

## **GADGET OPTIMIZATION TO IMPROVE THE HIGH ORDER THINKING SKILL (HOTS) OF STUDENTS IN ELEMENTARY SCHOOL**

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### **Abstract**

HOTS or High Order Thinking Skill is a skill that can be taught for children since elementary school age and is expected to continue to be developed in education. Higher Order Thinking Skill (HOTS) is a critical thinking, logical, reflective, metacognitive, and creative thinking that is a high-order thinking. HOTS deals with the ability to analyze, build, and create. The purpose of HOTS-based learning is to provide students with the skills to solve problems in everyday life and to form critical and creative thinking. Optimizing gadgets to develop students's HOTS now need to be a serious concern for governments, teachers, and parents. Some attempts to support the movement can be assessed using the SWOT analysis. In general, the use of gadgets will have a positive impact on children. Gadgets can be used as a medium of instruction in the classroom for teachers' needs in high material openness. Good coordination between parents and school needs to be done so that the use of gadgets by children is not excessive and have a positive impact on their growth both physically and psychologically. In addition, the health aspects of children should also be considered because it will have long-term impact. This can be done by using the gadget according to the time recommended by the experts is 2-3 hours per day.

**Keywords:** gadget, hots, students, elementary school

### **INTRODUCTION**

HOTS or High Order Thinking Skill is a skill that should be taught to children since elementary school age and is expected to continue to be developed in the world of education. Higher Order Thinking Skill (HOTS) is a critical thinking, logical, reflective, metacognitive, and creative thinking that is a high-level thinking ability. The 2013 curriculum also requires that learning materials include metacognitive which requires students to be able to predict, design, and estimate. Basically, HOTS deals with the ability to analyze, evaluate, and create. The purpose of HOTS-based learning is to provide students with the skills to solve problems in everyday life and to form critical and creative thinking.

Based on data on PISA and TIMSS Year 2016 known that the ability of HOTS

students in Indonesia is still relatively low. It is ironic that in the midst of the demands of the times and with the allocation of education funds by 20%, schools still can not provide learning that develops High Order Thinking Skill. In the midst of an era of all-round use of technology like this should Indonesia be able to improve the education system so that children can more easily in learning to think analysis, evaluative, and creative. However, observation in the field shows that Indonesia has not been able to provide good facilities for elementary school education. Many teachers are still using teaching materials as well as provide a matter of Low Order Thinking stage that is remembering, understanding, and applying. In developed countries like the UK and China, children aged 7-8 years have started to learn how to think HOTS. It is seen from the teaching materials they give to the child. The material

given to the child is not just to inform them but also to address issues to be solved by analytical, critical, and creative thinking.

The ability of HOTS students who have not developed is not because students in Indonesia are not able to do high-level questions but because students are still rarely directed to think analysis, evaluative, and creative. This can be observed in the textbook material used in the Elementary School today. For example, content in mathematics learning should be concrete and facilitate students to think critically. But the content of the textbook material is more abstract so that students find it difficult in learning mathematics. Most of the contextual approaches have not yet come up with links to daily life issues that should motivate students to solve problems.

Government Regulation Number 19 Year 2005 Article 19 paragraph 1 on National Education Standards explains that the learning process should be conducted interactively, inspiration, fun, challenging, and motivating the students (President, 2005: 17). However, the teaching materials available in schools today do not facilitate students to learn and optimize their skills. Utilization of information technology in learning in elementary school is also still low. Based on the results of research conducted by Anwaringsih (2014) on the readiness of the use of ICT in Elementary School shows that 70% of class teachers do not have the ability to operate the computer. While 30% of teachers are able to operate the computer but only limited to typing / school administration purposes.

Therefore, the optimization of gadgets to develop HOTS students now needs to be a serious concern for governments, teachers, and parents. Movement of gadget optimization to increase High Order Thinking Skill (HOTS) elementary students can be the right solution to solve these problems.

## RESEARCH METHODS

The research method used was literature study. Researchers conduct literature studies on books and journals that discuss about High Order Thinking Skill (HOTS), characteristics of elementary students, use of gadgets, and learning in Primary School. The problem discussed was how to create gadget optimization movement to increase High Order Thinking Skill (HOTS) elementary students. The purpose of this study was to describe how the steps of using good gadgets for children so that it can have a positive impact, especially for the improvement of HOTS. Analysis technique used was SWOT analysis. SWOT analysis techniques include 4 main activities: strengths, weaknesses, opportunities, and threats. The first step is to evaluate the strength, the second analyze the weakness, the third analyze the opportunity, and the fourth analyze the threat. The purpose of the use of SWOT analysis was to get the right solution about the use of gadgets for children so as to improve the ability of high-level thinking include analysis, evaluation, and creation.

## RESULT AND DISCUSSION

Optimizing gadgets to develop HOTS students now needs to be a serious concern for governments, teachers, and parents. Movement of gadget optimization to increase High Order Thinking Skill (HOTS) elementary students can be the right solution to solve these problems. Some attempts to support the movement can be assessed using the SWOT analysis.

### First is Strenght

Analysis in terms of strenght can be seen in two aspects, namely HR (Human Resources) and technology. In the first aspect, Indonesia is predicted to be rewarded with Demographic Bonus in 2020 until 2030. The Demographic Bonus in question is the Indonesian state will have an abundant population of productive age, which is about 2/3 of the total population. The amount is

much larger than other countries so that the current government is promoting the program Indonesia to the golden generation. The success of the program will be greatly influenced by the efforts of schools to educate children especially in Primary School.

In the second aspect seen from the side of technological progress. Based on the analysis of current conditions, technological advances, especially gadgets in the community are growing very fast. Ease of getting information can also be obtained by anyone and anytime. Nowadays gadgets are familiar items among children to adults. The importance of utilizing information and communication technology in education has been emphasized by countries in Southeast Asia. According to Surjono (2010), today's learning technology applications in the use of information and communication technology (ICT) processes and products to solve educational and learning problems have many benefits or advantages.

### **Second is Weaknesses**

Based on observations in the field, gadgets are more often used by children to play games. Often the child forgets time in playing the gadget even the child can become addicted for too often playing gadgets. According to the American Association of Pediatrics (AAP), children now spend an average of seven hours a day using media, including television, computers, telephones, and other electronic devices. One of the applications used in gadgets is social media. But news that appears on social media often does not educate even tend to smell of pornography. In addition, excessive use of gadgets can cause children to not have good social skills.

Technology and education should go hand in hand and help each other. But what happens in Indonesia technological advances such as gadgets actually tend to cause

problems, for example: reducing motivation in learning, inhibiting motor development, sleep and eating disorders, and obesity. Unlimited internet and smartphone access also make room for children to display risky behavior. Some parents tend to be indifferent because they are busy working. Most parents do not realize that there is a negative impact caused by the gadget if it is too often used and too early given to the child.

### **Third is Opportunities**

In terms of opportunity, technological development can be used to support the process of implementation of learning in the classroom. If you see the potential progress of gadgets that are currently becoming a trend, in fact gadgets can be developed into a medium of learning in the classroom. Usually teachers have difficulty in visualizing material or displaying interactive videos due to lack of media. Several applications are now being developed to create Electronic Materials such as flipbooks and sigils that can be opened in Smartphones. Flipbook application there is a trial and paid while the application sigil can be used for free (open-source). In addition, today many IT experts are developing applications for learning that can be opened in the gadget eg reading Al Quran, learning English, learning to count, etc.

In addition to technological aspects, opportunities are also evident in the development of elementary school age children. According to Thornburg (1984) Primary School children are an emerging individual. Every elementary school child is in a physical or mental change and leads to a better change. Their behavior in the face of social and non-social environments also increased. At the age of elementary school children the development of the child's brain reaches the maximum stage. Therefore, Primary School students have tremendous potential for HOTS development at their age. This stage of development is important to be

recognized by parents and teachers so as to provide a good and appropriate lesson for the child.

#### **Fourth is Treatment**

Although it aims to simplify daily activities, gadgets are tools whose use should be restricted, especially for Primary school-aged children. Child and family psychologist Ajeng Raviando said for children over 6 years old, the use of gadgets should only be 2 hours maximum per day (Setia, 2016). Thus, children can be trained to take advantage of 2 hours of time to use gadgets as well as possible. From the results of the calculations of researchers at the University of Oxford, the ideal duration for online activities for teens is as long as 257 minutes or about 4 hours 17 minutes a day (Sativa, 2017). With that duration, researchers believe teenagers not only have the ability that qualified in terms of technology, but also can socialize. Above 4 hours 17 minutes, then the gadget is considered capable of interfering with the performance of teen brain. Based on the results of this study, it can be concluded that the safe time for elementary school age children to use the gadget is about 2-3 hours per day. After knowing the facts, we need to see what actions can be sought by various parties namely school, family, and government.

#### **Family Roles**

Some efforts from the family that can be done is to always control the use of gadgets for children at home. A good time for children to use gadgets is 2-3 hours per day. Therefore, parents should use that time as effectively as possible for useful applications for children. Do not use gadgets to keep a child silent or just make a child no fuss. Parents need to make up a good proportion of time for children in using gadgets. The use of gadgets to learn can be done at home or at school. It would be more effective if parents and teachers work together in the use of gadgets to learn. For example hours of learning to use gadgets 30% at home and

60% at school. Thus the child is only allowed to use the gadget for an hour at home and 2 hours at school. The consideration used is if in school children more observed in the study because of supervision using the gadget done by the teacher.

#### **School Roles**

Schools need to strive to provide good facilities for learning. Several studies have been done and show that gadgets can be used as a medium of learning. Therefore teachers need to raise awareness in using technology for the advancement of education. One of the efforts that can be done is to make Electronic Instructional Materials. It is time for learning in Indonesia to change, and changed to a better direction. The development of HOTS-based Electronic Instructional Materials needs to begin to be used in schools. Currently there are several applications that can be used to create Electronic Materials like flipbook and sigil. Teachers should use the app to create Electronic Instructional Materials that can be opened in the gadget. In addition, Electronic Materials can also be sent via WA or uploaded on the web. Thus the teacher can share the Electronic Subjects that have been developed to the students with ease. Teachers can also share Electronic Teachers to teachers in Java or outside Java.

#### **Government Roles**

Government as a policy holder has an important role in the success of the gadget optimization movement to increase HOTS elementary students. Some efforts that can be done by the government is to provide counseling and workshop on the development of Electronic Teaching Materials as an android-based learning media. In addition, the government can provide research fund assistance related to the development of Electronic Teaching Materials. In order for education to be more advanced it is necessary government efforts in providing good facilities, one of which is the internet. Developed countries use the advancement of information technology to drive the progress

of the country. One of the programs that can be run is providing net mobile (mobile internet). A wifi program around the school by car. Mobile Net can be an alternative in socializing how to use good and appropriate gadgets for children in school.

#### CONCLUSION AND SUGGESTION

In general, the use of good gadgets will have a positive impact on children. Gadgets can be used as a medium of learning in the classroom to facilitate teachers in delivering materials based on High Order Thinking Skill. Good coordination between parents and schools needs to be done so that the use of gadgets by children is not excessive and have a positive impact on their growth either physically or psychically. In addition, the health aspects of children also need to be considered because it will have long-term impact. This can be done by controlling the use of gadgets according to the time recommended by experts that 2-3 hours per day. Therefore, the optimization of gadgets to develop HOTS students now needs to be a serious concern for governments, teachers, and parents. We certainly hope that the generation of the nation's children can truly become a golden generation that can compete with other countries in the era of technological advancement. Through this movement, students are expected to have a good HOTS so it can be a generation of intelligent characters.

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