

# Comparison of the Effectiveness Between Pop-Up Book and Poster as a Media Towards Oral Health Knowledge of 5<sup>th</sup> Grader Students of Elementary School 20 Banda Aceh

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## ABSTRACT

Oral health is an integral part of overall health which influences one's quality of life. Oral health problem in children occurs due to lack of oral health maintenance. Dental health education needs props, the use of props in changing children's behaviour is very important. The purpose of this study is to identify the effectiveness of pop-up book and poster towards oral health knowledge. This study is a quasi-experimental design, using pre-test and post-test. The population of this study is 5<sup>th</sup> grader students of elementary school 20 Banda Aceh which is 70 students in total divided into 2 groups, each group consists of 35 students. Sampling technique used was total sampling which was divided into two groups, pop-up book group and poster group. Students' knowledge score before and after dental health education was measured by questionnaire. The data obtained was analysed using t-test. The result of the study showed that there were significant increased scores in both media ( $p < 0,05$ ), followed by t-test to compare pop-up book and poster media. The result showed that there were significant increased score in pop-up book media. The conclusion of this study is dental health education using pop-up book as a media is more effective compared to posters in increasing oral health knowledge of 5<sup>th</sup> grader students of elementary school 20 Banda Aceh.

**Keywords:** oral health knowledge, pop-up book, poster

## 1. INTRODUCTION

Dental and oral health are an integral part of overall health that can affect someone's life quality and have become a concern in the health development of Indonesia and developing countries[1,2]. Dental and oral hygiene is a condition where teeth in the oral cavity is in clean condition, plaque-free, and other thing like debris, calculus, or food do not exist on teeth surfaces and halitosis can not be found[3].

Based on Basic Health Research data on 2013, the national prevalence of dental and oral problems reach 25,9%, which includes 16 provinces that have prevalence above the national prevalence. Aceh is one of the province that has dental and oral problems prevalence above the national prevalence, which reaches 30,5%. This makes Aceh as the province with the highest dental and oral problems prevalence in Sumatera[4].

Dental problems that occur in children is due to the lack of dental and oral hygiene maintenance.[5] The awareness of oral hygiene in children is very low

which is caused by the lack of education and the ability of children to maintain their dental and oral hygiene. Children at school age in general, which is 6-12 years, is lack of knowledge and do not understand to maintain oral hygiene properly[7].

Children at the age of 9-12 years is the effective target to give all of the information that leads to cognitive and motoric development of children, for example brushing teeth and the desire to maintain oral health. Based on Piaget theory about cognitive development, 9-12 years children have reached the stage where the children able to think rationally and can abstractly group every informations that have been accepted and able to think logically. Motorical development alone is based on the physical development of the child, on 9-12 years the body is developing so the motoric function also develops through it, so it is a very good idea to teach about how to brush the teeth at these age[7].

Dental health education is a learning process directed to the individuals and community groups to

achieve the dental health degree as high as possible. The selection of the proper method in the material delivery process of dental and oral health education is very helpful to achieve suitable efforts to change behavior of the target. In general, there are only two methods in dental health education, that is one way method which emphasizes active educator while the target party is not given the chance to be active, and two way method that ensures two way communication between the educator and the target.[8]

Based on research conducted by Andriani, et al (2016) they stated that learning by animation cartoon is more effective than poster media in improving the oral and dental health knowledge in 5<sup>th</sup> grader students of elementary school 24 Banda Aceh, while Hermina and Sri (2015) stated that poster media is more effective in improving nutritional knowledge for Integrated Health Post users[9,10].

According to Mahfud, et al (2014), pop-up book media can improve speaking skills in 2<sup>nd</sup> grader students of elementary school 1 Wonoharjo.[11] Based on the research conducted by Mubarokah (2016), it stated that student learning outcomes in 4<sup>th</sup> grader in pure art that the learning process use pop-up book media is more effective than the learning process using textbook[12].

Dental and oral health education require helping tools especially in children. The use of this tools in changing children's behavior is very important[8]. One of the media that interesting enough for kids is pop-up book. Pop-up book that is used in this study is the book that have image that can be set up straight and also have beautiful objects and can also move or gives amazing effects[13]. Other media that often be used by health workers in health education is poster because this media can be made to influence the mass with big visual image display and a short message, so it must be interesting, simple, and only contain one idea or only one fact[14].

Based on the descriptions above, researcher interested in doing research about the comparison of pop-up book and poster media effectivity towards dental and oral health knowledge with the target students is 10 years old children of elementary school 20 Banda Aceh, because in this school health education is never been made using pop-up book and poster media to improve dental and oral health knowledge, either by teachers or local health workers.

## 2. STUDY METHODS

This research was conducted at elementary school 20 Banda Aceh in April 2018. The procedure is carried out by preparing permission application for the school, cooperate with the school party for the research, preparing the things like the room to carry out the program, then prepare the education media tools.

Subjects are divided into two groups and being gathered in different rooms and will be given different education media tools, the first group using pop-up book media and the second group using poster. Before

it is done, researcher gives explanation to the subject how to carry out activities for 5 minutes. After that, subjects are expected to fill in the pretest questionnaires for 15 minutes. Then material is given using media predetermined for 15 minutes. After it is done, subjects are asked to fill the post test questionnaires for 15 minutes.

## 3. Data Collecting Procedure

Researcher used pretest and post test questionnaires in collecting data. Questionnaires are divided into two parts, the first part contains general subject data consists of name, age, and address. The second part contains questions about dental and oral health knowledge that consist of the way to brush teeth properly, teeth brushing frequency, duration and time to brush teeth, maintaining dental and oral health in the dentist, the cause of dental diseases and its preventions. Subjects are given 15 minutes to fill the questionnaires. The right answer will be given 1 score and the wrong one will be given 0. Using the formula:

$$\text{knowledge percentage} = \frac{\text{right score answer}}{\text{total question given}} \times 100\%$$

Description:

Knowledge level:

1. Good, if the score is  $\geq 75\%$
2. Moderate, if the score 56-74%
3. Bad, if the score  $\leq 55\%$

## 4. RESULT

Research about the comparison pop-up book dan poster media effectivity towards dental and oral health knowledge is done in April 6, 2018 which located at elementary school 20 Banda Aceh. Subject sampling is done with total sampling technique which include all of the students in 5<sup>th</sup> grader with total 70 students. This study results is analyzed using *t-test*.

## 5. DISCUSSION

Knowledge is a result of knowing, and it is happened after people have sense about some certain objects. Sensing happens through the senses, which is sight, hearing, smell, taste, and touch. Most of the human knowledge, about 80%, is being obtained through the sense of sight because the vision plays a dominant role in concept making and understanding process[15,16]. Children knowledge about dental and oral health is the understanding and the information that children know about maintaining dental and oral health [16].

Dental and oral diseases are still can be found in a wider community, not only occurs in adults but also in children. Dental health education is very effective in improving dental and oral health degree. Health education is the improvement of knowledge and ability through practical technique learning or instructions with the aim to change or influence human behavior to increase the awareness about health value so they

consciously willing to change their behavior into healthy lifestyle [17].

Dental and oral health education can be done by various media, includes pop-up book dan poster media. Media role in health education is to build conducive atmosphere about positive behavior changing to healthy life [14]. This education media can improve knowledge of respondent significantly, after being given the dental and oral health education using pop-up book and poster media, respondent knowledge improves to be better.

Based on table 1. we can see that before being given the material using pop-up book, 45.7% of respondents have bad knowledge and after being given the material 77.1% of respondents have good knowledge, it means there is improvement of dental and oral health knowledge in respondents after being given the counseling material using pop-up book, but not all of the respondents that have bad knowledge before the dental health education become better after it and there is still respondents who showed no improvement.

**Table 1.** Frequency distribution of respondent knowledge level with pop-up book media.

Knowledge level	Pretest	%	Posttest	%
Good	11	31.4	27	77.1
Moderate	8	22.9	6	17.1
Bad	16	45.7	2	5.8
<b>Total</b>	<b>35</b>	<b>100</b>	<b>35</b>	<b>100</b>

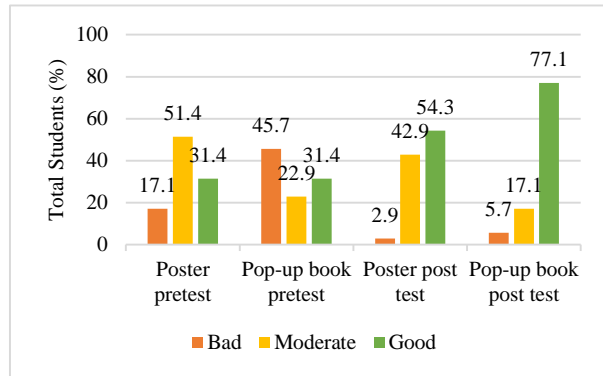
Based on table 2. we can see that before being given the material using poster, 51.5% of respondents have moderate knowledge and after being given the material, 54.3% of respondents have good knowledge, it means there is improvement of dental and oral health knowledge after dental and oral health education using poster media.

**Table 2.** Frequency distribution of respondent knowledge level with poster media.

Knowledge level	Pretest	%	Posttest	%
Good	11	31.4	19	54.3
Moderate	18	51.5	15	42.9
Bad	6	17.1	1	2.9
<b>Total</b>	<b>35</b>	<b>100</b>	<b>35</b>	<b>100</b>

Analysis test in this study is done using paired t-test and unpaired t-test. Based on table 3. we can see that paired t-test showed 0.000 p significance value ( $p < 0,05$ ), so it can concluded that there is significant difference of knowledge level before and after the dental and oral health education using pop-up book and poster media. So, dental and oral health education using pop-up book and poster are effective in improving dental and oral health knowledge in

children. These result is consistent with Mahfud (2014) study which states that pop-up book media can improve speaking skills[11]. Other supporting statement is the study of Andriany (2016) which states that oral and dental health education using animation cartoon is more effective than poster media in improving dental and oral health knowledge of 5<sup>th</sup> grader students of elementary school 24 Banda Aceh [9].



**Table 3.** Average score of pretest and post test of dental and oral health education using pop-up book and poster media

Group	Average		Statistical test	
	Pretest	Posttest	T	P
Pop-up Book Media	62.1	80.8	6,300	0,000*
Poster Media	67,8	75,4	12,62	0,000*

\* $p < 0,05$

Based on table 4. we can see that unpaired t-test result showed 0,000 for p significance value ( $p < 0,05$ ), so it can be concluded that there is significant improvement as the influence of dental and oral health education with pop-up book and poster media. Pop-up book media is more effective than poster media in the improvement of dental and oral health knowledge of 5<sup>th</sup> grader students in elementary school 20 Banda Aceh. This statement is supported by study result of Marselly (2014) which states that pop-up book media is more effective in improving dental and oral health knowledge of students in elementary school Cahaya Intan Palembang [18].

**Tabel 4.** Comparison the improvement score of knowledge by using pop-up book and poster media

Group	Average	Standard deviation	T	P
Pop-up Book Media	18,7	8,77353	5,838	0,000*
Poster Media	7,5	7,10959		

\* $p < 0,05$

Other statement that supports this study is research that has been done by Ramendra dan Ratminingsih (2007), it stated that visual media in education can optimize its usage because can make learning more productive, more interesting, optimize teaching time, and can make learning process more effective.[19] It is also supported by Sutjiono (2005) that states new media is better and more interesting for students [20].

This study is done in Pocut Baren area, which is elementary school 20 Banda Aceh. This study located in elementary school that has not been given dental and oral health education using pop-up book and poster before in improving dental and oral health knowledge, either by teachers or by local health workers. Another media that can be used to compare its effectiveness against pop-up book is booklet, flyer, flip chart, slide, etc, so further study needs to be done to see pop-up book effectivity comparison against those media. As for the condition at the time of dental and oral health education, the students complain that the time is too short because it must be done accordance to predetermined schedule. According to researcher, this can be overcome if there is a better communication approach towards the school to get a specific time so the study can be done carefully. Based on this study, education tool using pop-up book is more effective than using poster in improving dental and oral health knowledge of 5<sup>th</sup> grader students of elementary school 20 Banda Aceh, because the message that is being given using three dimensional media, image that can move as we open the pages attracts more attention and more interactive to stimulate the attention of students, so the purpose of this education tools can achieve optimal results.

## 6. CONCLUSION

Pop-up education tools is more effective than poster in improving dental and oral health knowledge of 5<sup>th</sup> grader students of elementary school 20 Banda Aceh.

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