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Effecting of Excessive using Touchscreens Devices to the Children and the Related with the Physically and Psychological Children Illnesses

Waseem Saad Nsaif

Waceem81@gmail.com

Physical Education & Sport College, Diyala University, IRAQ

Abstraction

Since the significant development in the world of the technology and the huge entering of the tablet computers and the touch screens phones to wholly our life conjunctions, at the work, at the home and at almost every places, because of their large and important services to the person and to the whole society, also there are a big share to children of using them. The tablet computers and the touch screens phones offer to the children the fun, the modern interactive education, modern games, etc. These led to growing and increasing children using for these devices widely around the world. But that a great using for these devices result many side effects to the children which they suffering at them currently and at the future. So it's very necessary to focus on these side effects in this research to determine them and try to avoid or treat them. Perhaps, the most prominent of these side effects are physically and psychologically, physically as: joints aching, the curvatures of the back, the back aching, neck aching, headaches, eyes pain and the vision problems. Psychologically as: the moping, the tension, the continuously nerve, the aggressively treating, the sharp mood, the early addiction and the autism. In this research will be focusing and analyzing the main causes which cause and inflect these horrible said effects of the using the tablet computers and the touch screens phones.

Key words: touchscreen devices, side effects, Physical illnesses, psychological illnesses.

1. Introduction

The very largely spread of touchscreens devices such as tablet PCs, phones, interactive screens, and the very broadly growing of humans users for these devices around the world, and the overheating competition between the companies which producing these devices to supplement people every day for updates and new technologies, such as Apple Corp. and Samsung, Sony and others technologies companies, led to increased the user numbers that have become more than a half of the population of the globe recently, with the proportions times of use that exceeded the ratios of watching TV exponentially, it has become in the one house each person has his own touchscreen device, tablet Pc or smart phone, and each one of them has its own uses and own interests , these technologies entered in the almost aspects of the life of every person, whether for business or for study or entertainment or communication etc. But unfortunately these exciting services have a many side effects, which in this research will be highlighted, especially on children, [1] and illnesses that may be caused by the use of these devices, as well as the radiation produced by the devices have obvious damage, including dysfunction synthesizer of some cells in the body, plus it leads to redness of the skin, especially fatty. Also inhibit the hormone melatonin, which leads to weaken the ability to focus, [16] and the dust that accumulates on the screen that reflect the rays increase the body temperature, fatigue the eyes, headaches, and thermal rays also occur sometimes skin rash, as it affects the neck, shoulder, lumbar, hands and wrists. Children are already suffering health troubles which related with using these touchscreens devices, most notably the neck, back and limbs harms and those harms appear typically at the adults because of the use of touchscreens devices for long periods.[2] This is in addition to that a child using these touchscreen device for long hours every day affect negatively because the rays and waves that come out of this touchscreens have a strong effect on the eye and the cornea, as well as on the eyelids and it is result excessive pressure, which leads to the destruction of nerve fibers in the back of the eyes.[3] The use of children for touchscreens devices excessively may turn into an addiction, that consequent social and psychological destructions, [4]which robs the child from his childhood and prevent him from enjoying his life. The addiction deprives the child from the activities as an isometrics and social activities such as interview friends and play with them and the participation of the family members to their meetings around one table. Because he or she is connected with these devices and cannot get away from the touchscreens, and even more that the child sleep become irregular, and moves away from the hobbies. Here, clearly show the risks of child's addiction to sit in front touchscreens. The falls in the autism circle with a touchscreen device means the point where the child cannot separate himself from the touchscreen device, which is consider a risk alarm for him, where the child begin to reap the negative effect, where he or she suffer cases of agitation, aggression and isolation.[5] The child sitting in front of the touchscreen devise alone for a extensive period which making him isolated from family, and this child maybe watch a violent games and trying to imitate it automatically against his or her brothers or sisters or his friends at school, Also the

radiation from the touchscreen devices lead to increased brain electricity, which may lead to bouts of convulsions and seizures at an early age for children.

2. Physical illnesses

2.1. Illnesses of eyes and vision problems [6]

A scientific studies and research carried out by the doctors American Academy of eyes proven following results:

- a. The 60% - 74% of touchscreen users are suffering from symptoms of private eyes and complaints are raising ratio in children to 81%.
- b. The person who uses touchscreen for more than two to three hours a day connected to be vulnerable to the affected eyes.
- c. Increasing the degree of myopia in children by between 18.4% -20.1%.
- d. The effect of touchscreen use in the eyes and the appearance of the symptoms suffered by the touchscreen user vary from one person to another.
- e. The weight of the eyelids movement and a sense of fatigue and exhaustion
- f. A burning sensation and redness of the eyes
- g. Blurred look
- h. The inability to see things in focus
- i. Headaches

The causes of eyes affected and the symptoms of the use of the touchscreen:

- People who suffer from myopia or hyperopia or “Astjmatesm” Show symptoms faster than others.
- People who are putting special reading glasses while using the touchscreen show symptoms because the touchscreen are usually at the top of the right situation for reading glasses mode. The distance between the eyes and touchscreen are larger than the distance between the touchscreen and the reading glasses.
- Sit in front of the touchscreen with the audit and concentrate for long period’s causes fatigue and strain the eyes muscles which responsible for the adaptation of the eyes that increase their strength and their ability to assemble the finer things near the eyes on the retina.
- Glare lighting touchscreen or other lighting in the place that reflected from the surface of the touchscreen on the eyes leads to blurred look and blurred vision.
- The small size of objects on the touchscreen and the lack of adequate lighting contrast between these things and the backlit touchscreen, making it difficult to see it and results the eyes fatigue and overwork the brain and cause headaches.

The eyelids close involuntarily, it helps regenerate tears layer that covers the eye from the outside, leading to moisturize the eye and prevent dry, [16] as well as the closure of the eyelids of the eye to take comfort allows instantaneous. But while using touchscreen results the extreme centralization and least shut eyelids autonomic rate, resulting to increased evaporation of tears and lack of renewal and lead to dry eye, which causes a burning sensation in the eye and redness.

Following the guidelines is essential for everyone who uses the touchscreen devices, whether for a long or short periods of time, in order to avoid the negative side effects resulting from the use of this device, which has become an integral part of our daily lives.[7] While sitting in front of the touchscreen device, the child leads more than 4,000 eye movement within one hour, this leads to damage to malfunction in the optical device,[1] it becomes difficult for him to focus on distant objects. So when a child is trying to re-focus look at distant objects, vision be blurred or distorted. The less a child's ability to blink his eyes while looking at the touchscreen, the lower the rate of this process leads to dry eyes and inflammation as well as redness.

2.2 Ailments of spine, neck and body joints.

Sitting in front of touchscreen devices for long periods leads to lower back pain that causing chronic back ailment. As for example the ailment of disc in the lower back or neck area, [16] because the user is busy working on the touchscreen and non-compliance always with the correct hearings in front of the touchscreen device. [8] The fingers of the hands, which are the main entrance of the information on the touchscreen, may be involved in some convulsions in the long term. The scientists showed that the human who sit for 17 hours straight in front of the touchscreen, that leads to the death of 420 million cells of brain cells, therefore, today's scientists are advised to take appropriate action to protect our lives from the devastating effects of electricity, and that is through staying away from electrical appliances as much as possible, for example, instead of sitting in front of touchscreen for long hours, can sit for intermittent periods. The brain much affected by electric and magnetic vibrations produced by electrical touchscreen devices, therefore, doctors are advised not to sit in front of the touchscreen for long periods. [9] Studies have recently shown that a lot of people visiting doctors orthopedic clinics due to a long stay in front of computer and with not healthy ways, therefore it is imperative to warn children from these negatives that may affect them, and the negatives are:

◆ Short-term physical effects, such as stress the eye muscles, begin with pain in the eyes, anxiety and lack of concentration.

◆ Long-term physical effects, which take longer for appearance, including the neck, muscles, joints and spine pain. For example, neck pain and lower back pain, weight gain due to the lack of movement, and other impact of the risks of radiation from the touchscreens which resulting from the electrical and electronic circuits magnetic fields.

To avoid neck pain, lower back need to be sitting on a chair suitable length and preferably is of stand for the head and the body and the head and spine straight. [10] Also to avoid joint pain, especially knee and hip sit intact path so that the joints are 90 degrees, as well as the joints of the wrist while using the touchscreen so that they are hand in a straight shape and be attached near the body and serve as an upper arm 90 degrees with the forearm.

2.3 Ailments of obesity, overweight and sagging

Sitting in front of touchscreens along while and the lack of movement, and eat and unhealthy fast foods, lead to obesity and saggy in children, which making their lives miserable because of the weakness of their movements and the able to live like their peers who are slims. Advised not to eat carbonated drinks, and fast foods, high calorie, also advised to take an alternative with less calories instead for example drinking water, vegetables and fruit. More importantly, is the attention to movement and by maintaining and not to sit in front of the touchscreen devices for long periods.

3. Psychological illnesses

3.1- early addiction

The Internet addiction affects not only adults,[11] but children are also especially with the availability of new games and a big variety of applications of the touchscreen devices, this addictive reflects badly on a child's life more than the adults, also badly for the dates of his sleep, his study and become introverted and does not come out with his friends, or engage in any other hobbies but to sit on the network tirelessly. Internet addiction will inevitably lead to the break down the meanings of community especially since many parents are not having the reins about their children's Internet addiction, in addition to the chat rooms already become the only place where the adults or child can talk frankly without any fear and say what he could not say in front of other whether in politics or to talk about his life or anything else, and emptied all the suffering of the foil and the suppression of the problems via the Internet, the addicted drown in the Internet in a virtual world, that can lead in the end to completely separated from his realism. Adults do not censor them only themselves, and children must censor by their parents, the addicted of internet has to be aware when sitting each time on internet that he may lose a lot because of the isolation at those who around him whether on a personal level, social or practical.[12] Internet addiction is like drug addiction has ranks and levels, based on these levels of early addiction treatment can prepared by:

- a- Know the reasons: What make the increasing sail in the internet? , dose sees the Internet a way to escape from everyday problems?
- b- Put boundaries to sit in internet and manage time, we must determine where sailing in internet, how much of the time. (Can be used as an alarm clock to remind the end dedicated to sail) time.

- c- Organize social events, find alternatives commitment such as courses, exercise, and meet with friends.
- d- Self-confidence and establish direct social face-to-face relationships.

For the cases of incurable addiction must review the psychiatrists Clinics, basis on this most western country made a clinics and hospitals to treat Internet addiction because of the high risk of addiction on society. The chat rooms and browsing the Internet for the children of this generation become dose not resistible; it is already reached to the addictive point, especially in Arab countries, the rationalization of the use of network would less a lot of losses which may threaten the entire community. To combat addiction of touchscreen devices and the Internet among children, a German doctor Manfred Boytl, Clinic director of psychiatry and psychotherapy body in Mainz, Germany, offers advices: parents show concern for their children, stressing need to know what their children are doing on the Internet early, and help children regulate their internet browsers times, And regulate the times of electronic activities, activities as well the normal times activities. Boytl recommends parents observing the social relations of their children, and strengthened where necessary, by encouraging them to visit their friends or invite their friends to the house.

3.2-Autism

Fall in autism circle is the point where the child cannot separate himself from the touchscreen device, that is the alarm bell for them, where they begin to reap suffer the negative effect cases such as agitation, aggression and isolation. The child sitting in front of the touchscreen device alone for a considerable period making him isolated from family. [13] The child may watch a violent games and trying to imitate repeatedly assaulting his brothers and his friends at school or at the street. Also, the radiation of touchscreen device leads to increased brain power, which may lead to bouts of convulsions and seizures at an early age for children. Autism is a disorder that usually appears in children before the third year of age. It affects the genesis and development of the child in three ways:

- ❖ Language, how to speak.
- ❖ Social skills, how to respond to others and communicate with them.
- ❖ Behavior, how to behave in certain situations.

There are different types of autism. The symptoms of autism vary from child to child.

For this reason, said the presence of autism spectrum disorders.

The autism or the symptoms of autism affects children of all races and nationalities. Currently, there are no cures for autism or autism symptoms. The child who patient with the autism lives the rest of his life with autism or autism symptoms. But the investigation of autism or autism symptoms early allowed benefiting from the many treatment options that can help a person to live with autism. [14] Some people who patient with autism or autism symptoms that adults can work and support themselves. But others have needed a lot of help, especially those who have damaged

their mental processes or intelligence or who do not have the ability to speak or communicate.

The quality of life of an autistic child in his teens and attainable depends on:

- Early diagnosis of autism or autism symptoms.
- Severity of autism or autism symptoms.
- Personal treatment that the child received intensity.

Researches are still ongoing to help children who suffer from autism and their families to offer medical advice and conduct tests for children.

3.3 Tension, nervousness, attention Deficit and Hyperactivity

Attention deficit, hyperactivity disorder or hyperactivity / Movement disorder (ADHD) considered a chronic condition affecting millions of children and will accompany even in adulthood. Several of the problems that are attributed from the disorder of attention and focus:

- i. Lack of attention
- ii. Hyperactivity
- iii. Impulsive behavior

Children who develop this disorder suffer, in particular, from low self-assessment, problematic social relationships and low educational grades. Although the available cure for this disorder dose not able to treatment, but it may contribute to the treatment of the symptoms of the disorder.[15] The treatment often includes, psychological counseling and taking the appropriate pharmaceutical drugs, or it may be to the merger between both of them.

4. Touchscreen

Is a transparent layer covering the display screen in mobile phones or tablet computers, Sensitive to movements of the hand and sensitive to movement and writing of a special pen. There are many touchscreens techniques.

4.1 Capacitive Touchscreens

There work based on teams latency (electrical voltage) between the surface of the screen and the head of the user finger to generate an electric current known as the place finger on the screen, benefiting from the electrical charge carried by the human body, there most important pluses are supporting multi-touch, and absorbed for only 10% of the light of the original screen which dramatically increases the clarity. But because of its dependence on the electric charges that handheld in the human body do not accept to deal with it by the special pens because it doesn't handheld the electric charges. It is distinction of being more visible in the sunlight from the resistivity screen.

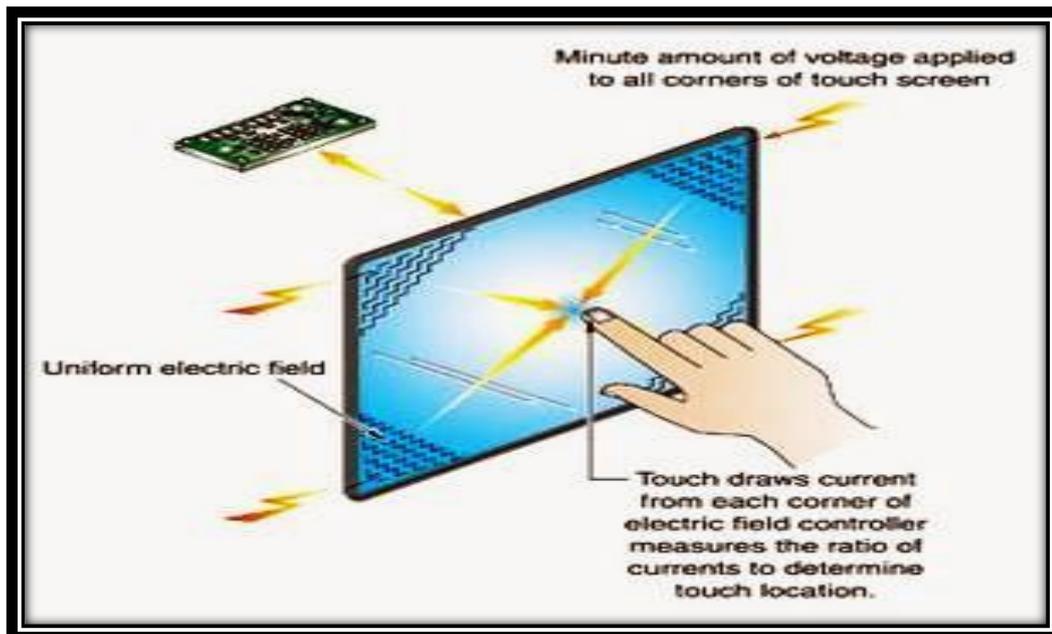


Image (1) the Capacitive Touchscreens

4.2 Resistive touchscreen

Its work based on the change of electrical resistance of tangible of the screen point which Causing the passage of an electric current expresses on the tangible point. One of the most important advantages is the possibility of writing by a special pen. The main disadvantage it absorbs about 25% of the light emitted from the original screen which causing the fading light for it, and the principle of its work does not support multi-touch feature.

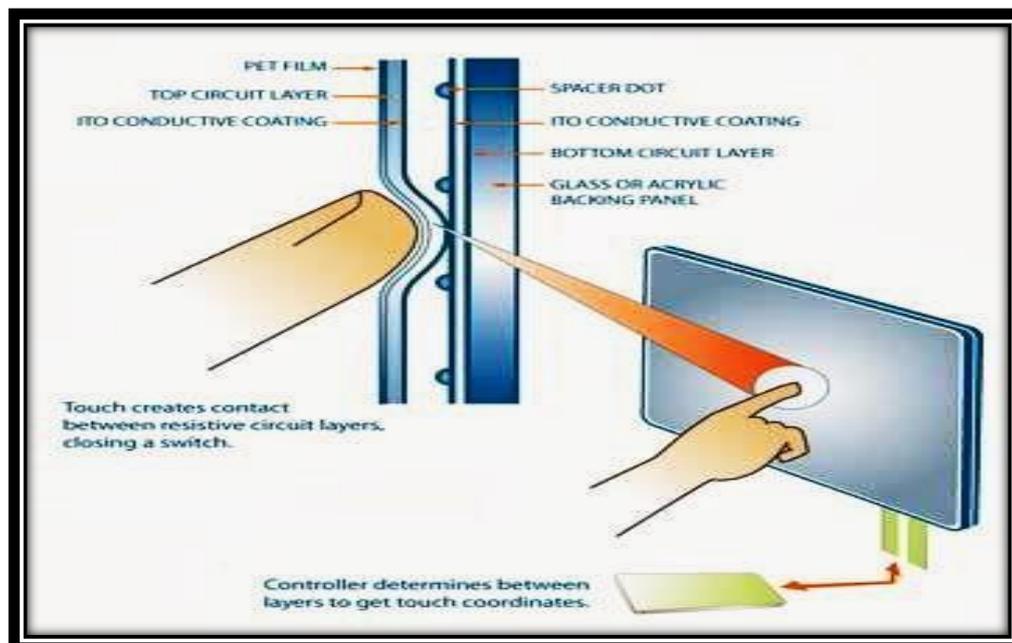


Image (2) The Resistive touchscreen

4.3 Touchscreen that depend on the infrared

It is very resistant screen and has for a long time use compared with touchscreens that depend on the mechanical use (by pressure), for example, the finger. This screen is made up of framework of infrared transmitters and receivers, and board flat glass, this board has no role in the process of touch. To align with the screen there is a grid of optical packages invisible vertical and the other horizontal, when putting the pen or finger on the screen a cut located for two packages of vertical and horizontal, which giving of these packages receivers failure to reach a signal beam. Using these two receivers is determining the position of the touch coordinates (x, y). Finally, the automatic observer electronic device implements the desired function in place of touch.

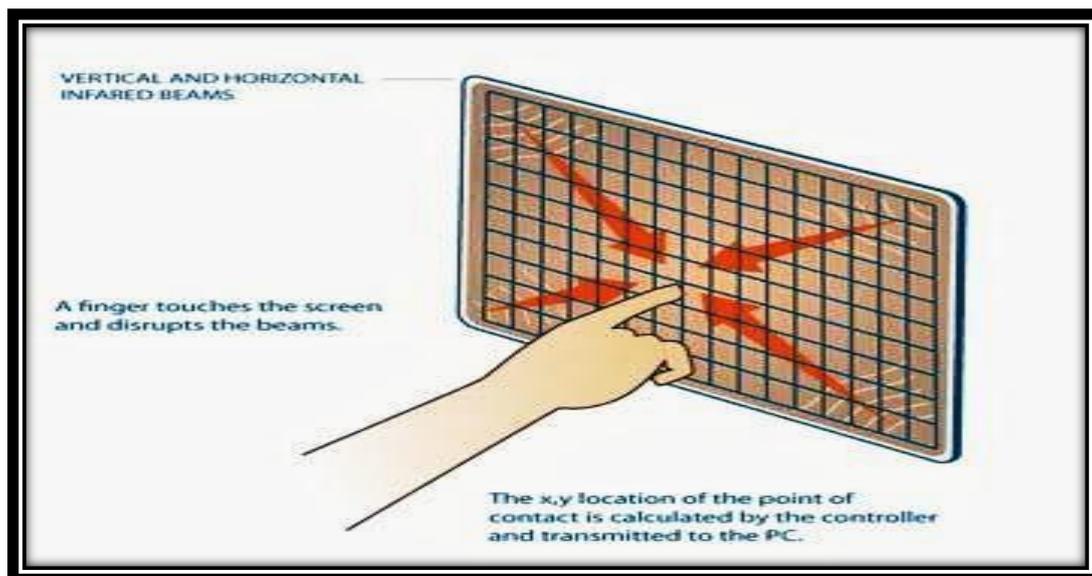


Image (3) the Touchscreen that depend on the infrared

5. Electromagnetic radiation [15]

Electromagnetic fields are waves are traveling at 300 thousand kilometers per second carry energy called photons, consists of two fields spreading in two perpendicular directions , they are electric field and magnetic field, The photon kicks off in directions perpendicular to these two directions. Electromagnetic waves can be described by the wavelength or frequency or energy, these three factors are linked to relations among them, and each of them plays a role in the effect of electromagnetic field on the biological system. Electromagnetic frequency known as the number of vibrations that passes through a fixed point per unit time. When the wave is shorter, the frequency is increased. The lads under the age of 18 years are more susceptible to the impact of radiation because the immune systems in their bodies less powerful than adults. These radiations have an impact on the stability of the body's cells, the most important effects on the nervous system, and cause headaches, sleep disturbances and memory loss. The scientist Colin Blakmord the specialist of nervous system in University of Oxford says: "If it is possible that these waves cause the risk in the future, the children are the most vulnerable to these risks because of the lack of development of the nervous immune". Against the backdrop of government warnings about the health effects of electromagnetic waves, the British National Radiological Protection scientists Board

request all parents to determine the time spent by their children in the use of touchscreen devices.

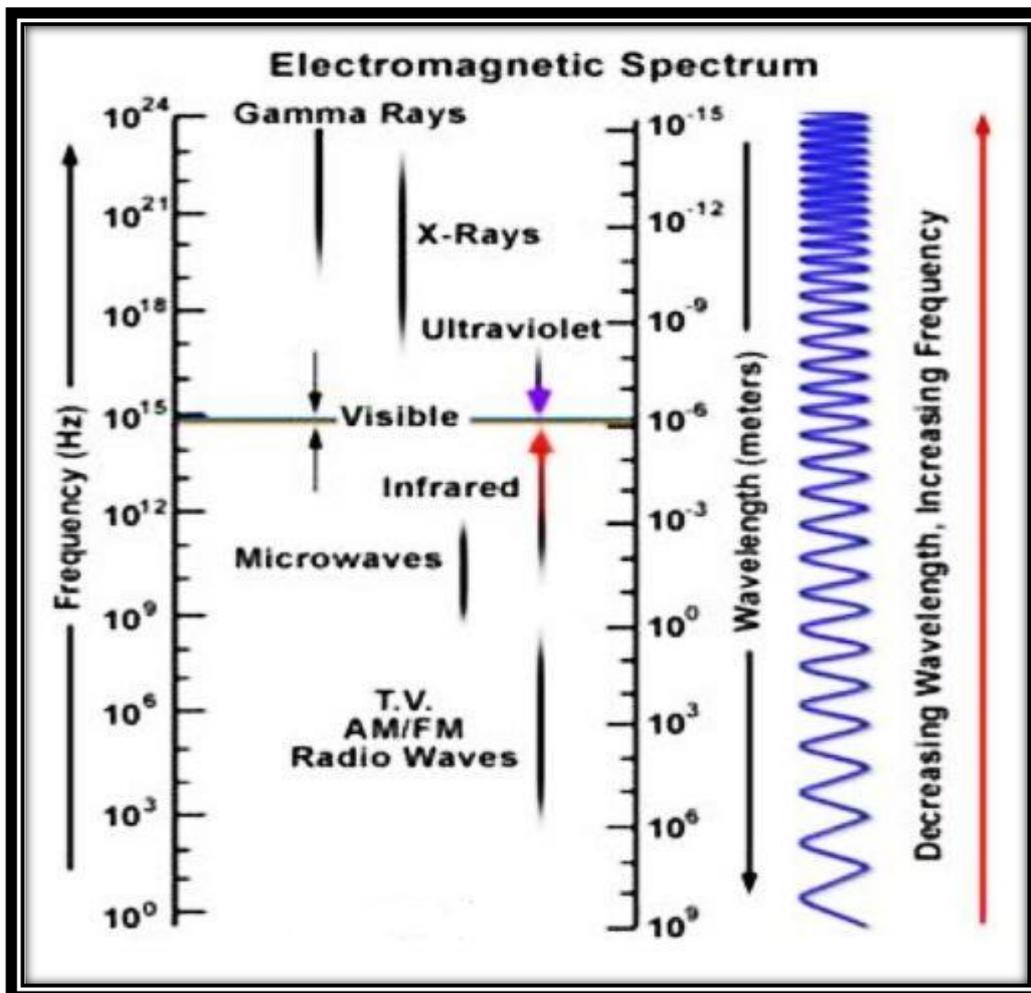


Image (4) the Electromagnetic radiation

6. Conclusions and recommendations

6.1 Conclusions

Noticed over this search, the excessive use of touchscreen devices by children may inevitably result a side effects, represented by physical or psychological illnesses, because of the approach of how these devices made and how their work, where the screen lighting directly effect on the eyes, which leading to the eyes illnesses and vision problems, and their radiation lead to problems and aching in the spine, neck, head and arthritis, and excessive use of touchscreen devices lead to obesity and sagging problems because the lack of movement with frequent eating, the excessive use of touchscreen devices use resulting also a psychological illnesses to children, Such as the autism, the early addiction, stress and hyperactivity, this is in addition to the electromagnetic radiations that produced by these devices, which expose the children health to the other problems at the nervous system.

6.2 Recommendations

To prevent infecting the children from the physical and psychological illnesses which resulting as a side effects of the excessive use of the touchscreen devices, must be put a strong control on the use of these devices by the parents and family and not to leave the child with the touchscreen device without control, monitoring or restricting. It is can be only through allocate of sufficient time for the children, and care them and follow their interests and provide them with alternatives for using these devices, such as going for a walk or playing a funny mere games and spend a good time with them in fun. In addition to scaling the importance of these devices, and underestimated them constantly in front of children, And not to spend much time using these devices by adults, because the children always trying to imitate the adults. Also recommend that “Muslim” child ablutions after each use for these devices, because the survey with water to most parts of the body with ablution operation activates the body and reduces the effects of electromagnetic waves on the body and the lighting effects on the eyes, then stay away from touchscreen devices for good periods it reduces the side effects of these devices risks.

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