sober view of the problem?

"Many people say that since the new digital technologies are now part of everyday life, we must teach them, children, in advance. This must be countered: the new media and media have – in the same way as alcohol, nicotine, and other drugs – the ability to be addictive. Painful dependence on computers and the Internet is becoming more frequent, with disastrous consequences for people who are exposed to them. "

Superficial thinking

“The more superficially I get into the essence of the information received, the fewer synapses will be activated in my brain. Hence, I will remember it badly. Understanding this is extremely important because it is for this reason that digital media and the Internet have a negative impact on the learning process. It is thanks to the media and the Internet that our perception of information is gradually becoming more and more superficial. Previously, the texts were read; today, they are skimmed over; that is, they jump on top. Earlier in the subject, today, instead of traveling on the Internet (that is, they slide on the surface of information, even the word “surf” Webended). ”

The web is forgotten more than in real life.

“American scientists have investigated the question of what happens when a group of three people recall something together. Groups of three people watched a short film and then had to describe what they saw. First, we recalled separately. Then, the film was discussed in the group, in direct contact (face to face) or through indirect digital exchange: everyone exchanged views with other members of the group through a computer. This exchange was to the benefit of the truth: after an exchange of views, each was asked separately about the content of the film. The product of joint recall turned out to be closer to the truth in comparison with individual memories. In addition, the following important result was revealed: the ability to recall an individual member of the group was better if the process of collective recall occurred not by electronic means but by direct contact. The reasons for this are obvious: personal contact gives much more material for processing and leads to more emotional and profound processing than “poor” contact through the screen and keyboard. ”

Anonymity

“To begin with, we fix the fact: the computer and the Internet are incredibly powerful tools for ensuring anonymity. Nowhere are there more avatars, aliases, fictitious addresses, fake personalities, and fictitious personal pages. And if no one knows who is who, then you can afford to behave badly without fear of consequences. This allows hordes of criminals to do their dark things on the net. But even absolutely normal people stop strictly adhering to moral norms: as soon as they go to the Internet, they begin to lie more. […] The anonymity that became possible thanks to digital media leads to the fact that adolescents are attracted to such behaviors that they would never allow themselves to follow for fear of public condemnation. One of them is harassment, harassment, harassment, blackmail and libel on the Internet. ”

The meaning of sleep

“In addition, the following fact is interesting: one who watches more video films, who has their own mobile phone, who in the room has their own TV, which more often communicates on the Internet or

more often acts in multitasking mode, he sleeps less. On the contrary, those who have more dating in the real world sleep longer. Today, we are only beginning to realize the great importance of sleep for human health and the role that it plays in learning processes. However, the fact that the use of digital media is directly related to the shorter duration of sleep gives rise to concern for the mental performance of the younger generation as a whole. ”

Popular on Facebook – lonely in life?

“The feeling of loneliness is more often spread through friends than through relatives and affects girls and women more than boys and men. In this connection, the fact that contacts via virtual social networks are more often associated with the transmission of negative emotions than communication in the real world is of particular importance. This explains why people feel alone in networks. This is what Sherry Turcl, Professor of Sociology at the Massachusetts Institute of Technology, writes in his book Alone Together.

Loss of real social contacts

“Anyone who has many friends at 20 years old can safely maintain their social contacts through networks like Facebook. It’s completely innocuous – you can compare it with using a computer to write student work. The situation is quite different when children are turning to new technology, the process of development of which has not been completed. Here, electronic media and media definitely hamper the acquisition of the experience necessary for healthy development. Those who spend a lot of time in their youth spend time communicating on Facebook and are less likely to show social activity in reality. This inevitably leads to social frustration, which is why the virtual community often causes negative emotions in adolescents. Think about it: children spend about two hours on direct social contact on average, whereas in the virtual world, they spend an average of at least seven hours. In this way, they become disaccustomed to real social contacts – and suffer from this. ”

The brain grows together with the social environment.

“In other words, how effectively our brain is controlled with the information it receives depends on how this information was obtained! […] The way in which something is studied determines how the learned is deposited in the brain. Anyone who gets acquainted with the world by clicking the “mouse” that some media educators are propagating will be able to think about it much less efficiently and fairly slowly. Clicking with the mouse is an act of demonstration and not an act of manipulation (that is, handling a thing with the help of hands). Those who intend to acquire serious knowledge should turn to the real world. The knowledge we get at the computer is weaker and slower “printed” in our brain than those that can be “touched.” At the same time, we know that the speed of thinking processes is closely related to the level of intelligence. The speed of thinking is a sign of high intelligence. ”

Pencil or keyboard?

“Digital means of writing are becoming more and more widespread, and it is hardly surprising that children are more often acquainted for the first time with written speech through them, rather than by reading books and handwritten notes on paper. Already, there are the first results of scientific research proving that the use of digital means for writing, which begins in childhood, adversely affects children’s and adults’ ability to read. Neurobiological studies carried out using functional magnetic resonance imaging (fMRI) show […] that only the formation of letters with the help of a pencil paves motor traces of memory that, during the perception of letters, are activated and facilitate the recognition of letters by their visual image. This extra motor track of memory that facilitates reading is not formed if the letters were entered via the keyboard because the movements necessary to press the key have nothing to do with the shape of the letters. ”

Generation Google: geniuses or mentally retarded?

“One of the fundamental reviews of the scientific literature on the behavior of young people in the search for information carried out by the authors shows that there is no reason to assert that young people perform a search better than adults. Over the past 15 years, such behavior has not undergone any significant changes. […] It is because the Network allows you to ask questions instead of narrowing the search field by means of skilfully combining keywords that it can not contribute to the optimization of information retrieval, the authors indicate in another part of this review. And since young people do not know exactly how information can be organized and what the logic of the reciprocal links between different information – what is important and what is not – they can not really conduct a Webrch Webthe Web. […] A study conducted by the British Library staff eliminated a number of prejudiced opinions: […] “An accurate analysis of the literature on the last 25 years does not show any improvement (and no worsening) in the ability of young people to handle information.” The authors of the study believe that the opinion that the generation of Google is a “generation of copy and paste” is true.

Superficiality instead of hermeneutics

“Anyone who wants to get acquainted with any information must carry out a process that has been called the hermeneutic circle for 150 years now. He recognizes the whole through details and details – through the whole, it follows the indication of the correct source, and if the path leads to a dead end, then it goes back to the right source because the correct source contains enough indications. […] “Digital people” of this hermeneutical circle do not pass: they, for a while, randomly click on the links and never come back; they perform a search in the horizontal plane (that is, superficially) and not in the vertical plane (they do not go deep and do not rise to the tops). […] We know that remembering information in the brain depends on the depth of its processing. Compared with this, surface fermentation Webthe Web is a meaningless occupation. It is not surprising that with this approach, a

true understanding of information is excluded, and nothing is retained in memory. ”

Chronic lack of self-control

“Violation of attention is a state opposite to high self-control: one who is constantly distracted by something and commits disorderly movements does not control his motor skills. It has been proved that sitting behind computer games causes a violation of attention and consequently damages the ability to self-control. American children’s doctor Dimitri Christakis and his staff were the first to demonstrate that watching TV in early childhood leads to a more frequent occurrence of attention breakdown at school age (i.e., loss of self-control skills). ”

Stress is the lack of control.

“[…] Large Internet companies collect huge data sets about users. If you are looking for something in the search engine, then do not be surprised that your ad will always receive advertising for similar products. At the end of 2009, Google and Yahoo search engines personalized search results; our interests are registered with the information search. In the future, due to the personalization of search results, these firms will increasingly dominate us, and we will be surrounded by a so-called filter bubble. If Google, Facebook, or Yahoo suddenly finds that certain information does not interest us, then we will not see it anymore – we will simply stop showing it. Such surrender of positions in self-determination in the information field may, in the future, cause even greater stress for all of us because […] loss of self-control is an important trigger mechanism of stress. ”

Crime toward the body

“Insomnia is one of the most frequent negative consequences of using digital media and media. […] Those who use digital media and media, especially in the evenings – communicate through chat rooms, sit in social networks, play games, and still do not part with a mobile phone – more and more often, there are sleep disorders. […] The one who deprives himself of sleep, being unable to tear himself away from the digital media, commits a serious crime against his own organism. The opinion that a small amount of sleep causes only short-term fatigue is erroneous. For a long time, insufficient sleep leads to a decrease in immunity, that is, to the frequent occurrence of infectious and cancerous diseases. There is an increased risk of developing cardiovascular diseases, painful overweight, and diabetes. ”

Section 3

On the subject of the influence of social media on the human brain, a huge number of articles have already been written, but despite this, in almost every new post or video, among the old facts, there

are interesting new ones. Tonight, we offer you some more interesting discoveries, which, perhaps, will make you one step closer to freedom from this not-very-healthy addiction (The Guardian, 2024).

Recently, I conducted a small experiment – I refused to read news, Facebook and Twitter for a month (just before the New Year). As a result, it turned out that the fulfilment of some tasks can take up to half the time, you can sleep much more and more soundly, and there is even a little time left for your favourite hobbies, which you previously did not have time for. There were many more pros than cons (American Psychological Association, 2023).

But the biggest plus, in my opinion, was the disappearance of these terrible "mental scabies": the discomfort of not flipping through the Social Network feed for the hundredth time and even starting to get angry at the fact that there were so few new posts. This really started to sound like a painful addiction, similar to the dependence on cigarettes: the sensation of physical and psychological discomfort does not pass until you smoke a cigarette and flip through the news feed (Office of the Surgeon General, 2023).

The latest video from AsapSCIENCE gives a very clear scientific explanation of all these sensations and tells how social media is changing our brains.

1. From 5 to 10% of users are not able to control the amount of time they spend on social networks. This is not entirely a psychological dependence; it also has signs of dependence on narcotic substances. The scanning of the brains of these people showed a worsening of the work of the brain areas, which is observed in drug addicts. It particularly degrades the white matter, which is responsible for controlling emotional processes, attention, and decision-making. This is because, in social networks, the reward should be almost immediately after the publication of the post or photo, so the brain begins to rebuild itself so that you constantly want to receive these rewards. And you are beginning to want more and more and more. And you are simply not in a position to refuse this, as with drugs.

2. Problems with multitasking. It may seem to us that those who constantly sit on social media, or those who constantly switch between work and websites, do much better at the same time with several tasks than those who are used to doing one thing at a time. However, the comparison of these two conditional groups of people was not in favor of the former. Continuous switching between social media and work reduces the ability to filter interference and also complicates the processing and storage of information.

3. The Phantom Call. Did you hear your phone vibrating? Oh, it's probably an SMS or a message on one of the social networks! And, no, it's empty! Did it seem? Oh, that's vibrated again! Well, now something has just been! Again, it seemed… This condition is called the phantom vibration syndrome and is considered a psychological phenomenon. In the course of the study, it was found that about 89% of the respondents experienced such feelings at least once every two weeks. Technology is beginning to rebuild our nervous system in such a way that the most common itching in the leg after a mosquito bite is interpreted as a vibration of the smartphone.

4. Social media are triggers for the release of dopamine, which is a harbinger of obtaining the desired reward. With the help of MRI, scientists found that the centers of reward in the brain in people begin to work much more actively when they begin to talk about their views or express their opinions than when they listen to someone else's. In principle, nothing new, right? But it turns out that during a face-to-face conversation, the opportunity to express your opinion is about 30-40%, while in virtual conversations on social networks, this opportunity increases to 80%. As a result, the part of the brain that is responsible for orgasm, love, and motivation is activated, which is fueled by such virtual conversations. Especially if you know that you are read by a lot of people, it turns out that our bodies reward us for the fact that we are sitting on social networks.

5. One more study showed that the partners who first met online and then saw each other in real life liked each other much more than those who got acquainted offline. Perhaps this is due to the fact that you already at least approximately know the preferences and goals of another person.

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