



## THE IMPACT OF GADGET USE ON MOTOR AND INTELLECTUAL DEVELOPMENT IN ELEMENTARY SCHOOL CHILDREN

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### Abstract

Gadgets are a communication tool that cannot be separated from human life. So in the current era gadgets are not only consumed by adults but also by children. The widespread use of gadgets among children can hinder the child's development process. Currently, the development of technology has a lot of influence on children, one of which is the use of gadgets. If a child is addicted and negatively impacted by gadgets, the child's development will be hampered. This poses a danger to children from gadgets. Playing with gadgets can pose risks to children's physical and mental health. Of course, here the role of parents and teachers needs to be expected so that children are not negatively impacted by the use of gadgets. The method used in this research is a descriptive approach. The aim of this research is to determine the influence of gadgets on the development of elementary school students. The developments discussed here are motoric and intellectual developments in elementary school students. The results of this research show that excessive use of gadgets has a huge influence on children's development, both in terms of psychology, physical and social development. Apart from having a positive impact, gadgets can also have a negative impact on children if they are not supervised by parents or teachers. The positive impacts that arise include broadening students' insight, helping children to think more clearly, adding new vocabulary to children, making it easier for students to communicate with teachers, and can develop children's fine motor skills. Meanwhile, the negative impacts are detrimental to health, children do not socialize well in their surrounding environment, have difficulty developing their speaking skills, get angry easily, imitate behavior on gadgets and are addicted to playing with gadgets.

**Keywords :** Gadgets, motor and intellectual development

### Introduction

Nowadays, developments are growing rapidly. Where a lot of changes have occurred in the educational, technological and social fields. So with this development, people's lifestyle changes to follow the current of the times. One of the most significant changes in developments over time is in the field of technology or what is familiarly called the 4.0 era of the 21st century. The 21st century is a silent witness that has changed the development of human life which is increasingly dependent on information and communication technology, one of which is gadgets. Gadgets are electronic devices that have a relatively small size and are very practical to use. Almost all people nowadays use gadgets. Therefore, it cannot be denied that nowadays gadgets can be found in various groups, both adults and children, who are now good at utilizing technology, especially technology in the form of gadgets such as mobile phones or smartphones (Tatminingsih, 2017). According to data and information sources, Gadget users in Indonesia reach 142% of the population, meaning that from Indonesia's total population of 262 million people, there are 371.4 million Gadget users. Thus, on average, each resident uses 1.4 telephones because one person sometimes uses 1-2 telephones. Of the 371.4 million mobile phone users, there were 132.7

million internet users, 106 million active social media users and 92 million active mobile social media users (Sulianto, 2019). The gadget itself is an electronic device that has tasks and functions according to their respective uses, for example a computer for making assignments, a cellphone for communicating and so on (Chusna, 2017). Currently, many gadget manufacturers themselves make students or children their target market, so that now children are very active gadget users compared to other ages. Today's children really enjoy the gadgets they have so much that they become people who are too engrossed in their world so that many of the children themselves forget what the children's essential needs are, such as learning and blending in well with the environment (Hasanah, 2020). Technological advances are currently growing faster and more complex (Hijriyani & Astuti, 2020). The creation of various technologies has significantly changed human life in various fields (Chusna, 2017). In the era of globalization, the use of gadgets is a form of technology that has gone global (Elfiadi, 2018) and is used equally by all ages, including children under the age of five (Wulandari & Lestari, 2021). Basically, gadgets are tools that can facilitate long-distance communication. Meanwhile, the use of gadgets for children can have negative impacts such as dependence and uncontrollability of children on these gadgets (Putra, 2017). Gadgets have developed into an "opium" that can influence people of all ages and genders, whether in the fields of education, politics, law, or just entertainment (Efastri et al., 2022).

### Research Methodology

In writing this article we used the literature review method, namely a series of research relating to library data collection methods, or research studies whose research objects are explored through various library information (encyclopedias, scientific journals and documents) (Arikunto, 2014). Literature review or literature research is research that examines or critically reviews knowledge, ideas or findings contained in a body of academic-oriented literature. The focus of literature review is to find various theories, principles, or ideas that are used to analyze and solve the formulated research questions. The nature of this research is descriptive analysis, namely the regular analysis of the data that has been obtained, then understanding and explanation is provided so that it can be understood well by the reader.

### Result & Discussion

#### *The impact of gadget use on children's motor development*

Using gadgets with the right intensity will have a positive impact on children's development. Based on the results of research conducted (Rahayu et al., 2022), one of the positive impacts of using gadgets on children is supporting children's motor skills. These skills relate to small muscle movements including the lips, tongue, wrists, fingers, and feet. When using gadgets, children's hands and fingers will be trained in using their hands such as holding and moving. This exercise is very efficient even though it is done in a short time, besides this exercise does not pose a risk of injury or any other form of threat when compared to playing outside. Children cannot do other activities if they use gadgets for a long time. Of course, this will interfere with the child's motor development, both fine motor skills and gross motor skills. Children will only get used to sitting still, holding and paying attention to gadgets so that their ability to hold objects, write, draw, walk, run, jump, arrange objects, and so on cannot develop properly (Damayanti et al., 2020; Mimin, 2022). The radiation produced by gadgets will continue to expose children who use gadgets beyond reasonable limits. The most frequently encountered impact is its effect on vision. Exposure to radiation from gadget screens will cause the eyes to become red, watery and irritated due to rubbing (Janiasih et al., 2022). In (Ningsih et al., 2022) Physical motor skills are an important component in development that needs to be paid close attention. However, when children use gadgets too often, this causes a decrease in their physical activity. One of the most actively used parts of the body is the hands, so strength is mainly focused on the hands. In fact, other parts of the body should also receive good stimulation so that children remain agile and active. Thus, excessive use of gadgets can reduce children's involvement in physical activities and make them more passive. Children need to be encouraged to stay active, make physical movements, and experience stimulation from the surrounding environment to develop healthy motor skills. Using gadgets too often causes addiction or is called screen dependency disorder. When you use gadgets excessively, the blue light emitting will affect brain development. Where this can greatly influence a child's motoric development and brain development. This results in a higher ratio of gamma aminobutyric acid (GABA) to glutamate glutamine in the anterior cingulate cortex (Subarkah, 2019). Using gadgets with the right intensity will have a positive impact on children's development.

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#### *The impact of gadget use on children's intellectual development*

According to Jovita Maria Ferliana, a psychologist from Royal Taruma Hospital, if you look at it from neurophysiological perspective, the brain of children under 5 years old is in the developmental stage. To maximize children's brain development, it is important for them to receive direct sensory stimulation. For example, they need to feel objects, hear sounds, interact with other people, and so on. If children under the age of 5 use gadgets too often, especially without parental supervision, the impact is that they will focus too much on the gadgets and interact less with the surrounding environment (Subarkah, 2019). According to (Rahayu et al., 2022) the use of gadgets can have a positive impact, one of which is cognitive skills. These skills, which include the ability to process information, remember, reason and relate it to other objects, can be improved by using gadgets at the right intensity. The intended use of gadgets is useful games such as puzzles that can improve children's thinking abilities, or making doodles in electronic books. Apart from that, you can also present educational shows to improve children's memory. This research is in line with the results of research conducted by Marinding (2020) which shows that the use of gadgets in children is a form of active learning with which children not only observe and remember what they see and hear but can also create natural curiosity in children. This will make children more active in searching for the new information they want. Using gadgets too frequently will result in a lot of exposure to gadget radiation that reaches the body. The radiation produced by this gadget can cause damage to nerve tissue and the brain (Rahayu et al., 2022). According to Yumarni (2022), gadget radiation is very dangerous, especially for children under 12 years of age. The result of excessive exposure to gadget radiation can cause cancer. The results of research conducted by Indra & Sari (2022) state that gadget radiation can cause cancer, brain tumors, headaches and Parkinson's.

#### *Definition of Gadgets*

Gadgets are tools used to communicate according to current developments which of course have the benefit of making it easier for people to carry out their daily activities. According to Pebriana (2017) gadgets can influence the mindset and behavior of someone who uses them by feeling addicted because they provide a variety of applications that people can easily use in their daily lives. This gadget is also a real form of progress over time. Gadgets are currently used by all levels, both upper and lower middle class. Gadgets also come in many models and shapes and offer many interesting features that can be used by their users (Rozalia, 2017). Gadgets were initially only used by older people, but nowadays wearing or using gadgets is a common thing that can be used by both old and young people. Even in this era, the largest number of gadget users are children aged around 6-12 years. Many things can happen when children who are still in elementary school use gadgets. Apart from the positive side, they get the benefits of being able to learn online through the applications on their gadgets, they also get the negative side.

### *Principles of child development*

According to Santrock (2002) in principle, development is lifelong or life-long, development consists of biological, cognitive and social dimensions, in development some dimensions experience an increase in quantity while other components experience a decrease at almost the same time, development is flexible depending on In the individual's own living conditions, development is historically influenced by the situation and conditions in which the child is born and develops. Individuals continuously respond and act based on context which includes biology, physical environment, social, historical and cultural contexts. It is very important to understand the principles of child development in order to obtain a general picture of a child's behavior at a particular stage. Development is related to the increasing structure of body functions, which includes gross motor skills, fine motor skills, speech and language as well as socialization and independence (Soetjningsih and Ranuh, 2015). Aspects of child development according to Syaodih, namely: (1) motor development (2) thinking/cognitive development (3) language development (4) social development, and (5) emotional development. The aim of developing every technology is to make human life easy and comfortable, and the creation of smartphone technology makes it easier for modern humans to live their lives. Therefore, smartphone use is increasing from time to time, including in Indonesia. Watini (2022) revealed that technology is often used in the education sector to support the learning process such as audio-visual, video and other applications. The use of gadgets in the educational process, such as in PAUD, plays an important role. This means that the use of gadgets in the classroom has the potential to make learning more fun and interesting (Annisa et al., 2020), making it easier for children to understand the learning material being taught (Santoso, 2020). What's more, currently quite a few children are already using educational applications specifically designed for early childhood (Ayuningrum & Afif, 2021). This application has an impact on the motivation children will get in the learning process.

According to Yohana Yembise, parents must control their children who are playing with gadgets. Because, from holding gadgets such as cellphones (HP) or tablets, children can get various information that has not been properly filtered. 3 The role of parents who used to be playmates for their children has now been replaced by gadgets. In fact, childhood is a time when humans grow and develop physically and psychologically. During this period, children have to move a lot so that the child's growth and development is optimal. If at this time children are only engrossed in front of their gadgets, it is possible that the child's growth and development will be less than optimal, both physically and psychologically. Children who spend time with gadgets without paying attention to the brightness of the gadget screen, the effects of gadget radiation, and the distance of the screen from the child's eyes can also affect the child's eye health. In addition, children who look at electronic screens continuously for a long time cause eye irritation, stress on visual function, decreased visual acuity and myopia (Sundus, 2018). Stress on the accommodation muscles can occur when a person tries to look at small objects and at close distances for a long time. In such conditions, the eye muscles will work continuously and more forcefully. The tension of the accommodating muscles (ciliary muscles) increases, resulting in an increase in lactic acid and as a result eye fatigue occurs, stress on the retina can occur if there is excessive contrast in the visual field and the observation time is long enough (Ilyas, 2004). Thus, parents must be really wise in applying the rules for using gadgets to their children. Parents must always supervise them. According to Ariston and Frahasini (2018) supervision and control from parents to children is the most important thing, parents must provide clear boundaries when using gadgets because after all gadgets can lead to excessive consumption attitudes for children. It cannot be denied that nowadays children Children have become active consumers of gadget products which actually have the aim of making these children their target market (Chusna, 2017).

### *Children's motor development*

Motor development is development related to skills in controlling body movements. According to Hurlock (1987: 159) motor development is a development related to stable control of body movements with the brain being the center of movement. Motor development can be divided into two, namely fine motor development and gross motor development. In the elementary school age phase (7-12 years), children's physical growth becomes more mature, this influences their motor development which is characterized by active and agile motor activities so that this phase is considered the right time to develop motor skills. For example, fine motor development in this phase includes writing, drawing and typing, then gross motor development such as running, playing ball, etc. Giving a cell phone at this age can affect a child's motor development. On the one hand, cellphones, which in this digital era tend to be sophisticated and can provide various services, can provide content that is beneficial for children's motoric development, such as exercise videos, exercise tutorials that can attract children's interest in developing their motoric aspects and so on. . However, on the other hand, cell phones actually have a negative impact on the motor development of elementary school age children, especially since this age is an ideal time to develop

children's motor skills. The use of mobile phones which offer various types of entertainment such as games, films and so on can actually cause children to become lazy about moving and tend to just stay silent playing with their devices. This kind of phenomenon is very common around. Children who are given a cell phone will not want to do any activities when they are too engrossed in the device. Apart from that, there is also an addictive effect from using this cell phone so that children who use it will play with it continuously until they lose track of time and ignore other activities. If this is the case then the child's motor development will not be maximized. The lack of movements made by children will have an impact on their motoric development which is less mature so that it can have a negative impact in the future. Apart from that, if children are lazy about honing their motor skills, it will cause children to become less proficient in carrying out activities related to motor skills.

### *The impact of gadgets*

The influence of gadget use on children's development has positive and negative impacts, namely as follows:

#### Positive impact

- a. Increase knowledge. According to Dhani Rizki Syaputra, he concluded that by using technologically advanced gadgets, children can easily and quickly get information about their assignments at school. For example, we want to browse the internet anywhere and anytime we want to know. Thus, from the internet we can increase our knowledge.
- b. Expanding Friendship Networks. Gadgets can expand friendship networks because they can easily and quickly join social media. So, we can easily share with our friends.
- c. Make Communication Easier. Gadgets are tools that have sophisticated technology. So everyone can easily communicate with other people from all over the world.
- d. Training Children's Creativity. Technological advances have created a variety of creative and challenging games. Many children who fall into the ADHD category benefit from this game because of the high level of creativity and challenge. According to Baihaqi and Sugiarmun, ADHD itself is an abbreviation for Attention Deficit Hyperactivity Disorder which is a developmental disorder in increasing children's motor activity, causing children's activities to be unusual and tends to be excessive.

#### Negative impact

- a. Disrupting Health. Gadgets can disrupt human health because the effects of radiation from technology are very dangerous for human health, especially for children aged 12 years and under. The effects of excessive radiation can cause various dangerous diseases.
- b. Can interfere with child development. Gadgets have sophisticated features such as cameras, videos, games and so on. These features can disrupt the learning process at school. For example, when the teacher explains a lesson in front of one of the students, he plays with his gadget behind his back or can also use it as a tool for bad things.
- c. Vulnerable to Crime. Everyone must have something that has the ability to update anywhere. So people who want to commit crimes can easily find it from the results of updates which can be said to be too frequent.
- d. Can Influence Children's Behavior. According to Ratih Ibrahim, "Technological advances have the potential to make children quickly satisfied with the knowledge they have acquired so that they consider what they get from the internet or other technology to be the most complete and final knowledge".<sup>28</sup> In fact, there are so many things that must be explored through the traditional learning process and The internet cannot replace the depth of knowledge. If we don't pay close attention, there will be a tendency for future generations to become a generation that is quickly satisfied and tends to think superficially.

### *Children's Intellectual Influence*

Intellectual development is development related to a person's ability to receive and manage information, reason and act effectively. In the elementary school age phase, children are able to respond to intellectual stimulation or carry out learning tasks that can encourage their intellectual abilities such as reading, arithmetic and writing (Yusuf and Sugandhi, 2011: 61). At this time, children's thinking power has moved and developed towards more concrete and rational thinking. At this time, children's intellectual abilities are ready enough to be given basic scientific skills such as reading and have also begun to be given basic knowledge regarding various knowledge regarding human life, the environment, animals, arts, culture and religion. Giving a cell phone to children at this age can have a positive influence, such as introducing children to various basic knowledge, for example through video content about the environment, animals, etc. On mobile phones there is also an internet feature available as a browsing service which can provide various knowledge content that can help with learning activities.

## Conclusion

In an era of increasingly advanced technology, children's use of gadgets has become commonplace. However, it should be noted that using gadgets too often and excessively can have a negative impact on children's motor and cognitive development. Therefore, it is important for parents, educators and society to understand the negative impacts that excessive use of gadgets may have on children. Awareness and appropriate action are needed, such as managing the time to use gadgets, providing alternative physical and creative activities, and ensuring children remain involved in social interactions and their surroundings. Excessive use of gadgets turns out to have a huge influence on the development of elementary school students. Especially in children's physical, psychological and social development. In physical development, the development of the child's brain, eyes and muscles will be disrupted. In psychological development, children will become irritable, undisciplined, and like to imitate the behavior they see when playing with gadgets. Finally, in social development, children prefer to be alone compared to playing with their friends. So that this does not happen, the role of parents and teachers is highly expected to provide direction and guidance to children. While using gadgets, children need to be accompanied and supervised so that the influence of gadgets on children can be avoided.

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