



## Comparison of Educational Media with Video and Pop-Up Book Towards Knowledge of Balanced Nutrition Guidelines in Elementary School Students

Endah Budi Permana Putri<sup>1\*</sup>, Eka Okta Noviani<sup>2</sup>

<sup>1,2</sup>Departement of Nutrition, Faculty of Health, Universitas Nahdlatul Ulama Surabaya, Indonesia

\*Email: [endah.budi92@unusa.ac.id](mailto:endah.budi92@unusa.ac.id)

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### Keywords

Educational Media, Balanced Nutrition Knowledge, Video, Pop-Up Book

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### Abstract

The unbalanced eating behavior of school-age children is influenced by the level of nutritional knowledge. The purpose of this research is to analyze the comparison of media education with videos and pop-up books on the knowledge of balanced nutrition guidelines for elementary school students. This type of research is a quasi-experimental design with a nonequivalent control group design. The total sample used in the study was 90 students who were taken by probability sampling and then divided into two groups, 45 students were given education with video media (P1) and 45 students were educated with pop-up book media (P2). Data were analyzed using the Wilcoxon and Mann-Whitney test with a significant level of 0.05. The results obtained are that there is a difference in the level of knowledge of the pop-up book group before and after education ( $p=0.0001$ ) and there is no difference in the level of knowledge of the video group before and after education ( $p=1.00$ ). Pop-up book media is more effective in increasing students' knowledge level of balanced nutrition compared to video, so pop-up book media can be an alternative media used to provide education to elementary school students.

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### Kata Kunci

Media Edukasi, Pengetahuan Gizi Seimbang, Video, Pop-Up Book

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### Abstrak

Perilaku makan tidak beragam pada anak usia sekolah dipengaruhi oleh tingkat pengetahuan gizi. Tujuan penelitian ini yaitu untuk menganalisis perbedaan media edukasi dengan video dan *pop-up book* tentang pedoman gizi seimbang pada siswa sekolah dasar. Jenis penelitian yang digunakan adalah *quasi-experimental* dengan *nonequivalent control group desain*. Total sampel yang digunakan sebanyak 90 siswa yang diambil secara *probability sampling* kemudian dibagi menjadi dua kelompok yaitu 45 siswa diberi edukasi dengan media video (P1) dan 45 siswa diberi edukasi dengan media *pop-up book* (P2). Data dianalisis menggunakan uji Wilcoxon dan Mann-Whitney dengan tingkat signifikansi 0,05. Hasil yang diperoleh yaitu terdapat perbedaan tingkat pengetahuan kelompok *pop-up book* sebelum dan setelah diberikan edukasi ( $p=0,0001$ ) dan tidak ada perbedaan tingkat pengetahuan kelompok video sebelum dan setelah diberikan edukasi ( $p=1,00$ ). Media *pop-up book* lebih efektif dalam meningkatkan pengetahuan siswa tentang gizi seimbang dibandingkan dengan media video, sehingga media *pop-up book* dapat menjadi media alternatif yang digunakan untuk memberikan edukasi kepada siswa sekolah dasar.

## **A. Introduction**

The national development of a nation is influenced by the quality of human resources. The degree of health is described by the situation of mortality, morbidity, and nutritional status of the community. Nutritional imbalances can reduce the quality of human resources. Good nutrition will produce quality human resources (Amrah, 2013;(Salim et al., 2021)). Now many school-age children have unbalanced and unhealthy eating behavior. School-age children prefer to buy snacks at school so they refuse to eat breakfast at home, this kind of eating behavior will cause nutritional problems in school-age children. Children's eating behavior can be influenced by the child's level of knowledge. Therefore, the fulfillment of nutrition with the right quality and quantity is very much needed by elementary school children (Devi, 2012).

Food consumption and nutritional status of students have a significant correlation with academic achievement in Kupang (Utama & Yunita, 2019). According to research by Dwiarini & Deni (2009), many school-age children have a low level of nutritional knowledge and are characterized by the pattern of food consumption they eat every day, such as eating vegetables and fruit, on average, school-age children still consume fewer vegetables and fruit, then there are still many who consume sweet foods or drinks, and fried foods more than once a day.

To prevent and handle multiple nutritional problems in school-age children, it is necessary to provide regular nutrition education which aims to increase knowledge about Balanced Nutrition Guidelines, especially for school-age children. Balanced Nutrition Guidelines can also be a means to provide information and education regarding good and balanced diet and physical activity patterns to optimize the delivery of balanced nutrition messages to the public, proper and community-based education is needed (Kemenkes RI, 2014). The pop-up book is one of the educational media that can be used for elementary school students. The pop-up book material on the diversity of animals and plants meets the criteria to be used as a learning media (Ulfa & Nasryah, 2020).

School-age children need a different and interesting pattern of education or teaching. One of the interesting media for children to provide education and information is the Pop-up Book media. This study aims to analyze the comparison of media education with video and pop-up books on the knowledge of balanced nutrition guidelines for elementary school students.

## **B. Methodology**

This study used research is a quasi-experimental design with a nonequivalent control group design. The research was conducted on 4<sup>th</sup>-grade students of SDN Kendangsari 1, Surabaya. The total sample used in the study was 90 students who were taken by probability sampling and then divided into two groups, 45 students were given education with video media as a control group (P1), and 45 students were given education with pop-up book media as a treatment group (P2). Education on balanced nutrition guidelines was carried out for 4 weeks (1 time per week). The level of students' knowledge was measured using a balanced nutrition knowledge questionnaire containing 20 questions. The data collection instrument used was a questionnaire given before (pretest) and after (posttest) education to measure the level of knowledge of the respondents. The level of knowledge is grouped into 3, namely good (score 76-100), sufficient (score 56-75), and less (score 55) (Arikunto, 2013). The data analysis used was the Wilcoxon test to determine the level of knowledge of balanced nutrition guidelines before and after being given education using video media or pop-up books, while the Mann Whitney test was used to analyze

the comparison of education given with video and pop up books media to the level of knowledge of the guidelines balanced nutrition in elementary school students.

**C. Result and Discussion**

**1. Educational Media with Video on the Level of Knowledge of Balanced Nutrition Guidelines**

The level of knowledge before and after education with video media is almost all respondents are in the sufficient category of 91.9%. There is no change in the level of knowledge before and after education because students feel bored with learning media using videos. Students need to get learning methods with new and interesting media. Education with video has weaknesses, one of which is that during video playback, images and sound will continue so that not all students are able to follow the information to be conveyed through the video (Kustandi & Sutjipto, 2013).

**Table 1. Balanced Nutrition Guidelines Education with Video Media (P1)**

The Level of Knowledge	Pretest	F (%)	Posttest	F (%)	p-value
Less	0	0	0	0	1.00
Sufficient	41	91.9	41	91.9	
Good	4	8.9	4	8.9	

\*The total sample in the control group is 45 students (P1)

\*\*Data analysis with Wilcoxon test

The results of the analysis obtained a value of 1.00, which means that there is no difference in the level of knowledge before and after being given education on balanced nutrition guidelines with video. This is similar to study by Puput (2017) that the posttest score on time measurement material using audio-visual media after the intervention did not change, meaning that there was no effect on the use of audio-visual media that had been adapted to the conditions needed for children with special needs in teaching and learning activities, because students cannot understand the sentences conveyed in the video well, so that the child's concentration level is disturbed. Likewise, a study conducted by Azhari & Fayasari (2020) states that there is no significant difference knowledge score students who are given nutrition education with media lectures and nutrition education with video. Therefore, it is necessary to find other educational media that can be effectively used to increase knowledge, especially balanced nutrition guidelines for elementary school students.

**2. Educational Media with Pop-up Book on the Level of Knowledge of Balanced Nutrition Guidelines**

The level of knowledge before education with pop-up book media showed that almost all of the knowledge levels were in the sufficient category of 88.9%, after being given education with pop-up book media there was an increase in knowledge of 100% in the good category. Table 2 shows that all respondents who were given education with the pop-up book media experienced an increase in knowledge, because all respondents were very enthusiastic to pay attention and observe carefully the material provided through the pop-up book. The material in the pop-up book includes a balanced nutrition cone, animal protein, vegetable protein, vegetables, fruit, carbohydrates, 8 glasses of water and physical activity.

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The results of the analysis obtained a value of 0.0001 which means that there are differences in the level of knowledge before and after being given education with pop-up book media. There is an increase in knowledge using pop-up book media in line with research by Setyawan et al., (2014) explaining that there is an increase in using pop-up book media in the pre-cycle, cycle I, and cycle II, which is applied to grade II students at SDN 1 Wonoharjo, the application of using pop-up book media in learning speaking skills can train independence, courage, pronunciation, intonation, and fluency in speaking in front of an audience.

**Table 2. Balanced Nutrition Guidelines Education with Pop-Up Book Media (P2)**

The Level of Knowledge	Pretest	F (%)	Posttest	F (%)	p-value
Less	1	2.2	0	0	0.0001
Sufficient	40	88.9	0	0	
Good	4	8.9	0	100	

\*The total sample in the treatment group is 45 students (P2)

\*\*Data analysis with Wilcoxon test

Pop-up book is a book that has parts that can move or have three-dimensional elements and provide more interesting story visualization, starting from the image display that can be moves when the page is opened (Dzuanda, 2011). Learning with pop-up book media has an impact on students as students can easily interacting with the material in the pop-up book, students can become active as actors through observation or touch, so that students not just reading the material presented in the pop-up book (Setiyanigrum, 2020).

**3. Comparison of Educational Media with Video and Pop-Up Book Towards Knowledge of Balanced Nutrition Guidelines**

Based on the Mann Whitney test which was used to analyze the differences in the level of knowledge in the groups given video media and pop-up books, it was obtained that the value was 0.00 so it is known that there are differences in the two educational media used in 4th grade students at SDN Kendangsari 1, Surabaya.

**Table 3. Comparison of Knowledge of Balanced Nutrition Guidelines after being given Education with Video Media (P1) and Pop-Up Books (P2)**

Media	Mean	p-value
Video (P1)	24.96	0.0001
Pop-up Book (P2)	65.50	

\*The total sample is 90 students (45 students as P1 and 45 students as P2)

\*\*Data analysis with Mann Whitney test

Table 3 shows the mean rank value in the group that was given education with pop-up book media, the results were higher, namely 65.50 compared to the mean rank value in video media, which was 24.96, this could mean that pop-up book media was more effective to increase knowledge about balanced nutrition guidelines for elementary school students. When education is provided with pop-up book media, students are very happy and active. Class situation was a little noisy because the students were enthusiastic to pay attention to the pop-up book media (Hasanah, 2019). While education with video has weaknesses, one of which is that during video

playback, images and sound will continue so that not all students are able to follow the information to be conveyed through the video (Kustandi & Sutjipto, 2013).

The learning method using pop-up book media showed an increase in student learning outcomes in the high category. Therefore, pop-up book media in mathematics learning is more effective when compared to learning by lecturing or without using media (Anies & Mariana (2018). Benardi (2017) revealed that the average activity of students during the following media-assisted learning pop-up book is high and is improvement in all response indicators students towards learning more reinforce that the media pop-up book effectively used in learning PAUD students.

#### **D. Conclusion And Recommendation**

There is no difference in the level of knowledge before and after being given education using video, but there is a difference in the level of knowledge before and after being given education using pop-up book media, it is concluded that pop-up book media is more effective in increasing knowledge of balanced nutrition guidelines for elementary students.

The advice given to further researchers is education on balanced nutrition guidelines with media games that are favored by children such as monopoly or snakes and ladders. The application of education with pop-up book media can be used as an effective medium to increase knowledge in elementary school students.

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