

Side-Effects of Technology for Children's Development

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Abstract. Technology has become the important part of life. Many kinds of technology which are being very helpful tools for human to communicate each other. Television, computer, smartphone, internet, chatting service, and social media are some of many technologies used by people everyday. These tools also become familiar things for children who live in this era. There are some negative side effects of technology if do not be used wisely, moreover for children who are not guided by adult when they are using these technology. Children still need to be guided when they are using those, especially some technology which is using internet, because children have not been aware of bad content that be able to be searched just by typing some keywords. So, parents and teacher of children under-middle school age have to be aware of this, and they should guide them supposed they are able to use internet and the other technology for a good purpose.

INTRODUCTION

Technology develops as the time going on, from the traditional to the modern one. Human tend to create something new and useful, just like the main purpose of the creating of technology: to help them in order to fulfill their needs, easier than before they develop the modern technology. Some of technologies used by people these days such as television, smartphone, internet, chatting services, internet-based social media, and many others. Those are technologies which have become the part of human's life. People can be easier to communicate and know each other even if they are in the far away country. Technology is not only used by adult people, but also children and adolescent. Because of technology does not only have a positive impact for human life, but also negative side effect, children and adolescent still need guidance from their parents and teachers supposed to prevent them for using it with bad purposes. They are also able to get the negative side-effects because they do not use it wisely.

CHILDREN AND TECHNOLOGY

Being active is an intuition for children. They are using physic in many activities compare to them who already reached adolescent or adult age. They like playing games which involve physics strength, such as hide and seek or doing some sports. It is a common thing for elementary school children. Like what Department of Health & Human Service of Victoria (2016) wrote on their website that children's job is to play, because they like to be active. Australia's Physical Activity Recommendations for 5-12 Year Olds also states that every day kids need to do at least 60 minutes of physical activity. Explain more, it is also written that there are many benefits of physical activity for children, such as:

1. improved cardiovascular fitness,
2. prevented children for being overweight,
3. helped kids to have sleep pattern better,
4. increased self-esteem and confidence,
5. improved concentration,

6. easier to relax,
7. helped kids to have strong bones and muscle,
8. improved physical development,
9. enhanced social skills.

In fact, the children nowadays are different from they are who lived few years ago when technology was not as modern as now. These days, technology and gadget have become an important part of human life, including youth people. "For the past several decades, television has become a ubiquitous fixture and preferred activity in most occidental family environments" (Pagani, Fitzpatrick, Barnett, et al, 2010). But, many parents show poor factual knowledge and awareness of such existing guidelines. The American Academy of Pediatrics and the Canadian Society of Pediatrics stated "infants aged 0-2 years should not have any exposure to technology, 3-5 years be restricted to one hour per day, and 6-18 years restricted to 2 hours per day" (Relos, 2014). In fact, many parents still put television in the bedroom without knowing that it has bad effect for children's development. Besides, many parents facilitate their children with smartphone and computer which are connected to internet.

These days, children and adolescents tend to stay at home watching television, playing game or chatting in social media with their own gadget. There are some reasons behind this, such as there is no more playground for children to play with their friends, or field for them to do some sport activity. Moreover, most of schools in Indonesia (especially in Java) are placed on the roadside or around the adjacent settlements. It causes the school does not have space enough for their schoolyard, so children are not able to play around freely. Furthermore, parents like to see their children watch television at home than let them doing outdoor activity because they can keep their eye to them while completing their chores (Dehghan, Akhtar-Danesh, & Merchant, 2005). These also become a reason why children tend to choose playing with the technology in their free time instead of playing actively with their friends.

As one of the technology used these days, internet has become a major necessities of life, even for young people. Internet is a fast way for finding information, doing business matters and connecting people by using social media or chatting apps. But if we rely on internet so much, we could be caught into internet addiction. Mazhari (2012) described internet addiction as "intense mental preoccupation with Internet use, compulsive Internet use, spending a lot of time on the Internet, inability in managing time spent on the Internet, considering the world without the Internet as boring, irritability in the case of being disturbed at the time of using the Internet, and decreased social relationships because of Internet use". Children are persons who have not been able yet to control their desire when they like doing something. Parents have huge responsibility to help children in order to use internet for a good purpose, such as helping them in learning or doing some simple research when they are curious about something. But children must be taught that there are limitations on using internet, and they still need to be guided in order not to access some websites which contain bad influence for them such as pornography and violence.

The more kids spend their time in with modern technology, the more questions about the use of technology raise (Simufurosa, 2013: 1). And this will be affected children to get the side effect (Simufurosa, 2013: 1). parents should be aware of these side-effects so they can teach their children to manage the technology.

SIDE-EFFECTS OF TECHNOLOGY FOR CHILDREN'S PHYSICAL AND BEHAVIOUR DEVELOPMENT

Technology has a huge impact for human, particularly to make things easier to do and help people in the daily routine. Not only adult people, young people also feel the same thing. Technology (including gadget) has many advantage, such as: establishing and maintaining relationship among people (Hertlein & Ancheta, 2014); communication has also become cheaper, quicker, and more efficient; it makes the world closer together and brige the cultural gap (Kumar, 2014). However, there are many side-effect of technology if we could not control our self on using that. Asian Journal has released an article titled "Electronic gadgets should be banned for kids 12 and below, expert say" (Relos, 2014) that written "handheld devices (cell phones, tablets, electronic games) have dramatically increased the accessibility and usage of technology, especially by very young children" and we need to ban this before it's too late.

Video Game or Media which Contain Violence

Children who played a lot of video games contained violence became more physically aggressive (Anderson, Sakamoto, Gentile, et.al, 2008). The Academies of Physicians, Pediatricians, Psychologist, and Psychiatrists have joined with the American Medical Association classify media violence as a public health risk because of its impact on child aggression (Rowan, 2010). This showed that games and media which contain violence have contribution on the changing of children's behavior.

Beside, the violent media content also give some short-term and long-term effects (Huesmann, 2007). The short-term effects mostly due to:

1. *priming process* — *the external stimulus can be inherently linked to a cognition, when media violence primes aggressive concept, aggression is more likely;*
2. *arousal process* — *the violence stimulus can arouse aggressive behavior;*
3. *mimicry process* — *in recent years evidence has accumulated that human and primate young have an innate tendency to mimic whomever they observe.*

Huesmann (2007) also stated that long-term effects, seem to be due to:

1. *more lasting observational learning of cognitions and behaviors (i.e., imitation of behaviors)* — *during early, middle, and late childhood children encode in memory social scripts to guide behavior through observation of family, peers, community, and mass media. Consequently observed behaviors are imitated long after they are observed and children's social cognitive schemas about the world around them also are elaborated;*
2. *activation and desensitization of emotional processes* — *Long-term socialization effects of the mass media are also quite likely increased by the way the mass media and video games affect emotions. Repeated exposures to emotionally activating media or video games can lead to habituation of certain natural emotional reactions. This process is called "desensitization."*

Children who watch violence contains everyday will have a changing behaviour. They also will do it unconsciously as if it has been a habit.

Putting Television and Other Screens in Children's Bedroom

Young people having a TV in the bedroom is common thing for these days. This makes the chance of TV hours for children has been increased (Swinburn & Shelly, 2008). Dietz and Gortmarker (1985) did some research about the relation between television and obesity of children and adolescents. The result of the study showed that increased television viewing could cause obesity and vice versa. The hours spent watching TV make children being passive and could reduce resting metabolic rate. Children and adolescent also eat snack and drinking while wathing TV. Without doing any sports, this habit may cause the obesity of children.

Besides, the content of the TV program could influence children's minds until they fall asleep. If they don't do some physical activity, they could have troubled with their routine that will cause behavior problems (Susilawati & Rezkisari, 2016). Children and adolescent often check their gadget before sleep, whereas to chat with someone or just check the game they usually play. But researchers found that using a gadget for just two hours before sleep can cause sleep problems (Prigg, 2012). Watching television & using mobile phones and computers in bedrooms late night can cause sleep deprivation (Coughlan, 2013). Children naturally need more sleep than adult. They will have physic and concentration problem if they lack of sleep. So it could be a hidden factor in lowering a student's achievement.

Using Technology (Cell Phone, Internet, iPads, Television, Laptop, etc) in a Long Time

Children's brain has not developed completely. Using screens in a long time could have given more side effects for children than adult. The delay of children's development can be caused by the overuse of technology (Rowan, 2010). Their development will not be the same as they who are limited in using those technologies. Spending time more than 2 hours in front of the screen can cause psychological difficulties, even if they are active children. Children who have been interviewed said they often become unhappy or down-hearted and they usually play by their self (Page, 2010). It is indicated that doing physical activity after that could not become a compensation for long hours of screen viewing. The effect can only be reduced by limiting children's screen time.

Besides, the radiation exposures are higher for children than adults because children have thinner skulls, and their brains have higher water and higher ion (charged particle) content and might cause a greater risk for them (Rosenberg, 2013). Children's brain development are influenced by environmental stimuli, and if they use technology out of appropriateness, it can cause decreasing attention, cognitive delays, vulnerable learning, impulsivity, decreasing self-regulate, e.g tantrums, impulsive, moody, and could not pay attention (Small & Vorgan, 2008; Liberatore, Rosario, Colon-De Marty, et.al, 2011; Dunkley, 2014). Woolaston (2013) wrote on her article that parents can detect whereas their children are starting to have technology addiction or not by knowing these 5 signs: 1) lack of interest in other activities, 2) constantly talking about or getting distracted by technology, 3) mood swings and argumentative behavior, 4) withdrawal symptoms, and 5) increase in lying or rise in devious behaviour.

According to some studies, internet overuse would bring some negative outcomes in sleep, physic, academic progress, and family relationships. "Eventually, all these issues can lead to various physical and psychiatric disorders such as low back pain, carpal tunnel syndrome, depression, anxiety, loneliness and low self-esteem" (Mazhari, 2012). In addition, internet addiction cause losing interest in other hobbies or never develop any others, and sometimes makes someone feel irritated, depressed or even physical shaking (Tsukayama, 2016).

This is very bad for children who are addicted on technology, whatever the reasons are (chatting, browsing, or playing online game). And if it happens in a long time, they are able to be an anti-social person who could socialize with their family, friends, or society.

Summary

Technology gives many advantages, but also has some side-effects for human, including young people and children. If they are overdue in using technology or access some violence-content, they will get some side effect such as: being more aggressive; having sleep problem and mood disorder; not able to concentrate; having obesity, cognitive delay, low self-esteem, and tantrum; losing interest in other hobbies; feeling depressed and lonely; and they could be an anti-social person. As Rowan (2010) said "these 'crimes of technology' indicate that many children do not have the maturity or the parental guidance to use technology in a safe and responsible manner".

Kids are in a phase which they mimic action of people around them. So, parents should be a good example in order to teach them how to control their self in using technology. There are some ways to do it: show the children that we also participate in physical activity, allow our child to choose what activity they want to do, give an understanding for children that there are the social benefits in doing physical activity, help kids to develop their skills by doing different physical activity, restrict 'screen time' to less than two hours per day, and turn the television off when the program is finished (Department of Health and Human Service of Victoria, 2016). Parents also need to guide their kids when they are watching television or access internet with computer or smart phone supposed not to search something with bad contains.

But if the children has been already addicted, Dr. Graham suggests that parents could do the 72 hours for digital detox. Initially they will show distresses and signs of withdrawal, much like any addict would feel. The challenge starts when we reintroduce technology back into their lives in a controlled manner, they need a balance of activities to help children including an increase of physical activity. parents should try to set down some 'compromise agreements', meaning families still spend time together. Perhaps there are no smartphones at meals, and the family have half a day together cyber-free over the weekend (Woollaston, 2013). This solution needs to do frequently and without any force. Parents need to choose an interesting physical activity (indoor or outdoor) so that the kids will enjoy it and forget about technology.

Technology is like a knife. We can use it in a good or bad purpose. Do not let technology control us, we are the one who need to control it. Never teach or forbid our children without giving any example. If we want our children use technology wisely, we need to do and show it first, so will them.

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