Kids and gadgets: what parents and teachers

The benefits and harms of any technology depends on its correct application. MD, neuropsychiatrist and head of educational programs in European business schools teo Compernolle wrote the book "the Brain excepted," in which he argues that electronic means of communication be a hindrance to productive mental activity, and makes recommendations that will help you to use them more effectively.

Multitasking and constant connectivity to digital devices lead to the fact that we spend a huge amount of energy to switch between different contexts, instead of focusing on one thing.

We don't know how to use new technologies so that they are not harmed by our intellectual productivity. This requires an understanding of the basic mechanisms of our mind.

This applies not only to the older generation and "digital natives" — children and teenagers who were born in the information age. As numerous studies, they are adapted to life in conditions of constant connectedness is no better. And often kids use dostijeniya technological progress not in order to learn more and to do less:

> Control with the proliferation of gadgets has become impossible to write. Decides one, takes photographs and makes sending in WhatsApp. One solution is to ban and take away.
>
> — Julia B.the Director of one of comprehensive schools of St. Petersburg

With the permission of the publishing house "Alpina publisher" published excerpts from the book — about what prevents children from constant use of electronic devices, and what you need to know about their proper application. References to scientific publications are omitted for readability.

The problem is not that children are doing with ICT and what they do

The problem with giperbolicheskogo is not what you do, but what they do not. For example, you are mastering the art of communication and verbal communication. Do not learn in practice, not engaged in sports and other physical activity, do not try to concentrate, don't practice in-depth reading, learn to think. And do not learn.

I recently saw a young family, where eight month old child was playing with the tablet! Parents were happy write my essay that their son knows such a "complicated" game where you have to move the stars, squares, circles and triangles in the corresponding holes. Every time the kid cope with the job, sounded a cheerful melody.

I asked my parents if their boy like a toy — you know, a big wooden or plastic cube with holes of different shapes, which teaches children that the ball need to shove into a round hole, cube, square, etc. Mom and dad said, "No. Why buy this thing if the kid can play in the same game, and many other games on the tablet?"

These parents do not realize is important: the manipulation of real objects of the physical world gives the child a totally different, much more rich, multi-sensory and effective learning experience.

Source: wikipedia.org

That same week I met a couple who was proud of his 10-year-old child: he learned to build complicated structures from Lego... on the computer screen. But to collect virtual items on the screen and real with their hands are two completely different things.

Well, these children learned to perform complex operations on tablets. But the problem is that they haven't mastered these skills in the real world, because they spent all their time behind the screens of gadgets.

Another illustrative example of printing and writing by hand. Some teachers believe that today it is useless to spend time and effort to teach children to write by hand. Teachers follow the path of least resistance and teach even the youngest children to type on the keyboard, as if the sole purpose of the ability to write — to print the letter on a computer screen. Don't get me wrong, this is a very good idea to teach children to touch type at an early age.

But teachers forget that typing on a keyboard and writing by hand are two very different skill, and they require different hand-eye coordination.

In short, when we write by hand, our visual attention and motor activity are concentrated on the tip of a pencil, we can even feel the grain of the paper — like at the tip we have is the sensor. When we print, our visual and motor activity disconnected: eyes focused on the screen, and motor activity — on the keyboard.

Of course, this does not mean that the activity of printing on the keyboard is worse than hand-writing. However, when you enter text on the computer we get an immediate result. And the advantage of handwriting is that it's a slow, vysokoorganizovannym visual-motor process. To get a readable result requires full concentration and constant attention to what is happening on the tip of a pencil.

In the process the child also learns to recognize images. On the keyboard the letter "a" is always the same. At the same time, the child learns that there are many different ways to write "A", and learns to recognize the letter even in pitch scribbles.

Compared to printing learning to write much better develop the skills of letter recognition and helps to remember them. So it lays a more solid Foundation for reading development. And not only reading. The ability to recognize patterns and to firmly remember the letters create the Foundation for the development of many language skills higher order.

I believe that the slow process of hand writing better prepares the brain for the "slow thinking".

Daniel Kahneman uses this term to refer to the reflective activities of the brain. From my own experience I know: it is much easier to comprehend and remember things when taking notes on paper (although, of course, it may be due to the fact that I belong to the older generation who grew up without ICT). I have not found any research on this topic. But I worked a lot with the secretaries, the typists — before the advent of personal computers. So, when they were typed under my dictation, then completely flipped your thinking brain.

They relied solely on the reflex brain and well-honed typing skills. They can print text without a single error, but didn't remember its content. When they were handwritten meeting minutes, it is often better for me to remember who said what. So I think that note taking on a laptop may increase the amount of text, but have a negative impact on its memorization, understanding and, most importantly, the "slow thinking". However, the "jury" (i.e., society) has not yet issued a verdict on this issue.

When I had to give this book to the publisher, I got a yet unpublished report about an interesting study. This information confirmed my findings.

Researchers pam Mueller and Daniel Oppenheimer of Princeton University conducted a series of experiments and found that note-taking using pen and paper differs from note-taking on laptop fewer the text, the best recall of facts and conceptual understanding.

While the subjects that were outlined on the computer, asked not to make verbatim records. The researchers came to the conclusion that a pen and paper to make people not only record, but also to process information.

In General, you can say this. Well, if children learned to work on the keyboard. But it is a mistake to consider this skill as high as that of handwriting. In addition, we must think: what might be the negative consequences from the point of view of further education, if you refuse to teach children manual letter.

And the last sequence, but not least, the observation that giperbolicheskie children lack a full-fledged social relations in real life. Because they often interrupt the lively discussion sessions of virtual communication.

Here, the problem is not so much what you do these kids — because in virtual communication, there's nothing wrong — and what they do when you stop paying attention to his companion, and a rich palette of non-verbal messages accompanying the live chat.

Barbara Fredrickson perfectly sums up this problem in his article: "in such micromoments wave of warm feelings covers two people, their consciousness, their bodies and their souls. This wave creates the capacity for empathy and even improves their health".

The bad news: if the skill of emotional contact is not used for a long time, it can degrade. The assertion that communication influences health, it may seem far-fetched. But [...] many studies prove that positive social interactions may be the main factor having a positive impact on our ability to handle stress.

What should parents and teachers?

Interestingly, these computer specialists and fans of digital technology are leading employees of companies in Silicon valley such as Google, Apple, Yahoo, Hewlett-Packard, etc. — to properly understand the problem and pay a lot of money for the education of their children in private schools, where there are no computers. Moreover, they limit their children to use electronic devices at home! After all, there are many non-virtual children's games, which help develop important skills. Moreover, to master these necessary skills at an early age.

If you have not played with blocks, did not collect the designer, it is unlikely that you will have the opportunity to learn it in adult life. In the child's development everything has its time and place.

It's probably not a coincidence that Google founders Larry page and Sergey Brin, Amazon founder Jeff Bezos, Microsoft co-founder bill gates, the founder of Wikipedia Jimmy Wales and the developer of the Sims will Wright went to Montessori schools.

One of the goals of education in these schools is to encourage an independent, multi-sensory exploration of the world in the "properly prepared" environment, where there is a limited but carefully selected set of items and materials that contribute to the development of the child. Another goal is to encourage collaboration without the spirit of rivalry and even without the ratings.

Computer geniuses, forbidding their children to use the gadgets, know how much giperbolicheskoi and multitasking can hurt productivity and creativity. They are quite smart and savvy in ICT, to understand the intensive use of Internet and electronic gadgets has nothing to do with

computer literacy.

Not accidentally, Randi Zuckerberg, the sister of the Creator of the social network Facebook and its marketing Director, has written a children's book "Dot," which invites teenagers to disconnect from the technological toys and begin to live in an amazing, full of adventure real world.

Randy did it when her own daughter was seriously fond of gadgets.

The task of parents and teachers is to teach children to use technology for the benefit of themselves and not harm. This does not mean that we need to deal with ICT, like the Luddites. This means that we need to teach children to turn off all the gadgets (except music for some extroverts), has not done his homework. This means that we need to teach children computer literacy: explain to them how to use ICT in learning and for self-development, how to set priorities and not to allow ICT to overshadow other aspects of life.

And the most important — children need to learn to work and think in a sequential, single-tasking mode. Parents, teachers and children will be much easier to do this if they have at least minimal knowledge about the specifics of the human brain.

To competently use ICT, the children must first know about our fantastic brain. And then to get acquainted with electronic gadgets.

The first and most important, what parents and teachers need to get children to concentrate and focus on one task. The focus needs to take as much time as required to complete the task. Here the girls have a slight advantage over boys: they usually read more, but reading helps develop concentration. And, in addition, reading teaches us to think.

To convince the children that multitasking is inefficient, it is possible in an entertaining way. There are a lot of games, tests, and experiments that demonstrate the negative impact of multitasking and giperbolicheskoi.

For example, one of these experiments. It is necessary to divide pupils into two groups. One of them placed in a multitasking environment: the teacher explains new material in the TV and on the news channel such as CNN with their intense visuals and energetic review. And the other group is necessary to provide a single-tasking environment, where the teacher will lecture without distracting external factors. It is obvious that students in the first group will learn and remember the material much worse than the second.

Unfortunately, many teachers are not aware of the negative impact of multitasking. They let their pupils and students to use during class tablets and smartphones, ostensibly to take notes and complete tasks. But do not check what students are doing really. Meanwhile, the researchers found that during some sessions, only 10% of students used their gadgets truly for educational purposes.

During the interviews it became clear that the students of leading universities such as mit, are convinced that an extraneous activity, for example, communication in social networks, does not prevent them to absorb important information.

But, as I said, numerous studies of multitasking proves that it is not. When the class is divided into two halves, and allow one of them to use in the classroom electronic devices and the other does not, the second half immediately ahead of the first all indicators of learning and memorizing the material. In addition, the students do not notice how really time screens of their gadgets filled with extraneous things. And underestimate the negative impact of multitasking on the effectiveness of their training.

Perhaps the teachers who allow such behavior, I think we should keep up with the times and not to limit students in using ICT. Or do they believe that the task of the teacher is to interest students in his subject to make them forget about digital toys.

This is a very naive point of view, because even the most brilliant teacher is unlikely to win these "sticky" devices in the war for the attention of the students.

After all, the gadgets created specifically to attract attention and entertain.

Excessive liberalism of teachers and incorrect assessment of their situation turn out for the disciples missed opportunities. Children need to understand the difference between using ICT for entertainment and consumption (making them slaves and slaves), and controlled use of these technologies for productive purposes. Very often parents and teachers do not distinguish between these two approaches and believe, incorrectly, that the primitive use of ICT for consumption of information and entertainment develop children's digital literacy.

Paul Krasner and his team have described three popular education myths that are relevant to our discussion.

They are all variations on the theme that the student "knows better" and must be the Central figure that defines the entire learning process. Let me quote an excerpt from their article:

> The first myth is that the current generation of students (i.e. generation of digital natives) is able to learn using new media. Therefore, the "old" methods and means of teaching this generation no longer apply.

> The second myth is based on the widespread belief that every man has their own style of learning. Therefore, education is necessary

to individualize: students should be personal training program to suit their preferences.

Finally, the third myth: it is necessary to expand opportunities for self-education students to allow them to decide for themselves what to learn and in what mode.

However, in our time it has become obvious that pupils and students do not know how to manage our virtual training. What can we say about how to build an effective personal school or University program and discipline to stick to them! As practice shows, young people often can't even find useful information on the Internet.

There are many other myths about education, and they are all refuted by the research results. On one end of the continuum are the myths, is not denied completely, but is clearly false or, at least, represents an overgeneralization. These include, for example, this statement: if a student will monitor their own learning, then it will positively affect its effectiveness.

At the other end of the continuum are myths, full which proves counterproductive to life itself. This, for example, the assertion that children are capable of effective multitasking. Finally, there are myths that supposedly confirmed by research results, but in fact it turns out that these studies have been conducted with errors".

Yes, modern electronic gadgets have a high "stickiness" and availability is a real temptation for young people. However, today's situation is not much different from the situation half a century ago.

Then clever parents taught their children to use a different wonderful technology: television.

They did not forbid the children to watch TV, but it restricted them from viewing. If the offspring was allowed to spend in front of the screen for an unlimited time, those in the end turned into a boring passive couch potatoes, suffering from obesity and diabetes. And it happened to them already at a dangerously young age.

These children face major challenges with communication and in psychological terms. They are less involved in school and extracurricular activities, not enough sleep and more prone to aggressive behavior and delinquency. They often develop attention problems or delays in cognitive and language development. Their desires are more tied to the material world. They suffer increased anxiety and, importantly, feel happy.

Of course, it may be so that children are more dependent on the TV because they are boring, passive and Moody. But the data clearly indicate a reverse causal relationship.

The advent of television in the communities where it was not before, makes people less creative in problem solving, less resistant in the tasks and less tolerant of unstructured time.

Source: 4wtmedia.com

Shocking fact: every fifth child aged 0 to 2 years, and every third child aged 3 to 6 years in the bedroom is already its own TV! Children's programmes, games, social networks or surfing the web do not require a sustained conscious concentration. On the contrary, these media are designed to keep the attention through frequent and quick switch — so that the person's gaze remained glued to the screen even during commercials.

To help children become slaves, and competent users of ICTs, we need a focused and sustained effort on the part of parents and teachers.