

## “Virtual Reality Box” Media in Improving the Knowledge of Brushing Elementary School Children

Saluna Deynilisa<sup>1\*</sup>, Mujiyati<sup>2</sup>, Abu Hamid<sup>3</sup>  
Jurusan Kesehatan Gigi, Poltekkes Kemenkes Palembang  
**Corresponding Author:** Saluna Deynilisa  
[salunadeynilisa@poltekkespalembang.ac.id](mailto:salunadeynilisa@poltekkespalembang.ac.id)

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### ABSTRACT

Virtual Reality Box is a technology that allows a person to simulate a real object using a smartphone. The purpose of the study was to find out that virtual reality boxes can increase the dental knowledge of elementary school children. Experimental method with pre-posttest design approach. The sample is 30 students. The results of the study can increase dental knowledge significantly, the posttest value (17.4) and the pretest value (7, 1), with statistical tests the results obtained P-value = 0.000 p value <0, statistically important differences in prior knowledge and after watching a dental knowledge video using a virtual reality box. In conclusion, virtual reality box media can improve knowledge.

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## **INTRODUCTION**

Dental and oral health is important in the life of every individual, including children, because damaged and untreated teeth and gums will cause pain, mastication disorders, and can also interfere with the health of other bodies. Dental and oral problems in children also affect the growth and development of children. The health condition of the milk teeth will also determine the growth of the child's permanent teeth. Children are an age group that is susceptible to disease. The Global Burden of Disease Study 2017 estimates that oral disease affects nearly 3.5 billion people worldwide, with dental caries being the most common condition. Globally, an estimated 2.3 billion people suffer from dental caries and more than 530million children suffer from caries in milk teeth (WHO, 2020).

The results of the 2018 Basic Health Research (Riskesdas) stated that the largest proportion of dental problems in Indonesia was tooth decay/cavities/sickness 45.3% (Ministry of Health, 2019). Maintaining oral hygiene and health can be done with the teeth diligently, thoroughly and regularly. Good and correct behavior is carried out diligently, thoroughly, and regularly. Brushing your teeth is an important routine in maintaining and maintaining healthy teeth from bacteria and food residues attached to using a toothbrush. Brushing teeth is an effort made to keep the teeth in a clean and healthy condition (Puspita & Sirat, 2017).

## **THEORETICAL REVIEW**

Knowledge is the result of knowing and this occurs after a person has sensed a certain object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste and touch. Most of human knowledge is obtained through the eyes and ears (Iswari, 2021). Increasing the development of teeth in children can be done by utilizing today's rapid technology. Virtual Reality Box is a technology that allows a person to simulate a real object with a smartphone that is able to evoke a 3-dimensional atmosphere so that it seems as if he is seeing a physical or real object (Rama, 2017).

Virtual reality box is a tool that is simulated through a smart phone device (smartphone). This virtual reality media box is to provide new experiences for children and provide interesting activities where children will be directly involved to see dynamic pictures so that children feel as if they are in the real world (Dharma et al., 2018).

According to Houwink that there are many techniques that can be used, or methods that can be used, but will get good results, explaining many dental techniques, techniques, and techniques that require only one technique, but must be in accordance with the order of the teeth when the teeth are all parts. can be cleaned and does not damage the tooth layer (Rukmi, 2020).

### *Hypothesis*

Ha = There is a significant difference in the level of knowledge of respondents before and after watching a video brushing teeth using a virtual reality box.

## METHODOLOGY

In this research, an experiential research was conducted. The experiment is in the form of treatment or intervention on a variable. This study was directed to determine the effect of virtual reality boxes on children's dental knowledge in elementary schools. The population in this study were all children of the State Elementary School 3 Surya Adi, Mesuji District, South Sumatra, opening 320 people. The sample of this study used a non-probability sampling method. With the sample technique used purposive sampling technique which includes 30 people who are grade 4 Elementary School with sample inclusion criteria do not experience visual, hearing and cooperative disorders and can use Virtual Reality Box media. The research method is carried out before the knowledge test about teeth and then invites respondents to watch videos via smartphones using the Virtual Reality Box tool and followed by a post test.

## RESULTS

From the results of the study showed the following results:

Table 1. Distribution of Average Frequency Score Knowledge Level of Brushing Before and After Using Virtual Reality Box in Elementary School Children

No.	Knowledge level	N	Total score result	average	Difference
1.	Before treatment	30	214	7,1	10,3
2.	After treatment	30	522	17,4	

Based on table 5.1, it shows that the average value of research respondents before watching a video about brushing teeth using a virtual reality box, the results of the assessment of the level of knowledge are low with an average value of 7.1. However, after the respondent watched a video of knowledge of brushing teeth using virtual reality box shows the results of the assessment of increasing knowledge that are already good with an average value of 17.4 and there is an increase in knowledge based on the score counseling before and after counseling is 10.3.

Table 2. Statistical Test of Knowledge Level of Brushing Before and After Using Virtual Reality Box for Grade 4 Children at SD Negeri 3 Surya Adi

Activity	N	average	P-value *)
Pre-Test Score	30	7,1	0,000
Post-Test Score	30	17,4	

\*) Independent T-test with 95% Confidence Interval.

\*) If ( $p < 0.05$ ), then there is a significant difference.

\*) If ( $p > 0.05$ ), then there is no significant difference.

Based on table 5.2 shows the statistical test of the SPSS program obtained the results of P-value = 0.000 because the p value <0.05 there is a statistically significant difference knowledge level of children before and after watching brushing knowledge video teeth using a virtual reality box.

## **DISCUSSIONS**

The results of this study indicate that by utilizing media technology, virtual reality box for children can increase their knowledge of brushing their teeth produce a posttest value higher than the pretest value. The difference between the average scores before and after using a virtual reality box that is 10.3. So, by using a virtual reality box, the value of children's knowledge increases, which means that children already know about the knowledge of how to brush their teeth properly and correctly. According to Piaget, the stage of cognitive development of children occurs at the age of 9-12 years which is already able to do logical reasoning and has the ability to classify things and think about it in a more abstract, idealistic and logical manner. By providing knowledge of brushing teeth, it can spur children to be able to maintain their dental health and that's when the cognitive process takes place so that there is an increase in knowledge in children (Bujuri, 2018).

The use of video media in children's learning can provide a more complete, clear, varied, interesting and fun learning experience. Video media is included in electronic educational media which has advantages such as involving many five senses, making it easier to understand, more interesting because there is sound and moving images. The use of video media regarding good and correct tooth brushing knowledge must have electronic supporting media, one of which is the use of virtual reality box technology (Fastabiqul, 2018).

A series of cartoons presented in the form of videos using virtual reality box technology can attract children's attention. This is in accordance with research conducted by Reny Dwy Rahayu which states that videos containing cartoons can help improve cognitive development in children as seen from test scores before and after being given a video. Learning media that can stimulate and motivate children's interests and actions are interesting media such as virtual reality boxes. Therefore, the use of virtual reality boxes is effective in increasing children's knowledge and increasing motivation and interest to always maintain dental health (Norazizah, 2017).

## **CONCLUSIONS**

The conclusions of the study are as follows : The average value of respondents before watching videos of knowledge of brushing teeth using a virtual reality box is 7.1. The average value of respondents after watching videos of knowledge of brushing teeth using a virtual reality box is 17.4. Statistical tests obtained P-value = 0.000 < 0.05, meaning that there is a significant difference in the level of knowledge of 4th graders before and after being given treatment, this shows that the virtual reality box media can significantly increase knowledge in dental and oral health counseling learning about knowledge brushing teeth.

### **RECOMMENDATIONS**

The reality box media can be used as an alternative media selection for counseling for elementary school children.

### **FURTHER STUDY**

According to Houwink that there are many techniques that can be used, or methods that can be used, but will get good results, explaining many dental techniques, techniques, and techniques that require only one technique, but must be in accordance with the order of the teeth when the teeth are all parts. can be cleaned and does not damage the tooth layer.

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