

ELECTRONIC MEDIA AND EDUCATION, AT HOME AND IN SCHOOL: A SYNTHESIS OF PROBLEMS AND RECOMMENDATIONS

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1. INTRODUCTION

This paper was written originally for a medical magazine in Brazil. Since I had a space limitation, I synthesized the problems that electronic media cause in children and adolescents and, in some cases, also in adults.

I also synthesized recommendations that I have given in my lectures to people who want to avoid damages to their physical and psychological health due to these electronic media.

In this paper, I address some essential aspects about this issue, showing that electronic media should not be used by children under any circumstances. This control is perfectly possible by parents, guardians and teachers. Ideally, they should also not be used by teenagers, but in this case control is very difficult.

I will now comment on an observation that will be made by many parents, guardians and teachers: "But you are being very radical!" For these people, I would like to draw the attention to the fact that education has always been radical. Examples of radicalism in education: it is prohibited (at least here in Brazil) for adults to give alcoholic beverages to minors; no responsible mother lets her child play with fire or fuel; most adults do not let their children under 16 walk alone in big cities in this nowadays violent Brazil; it is forbidden to let minors drive vehicles; nobody teaches what it is global warming for, say, 2-year-old children; one should not leave children without learning to read after the age of 7; algebra is not taught before arithmetic, etc.

The fact is that if something is known to be harmful or inappropriate for children and adolescents, its use should not be allowed. My extensive studies, my world view and my personal observations about electronic media, that is, TV, computers, electronic games, tablets and cell phones with Internet access (smartphones), here globally cited as media, led me to the conclusion that they are highly harmful and dangerous for children and adolescents. It is a pity, even a tragedy,

that few people recognize it. In fact, my point of view is more and more being confirmed by scientific papers, books and articles, and the general opinion is slowly starting to change, mainly because it is possible to observe the damages that these devices cause in children and adolescents, as well as in adults.

In 1972, when I gave my first lectures against watching TV , not only by children and young people, but also adults, I felt like an alien, a voice crying out in the desert (without comparing me to the enormous greatness of the biblical author of these words).

In the meantime, other electronic media appeared, and were used with extreme exaggeration. The evidence of the damage they cause has become so apparent that even people who are not experts are starting to have the same opinion as mine, although they do not have a clear point of view about the subject. However, many people do not notice the seriousness of the damages and dangers, and therefore try to compromise, not wanting to be radical, going against what I said above. Another type of people, the ones who are self-indulgent do not want children and adolescents to stop using these means, because this way they are entertained and the adults can relax. They do not realize what damages can be caused to the children's development, the physical, psychological and social consequences, furthermore, the risk of addiction to the media will certainly bring huge problems later in life. Still, others feel that electronic media are a positive means for education. Finally, certain people fall for the misleading advertisements of hardware and software vendors and have an absolutely wrong opinion that it is important for children and young people to use the media, otherwise they will become displaced adults with less professional capacity.

I will not refer to scientific articles and academic books confirming all my arguments and recommendations mentioned in this article; these can be found in my two articles indicated in the references.

This article is divided into sections 1 to 4, and in each section there are subsections noted as 2.1, 3.2 etc. Section 2 presents the arguments I use to support my thesis that the media should not be used by children (which, I emphasize, is perfectly possible) and by teenagers (but more difficult to control), so in section 3 I make several suggestions to avoid the negative effects, or, at least, trying to reduce them.

2. ARGUMENTS

There are three initial arguments against the use of media by children and adolescents, which I consider unquestionable, that is, their truth cannot be denied.

2.1 Addiction. It is largely scientifically proven (for references of scientific articles, see the article cited at the end) that the media

present a high risk of producing dependency. People who watch TV every day are very likely addicted to it. It is useless someone defending him/herself saying: "I could not turn the TV on", if this person ends up turning it on every day. Video games, especially action and reaction games, the most played ones, also create addiction, as they are designed to attract the player, for example, by trying to make her/him want to move to a higher level of the game. Once in a while the system lets the player win, so s/he does not get totally frustrated and gives up. On the other hand the Internet is addicting in two ways: (a) It is highly distractive. It has been proven that the more a person gets distracted, the more s/he wants to be distracted. This has to do with substances produced by the brain (dopamine), associated with pleasure. (b) Smartphones allow access to the Internet at anytime and anywhere (and also at any age). This, for example, causes a desire to know who just sent a message and to reply to it immediately. Or constantly check if something posted by oneself caused some reaction and if any interesting news or videos have arrived.

It has been proven that substances emitted by the brain when a person satisfies an addiction and feels a sensation of pleasure, are the same for all addictions. This presents an additional risk that Internet addicts can move on to other addictions.

2.2 Dangers for children and adolescents. The main dangers are those represented by predators and by mobbing and bullying, through moral or physical harassment. Predators include pedophiles and those who want to get information about the person or about the family, which can lead to blackmail, theft or kidnapping. Internet crimes have been increasing exponentially – there are even researchers who predict that this will make the Internet impossible. As for mobbing and bullying, which have been increasing steadily, there was never a means to allow as much aggression and its planning as the Internet. It is a fact that all children and adolescents are naïve, as they have not had the life experience of mature adults, therefore are more likely to become victim of predators. By the way, many adults are also naïve, otherwise there would be no viruses or spam.

2.3 Libertarian environment. The Internet is an environment in which the user can access any kind of information. Nowadays cable TV allows access to hundreds of channels, and therefore it is also a kind of libertarian environment. Children and teenagers should not have total freedom; they need to be guided – and they require it instinctively. When they feel that parents and guardians do not set boundaries, they tend to become tyrants, always challenging more and more, which will produce psychological problems later. Access to information not appropriate for their age harms a harmonic growth into maturity.

These three arguments should be enough to come to a conclusion that the Internet and other media should not be used by children and teenagers. However, there are several other arguments, among them the following

2.4 Damage to mental concentration. The craving for distraction described in section 2.1, and the possibility of doing so at any time harms the capacity to concentrate. It has already been proven that adults who lose this capacity can recover it after some time if they stop using the devices or drastically limit their use. However, what happens if children and teenagers fail to develop this capacity? Without it, it is impossible to learn and solve problems. Even a simple addition with several digits requires mental concentration.

2.5 Overweight and obesity. These are the biggest of modern epidemics (this was written before Covid-19). Due to the media, people are moving themselves less and less. Usually, healthy children do not walk, they run around. By sitting in front of the TV or using other media the child is forced to stay still, and therefore does not develop the necessary body coordination, muscle development, as well as not spending the necessary amount of energy, which leads to weight gain. In the United States, more than a third of the population is obese, one third is overweight, and only less than one third is normal. Here in Brazil we are heading towards the same situation, as shown by a statement from the Department of Health; in 2018 19.8% were obese (in 2006 it was 11.6%, which shows an increase of 8.2%), 55.7% were overweight and therefore only 24.5% were normal – probably many of them were undernourished. This is due to inactivity and eating too much junk food, which are highly caloric and processed products, that is, not natural food. These products are pushed by advertisements broadcasted mainly on TV. Watching TV produces a state of mental drowsiness, which decreases the brain activity by five to ten times; since the brain spends about 20% of the body energy, its almost “shutdown” contributes to weight gain. The state of drowsiness is due to the effect that images change very rapidly, which means that it is impossible to think on everyone; as a consequence, the brain is damped, as was demonstrated by research using electroencephalograms.

2.6 Health problems. Several of them have already been proven, such as the increased risk of having atherosclerosis, type 2 diabetes (a disease that in the past affected practically only people of relatively old age, but is now affecting children and teenagers), high blood pressure and cardiovascular diseases, epileptic attacks, etc. It has already been scientifically proven that the use of the media increases the risk of death from all causes. Young people are increasingly affected by diseases typical of elderly people.

2.7 Damage to healthy sleep and its duration. The agitation and excitement caused by the media, especially TV and electronic games, impair healthy sleep, which should be preceded by a few hours of inner calm. On the other hand, due to its attraction the intensive use of the media takes away sleep time, causing users to stay awake beyond normal time, therefore losing precious hours of sleep, which can produce countless psychological and physiological problems. The situation is particularly tragic when children and teenagers have (their own) TV sets, access to the internet and electronic games in their bedroom, because in this case there cannot be any control by parents and guardians. Lack of sleep produces several illnesses and development problems, and impairs significantly school performance.

2.8 Social desensitization and aggressiveness. Researches have shown that the media produce a decrease in short-term empathy. Playing violent games or watching violent movies causes people to immediately have less social sensitivity and increases aggression – which can range from raising the voice when talking to another person, up to physical aggression. As the human being incorporates all its experiences, although few are remembered, watched violence gets registered, and ends up influencing behavior. It is interesting to note that something that was widely thought to be suitable for children, like, for example, cartoons, are full of violence. One study found that all American cartoons, since their beginning, from the 1930s through the 70s contained scenes of violence. As has been said, research has proven short-term effects; my guess is that the accumulation of these causes brings on long-term changes in the same direction. Research has also shown that social networks reduce personal social contact. Young people get so much used to virtual contacts that sometimes they do not know what to do when they have real personal contact. Sexual relationships are being jeopardized as young people watch videos with pornographic aberrations and they start to think that this is normal, in particular intercourse without love.

2.9 Decrease in school performance. Research has also shown that the use of the media impairs schooling, even for university students. The reason commonly claimed is that the use of the media is very time consuming and this decreases the time the student dedicates to her/his studies. My supposition is that, besides the impairment of the ability to concentrate described in the subsection 2.4 above, there is an influence on the mental capacity, especially of children and adolescents, because the thought that must be exercised is the formal, logical-symbolic, algorithmic type. There has been yet no brain maturity for this type of thinking. The deterministic situation of absolute cause and effect of computers and the internet does not correspond to a normal thinking activity, especially the one that is geared towards reality. In nature,

nothing is deterministic; among machines, only the digital ones are effectively deterministic.

2.10 Inappropriate_development acceleration. This is a serious problem, especially emotional and intellectual development. Due to the argument of subsection 2.3, the libertarian environment, children and adolescents may have access to scenes and texts that are inappropriate for their age, scenes of violence and eroticism. In fact, these are the scenes that attract the most. That is why they are so frequent, especially on television programs, besides acting particularly on feelings, the only inner activity stimulated by TV since, as was seen in 2.5, the thoughts of the viewers are usually stifled. In addition, they remain passive, so that their will is not exercised. The most used electronic games are the violent ones, preferred mainly by boys. But even serious texts can be harmful, if the child or teenager does not have the maturity to understand the content and evaluate its context.

2.11 Postural problems. Recent works have shown that children and adolescents are developing an abnormality of the spine bones at the back of the neck due to the the fact that a cell phone is always placed in front of the chest or belly, which forces the head to lean forward. The neck pain resulting from this postural issue is called "text neck." This anomaly is relatively common in elderly people, as is seen in those who walk with their bowed heads but its occurrence in young people is a new fact. Because of this side effect it has been recommended for a long time that the screens of computer video monitors should be placed at eye height. For those who use a notebook, one solution is to connect an external monitor behind the computer, in an elevated position.

2.12 Induction of consumerism. Television, with the exception of Public Broadcast or non-commercial state channels, as well as the internet, are driven by advertising. I characterize it as being the art, the science and the technique of influencing people to do what they would not do without that influence. This goes from advertising unnecessary products, more expensive or low quality products being pushed to consumers, to political propaganda.

2.13 Depression, anxiety and fear. It has been proven that social networks produce depression. Research has shown that the most prevalent factor in this regard on Facebook is envy: people do not post information about what they are, have and do, but about how amazing they would like to be, and what wonderful things they have and do, causing envy in other people. In addition, I think another cause for depression is that, at least unconsciously, the person, after using a device for a long time, recognizes that this was a total waste of time, besides coming in contact with harmful things. In general, social media posts are totally irrelevant, like "I'm leaving the room", "Now I'm entering the bathroom," etc. *ad nauseam*. Anxiety is produced by the

constant search for news and waiting for comments on their own posts. Fear strikes mainly children and adolescents, still without life experience to not let themselves be influenced by terrifying news and images. The news focuses on violent acts, because that is what attracts users, which causes fear, especially in small children who do not know how to distinguish what is fictitious from what is real; until the age of eight they do not distinguish fantasy from reality. Besides, what effect could one expect from a horror movie? Images of sexual intercourse obviously accelerate development, with serious psychological damages.

2.14 Lack of self-awareness and self-control. Children and adolescents have not yet fully developed self-awareness and selfcontrol, which are absolutely essential for a good use of the media. Examples of self-awareness in the use of media are: "Am I using this device for useless or harmful things and am I wasting my time?"; "Am I using this device for too long?"; "Shouldn't I take a break and relax?"; "Is this text a fake?" However, there is no point in recognizing these problems, if there is no self-control to take a break in using the devices, or to use them properly. One can observe how adults are not controlling themselves in this use; how can one expect that children and adolescents will control themselves? It is important to remember that the media are designed to attract, to grab users and make them use the devices as long as possible.

2.15. Danger of radiation. The World Health Organization (WHO) changed the classification of risks caused by cell phone irradiations from "possible" to "likely". Several scientific studies have proven the increased risk of brain tumors due to intense use of cell phones. In my opinion, this was always obvious, because the brain works on the basis of very subtle electrical currents, and electromagnetic waves induce currents in any electric circuit. These waves are produced by cell phones, Wi-Fi devices, radio antennas and cell phone base stations. Therefore, even if the induced currents are small, without heating effect, the normal function of the brain suffers an interference. That is especially serious when holding a cell phone against the ear, and especially in children, whose cranial box is not as thick as in adults. It has already been proven that cell phone irradiation penetrate more deeply in children. They can actually be detected halfway through the brain.

2.16 Loss of hearing ability. This is due to the use of headphones, especially those which fully cover the ears. It is no surprise that, when one activates the volume control and exceed a certain sound level on your headphones, the cell phones emit a warning message. In general, very loud sounds, including in shows and nightclubs, cause irreversible damages in the hearing system. It has already been proven that young

people gradually increase the volume of the sound from their devices, precisely due to loss of their hearing sensitivity.

2.17 Damage to creativity. Creativity is the confluence of three factors: fantasy, having new ideas, and practicality. The latter means doing something useful with the first ones for oneself or for society. All media have something in common: a screen. If it displays a text or a photo, there is not much difference between it and a printed text or a book, unless the physical presence of the latter, the possibility of making notes on the page sides and an index of phrases, writing outstanding issues/subjects on the first pages etc. Also, try to spill coffee on a keyboard of a notebook and a book to see how they are different... However, the big difference occurs when the screen displays images in movement or in succession, generally very fast, which does not occur in printed texts and photos. I counted on normal TV programs from 15 to 25 image changes per minute, counting zoom effects, appearance of signs, changing in background, etc. In video clips I counted one change per second, a true psychedelic environment. With these changes, the user is obliged to drown out his conscience, as it is impossible to think of each displayed image. If one tries to pay attention and think about each one, one will notice that after a little while a mental exhaustion is felt, leading to a mental relaxation and stopping conscious thinking. That drowning out of thinking impairs the ability to think and imagine, and therefore it also impairs the capacity of using one's fantasy and thus creativity. Now, creativity is something an ability that companies appreciate in their employees, for the renewal of products and procedures, and it is essential in social relations. For more details and bibliographic citations see the references given at the end of the article.

3. RECOMMENDATIONS

These recommendations do not follow the order of the previous section.

3.1 From the presented arguments and yet others, one reaches the conclusion that electronic media should not be used by children and adolescents. In my view, the minimum age should be 17 years old. At this age, young people are mature enough to understand the negative effects of the media, they already have a reasonable selfcontrol and they can already exercise abstract and formal thinking required in the use of all the media. I am aware that nowadays that age is absolutely utopian and impracticable, because even if teenagers do not have a cell phone with Internet access, they will use the one of their colleagues. However, I think it is important to recognize that the use of media before that age is much more harmful than beneficial. In fact, this is my impression in general, even concerning adults.

3.2 In the case of children, any use of media is a very strong incitement for more use, up to the point that it becomes out of control. The ideal

situation is that there should be no habit of any use of the media by children. I repeat, there is not, there is no need for children to use the media. In high school, the Internet can provide a lot of useful information for different subjects, but young people will in general not be using the electronic devices for appropriate things.

If it is possible to use them for entertainment_and in an exciting way, why use them for serious things? It is not necessary to learn to use the devices media very early, because when young people become adults all electronic devices are probably going to be very different and much easier to use. The need for "computer literacy" is a total misconception. Today's adults and seniors are using smartphones and tablets and have not used them when they were children, since they did not exist at that time.

3.3 A very strong recommendation is to postpone the use of the media by children and teenagers for as long as possible. And when they use them, it is necessary to establish limits and penalties if these limits are exceeded. A very efficient suggestion is that from the age of 12 on, parents and children draw up a written "contract" with regulations and penalties, signed by both sides. Written rules are much more effective than just verbal agreements. Among the rules, there should be a ban on exchanging messages with strangers, sending family data, sending intimate personal photos, accessing pornographic and violent sites, etc. Also the limit of time and the hours of use should be established. Regarding photos, the situation is critical. Suppose a girl sends her boyfriend a full body picture, where she is dressed. If they fight and he gets angry, he can process the photo with an image processor and show the girl without clothes and in obscene positions. The latest attack on privacy is synthesizing voice with anyone's tone of voice, making them say inappropriate things. There are programs that run on background, without being noticed, recording all the accesses that a young person makes to the Internet, such as pages, exchanged messages, etc.; later on, parents and responsible people can check if anything improper is occurring. One of the problems of these systems is the mistrust they cause in young people.

3.4 It is useful for teenagers to have a cell phone, but they should not have access to the Internet, starting with the provider's data flow system. However, that would not prevent the use of Wi-Fi in public places with open internet access or at the home of friends. One solution would be to remove internet browsers, e-mail processors, WhatsApp and other internet access programs. It is important to observe that the frequent use of the internet is irresistible to most adults, imagine then how irresistible it is for children and teenagers.

3.5 Adolescents have created a need to use the Internet to set up all sorts of meetings, gatherings and appointments, discuss what to wear,

etc. In this case, a way out of this problem is that the adolescent should use, for example, the WhatsApp on a parent's cell phone. I met some parents who adopted this solution with success with a 12-year daughter.

3.6 There is a good reason that the child or adolescent wants the devices; because their friends have them. In this case, the parents have to be very strong and resistant; for this it is necessary to be very conscious of the harmful effects they cause. With children the resistance and the prohibition are possible; in this age it is useless to talk about all the negative effects. In the case of teenagers it is important to give age-appropriate explanations. With young people it can be interesting to create a folder with articles from newspapers and magazines that show the problems caused by the use of media.

3.7 Taking the previous subsection into account, it is important that parents, guardians and teachers do not use the media in front of children and students, in order not to set a bad example. This applies to every social gathering: if one of the guests starts using his cell phone, he either disturbs or disrespects other people; if it is absolutely necessary to answer a call or to reply to an urgent message, one should go to another room, away from the meeting. In a family meeting, a good solution is to have a basket at the entrance of the house, where everyone leaves their cell phones.

3.8 One problem is that children may use the media in their friends' homes, or use their friends' cell phones anywhere. With small children there is a way to avoid this: parents choosing the friends for their children. For example, letting a child visit friends only if their parents have the same objections regarding the use of the devices. Schools could contribute a lot regarding this problem, by organizing groups of parents with concerns about the negative effects of the media on children. These homes would then be safe for children to visit and play.

3.9 Teachers should never, I repeat, never give assignments to students which require watching certain programs on TV, playing certain electronic games or accessing the internet. In the case of TV, the students will not watch only the recommended programs. In the case of the Internet, they are putting their students in danger, as mentioned in subsection 2.2. Students are not going to use the Internet just to do the given assignment, but also for a lot of other things, including the most attractive ones: those inappropriate for their age and those which are prohibited. This means that teachers are inducing their students to create all the problems mentioned in section 2. Instead, teachers should constantly emphasize the non-use of the media, especially the internet and violent games, explaining that it is in general a waste of time and cause a lot of damages.

3.10 The previous subsection leads us to a serious problem. A lot of people think that one should teach children and adolescents to use all electronic media. For example, parents should watch TV with their children, criticizing programs and drawing attention to the inappropriate information that is being communicated. Or tell their children about the dangers of the internet and how to recognize them. This is a problem, because in this case children and young people are treated as adults, which is very bad. Especially children should not learn to criticize, as criticism tends to be negative. The world that one should present them must be an essentially good world. (That is why I always recommend in my lectures that parents never fight in front of their children – wait until they sleep and fight freely!) Children are born with a total confidence in the world, and it is an immense unconscious frustration to learn that not everything is good in it. If they are brought up with the experience of the good, they gain a feeling of security, which is lost by the experience of the evil. When they are old enough, they will have had a deep experience of what is good, positive, and will be able to distinguish it very well from what is bad. As for what is beautiful and what is ugly, if children will experience their whole childhood with what is ugly, later they will not be able to distinguish it from what is beautiful. One example is playing with dinosaur playtoys; all dinosaurs are monsters and they are not our reality. If children think monsters are cute, they will not know later on how to differentiate what is monstrous from what is not, and they will also not differentiate rude from delicate.

3.11 It is very important for parents, teachers and guardians to pay close attention to the behavior of children and young people, because in general when they suffer mobbing or bullying, they tend to change their behavior and shut themselves down in shame.

3.12 Children and adolescents should never be allowed to use any media in their bedroom. This is an obvious recommendation from the American Academy of Pediatrics which, indeed, recommends time limits for general use according to different ages (starting at age 2), but does not recommend a total ban on use, as I do.

3.13 Do not give children any, I mean absolutely no toys that use a screen. Children need toys that stimulate movements, develop motor coordination and sensitivity of sense organs, and make them be in contact with nature, but, above all, toys should stimulate their imagination. On screens the images of photos, figures and videos are ready, there is nothing to imagine, in other words, with time, imagination is repressed and harmed. To develop imagination, toys must be rustic, made mainly of wood and natural cloth, not totally detailed and finished. A typical counterexample is the Barbie doll (see on my website the article "Barbie: a barbarity that is done with children", in Portuguese). Teenagers need to read a lot and play social

games with real people, interacting with them as well as learning a musical instrument and socialize with real, non-virtual friends.

3.14 Cell phones should not be held against your ear, due to the problems mentioned in subsection 2.15; use the "speakerphone" mode or headphones, keeping the phone away from the head.

3.15 One should use headphones like those provided with the cell phones, those that are inserted into the ears. Earphones that fully cover the ears should not be used under no circumstances.

3.16 Wi-Fi routers should be switched off when not in use, to stop their irradiation. Mobile data, bluetooth and Wi-Fi devices from the cell phones should be turned off when not being used.

3.17 Cell phones and tablets should not be used close to the body, since they are in permanent contact with the transmission towers, emitting electromagnetic radiation. Turn them off if they are not going to be used, especially at night.

3.18 If possible, do not use cell phones inside vehicles, especially if there are children riding in them, because they concentrate the radiation emitted by the devices – vehicles function as they were acoustic boxes

3.19 If parents or guardians mistakenly have the wrong idea that electronic media should be used by children and adolescents, they must stand beside them and guide them while they are using the devices. Specially in schools that have computer rooms there should always be an instructor watching carefully what each student is doing with her/his device.

3.20 There are programs that can be installed on computers, which check the addresses of sites that parents want to access. By specifying the age of the child or young person, they block the access to sites considered inappropriate. These systems are useful, but they have two inconveniences: the judgment of what should be allowed or not may not correspond to the one which parents and guardians consider appropriate; furthermore, they fail to examine the Internet with the necessary speed to detect that a new page is not convenient before a certain age. Imagine how long it takes to analyze each scene of each video to make the appropriate rating.

3.21 Children need to engage in healthy play. In order to do this, toys must be simple, unsophisticated, such as rag dolls, wooden toys, etc. Plastic dolls have perfect faces, hair, arms, etc. and, for example, they feature a constant smile. How can the child imagine that the doll is sad, crying or even eating, if it is always smiling? Instead, with a rag doll, where the eyes are just two dots, the little nose protrudes through a small bump, the child can imagine what s/he wants. In addition, the child can hug the soft baby doll with love, especially the ones made of

cotton fabric and filled with raw wool; the doll made of plastic is hard and above all it has the bad smell of the material it is made of. In no way should one give toys that have the format of dinosaurs, which are all monstrous, as already mentioned in subsection 3.10. Toys should stimulate the imagination, or develop motor coordination (for example, ball games, bicycles, etc.), balance (for example, walking on stilts). A healthy child does not walk, s/he likes to run. Electronic media go against all these desirable aspects.

3.22 Parents, guardians and teachers should tell children stories very often. While hearing a story, the child develops its imagination. The ideal situation should be that the story be told without being read, and the sequences, the voices and the scenes should always be repeated in the same manner. I strongly recommend good

translations of Grimms' tales; to check if a translation is really true to the original, look at the story of Little Red Riding Hood: in the original there are two wolves! Children love repetition because it is through them that they learn to speak. For an appropriate education for each age, it is very important to know the development of the children, as, for example it is widely used in Waldorf Education, which since 1919 has had a deep conceptualization about child and adolescent development, which has been used in the education of children and young people. Due to its success, there has been a great worldwide increase in the number of Waldorf kindergartens and school. From the age of one, books with artistic figures of animals may be shown to children, and one should imitate the sounds they produced by them (au au, meow etc.). I emphasize the expression "artistic figures" because, unfortunately, in many children's books the figures are caricatures or grotesque as, by the way, are all comics and cartoons, which should not be used and seen by children and teenagers. All comics and cartoons depict caricatures of nature; is this what one wants to infuse in children or, on the contrary, does one want to make them admire and worship nature?

4. CONCLUSIONS

It is essential to recognize that the damages caused by electronic media are enormous. I repeat that, in my view, the losses outweigh the benefits by far. Electronic media can very well be used by adults (except for violent electronic games, whose only destination should be the trash can). It is unimaginable that the media will be properly used by children and teenagers. However, in order for adults to use them well, it is necessary for the former to have a reasonable knowledge about what the media really are and what influence they have on their users. They should also have an enormous self-control while they use the devices. In the case of children and adolescents, one should know what should be their harmonious development according to their age, such as the concepts used in the aforementioned Waldorf Education

It is a fact that people are not dominating the media, however they are being dominated by them. They can be considered as a real attack on humankind, trying to destroy it. One of the more powerful ways of destroying humankind, as well as destroying nature – which is occurring already – is to destroy children and adolescents. I envisage a large number of adults who in the future will be psychologically and socially extremely disturbed. But I am hopeful that my words can wake up at least some people who, I hope, have the courage and the energy to study, observe and put the media in their proper place – which, in my opinion, excludes its use in basic education. use.

POSTSCRIP

(Jan 13, 2022) I have recently read the extraordinary book by Michel Desmurget, *La Fabrique du crétin digital*, Paris: Éditions du Seuil, 2020. Desmurget is a neuroscientist, director of INSERM (National Institute of Health and Medical Research), Paris. He has an astonishing number of 1965 references, many of them of scientific papers. I presume that someone reading his book will never be for the use of electronic media by children and adolescents, and will agree with my arguments. There are translations of this book into Portuguese, Spanish and Italian. The 2020 French edition has a postscript where Desmurget literally destroys arguments by various authors against the first 1919 edition his book.

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