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Animation for Educating, Socializing, and Giving Understanding Characteristics of Malnourished Children

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A R T I C L E I N F O

1. INTRODUCTION

Malnourished children are conditions in which children do not receive sufficient minerals, calories, and nutrients to support the development of vital organs (Simatupang *et al.,* 2020). The condition of malnourished children can be caused by a lack of macronutrient intake (carbohydrates, fats, and proteins) and micronutrients (vitamins and minerals) received by children (Ningrum *et al.,* 2020). Malnutrition experienced by children can have a negative impact on their growth and development. Malnourished children can experience growth disorders such as weight below the average for their age and short stature (Gunawan, 2016). Malnourished children can experience failure to thrive in terms of weight, height, or both.

The characteristics or signs of malnourished children are important for parents to know early on. Parents need to ensure that their child's development is optimal. The condition of malnutrition is one of the impacts of the non-fulfillment of children's nutritional needs that has lasted for a long time (Hizriyani, 2021). This is what causes parents to pay attention to the condition of their child's growth and development.

There have been many previous studies on malnourished children, including research conducted by Lutviana and Budiono (2010) regarding the prevalence and determinants of the relationship between energy and protein consumption levels, infectious diseases, mother's level of knowledge, mother's education level, income level, parenting pattern, number of family members. and the contribution of fish protein to under-five nutritional status. Research on the relationship between the body mass of malnourished children and total protein and albumin (Rauza & Andina, 2017) and the relationship between the body mass of malnourished children with cholesterol and lipoproteins (Wajdi & Andina, 2017). Research on the effect of psychosocial stimulation on the growth of malnourished children (Nahar *et al.,* 2009), the prevalence and risk of urinary tract infections in malnourished children (Uwaezuoke *et al.,* 2019), and research on early management of hypokalemia in malnourished toddlers to help reduce mortality in developing countries (Shahid *et al.,* 2021).

However, there has been no research on how to educate people about the characteristics of malnourished children in the surrounding environment. Therefore, this study aims to determine the effect of educational socialization using animation media on the level of understanding of the characteristics of malnourished children in the residents of Cigugur Girang Village, Parongpong, Indonesia as a research sample. The novelties of this study are (i) research conducted on the effect of educational socialization on the characteristics of malnourished children in the community in Cigugur Girang Village, Parongpong, Indonesia; (ii) the process of educating the characteristics of malnourished children is carried out using the media of animation technology, and (iii) research focuses on identifying the characteristics of malnourished children which are presented more specifically and in detail.

2. METHODS
2.1. Research subject

The research subjects are residents of Cigugur Girang Village, Parongpong, Indonesia. We took a sample based on a sample of the selected area in the village of Cigugur Girang. Respondents amounted to 20 people. The age range of the respondents is 20 – 60 years. Respondents consisted of 3 males and 17 females (see **Figure 1**). Respondents on average work as Teachers/State Civil Servants (ASN) and housewives with a total of 4 ASN each, 4 teachers, 4 housewives, 3 students, and 1 entrepreneur. **Table 1** shows the details of the job details and the age of the respondents.
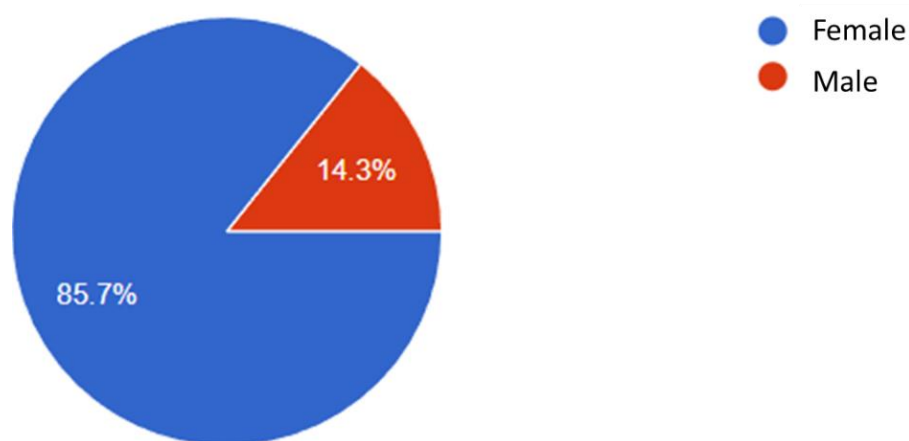
Figure 1. Percentage of respondents' gender.

Table 1. Data on age and occupation of respondents.

Name	Age (Year)	Profession
A	50	Teacher
B	60	State Civil Apparatus
C	52	Housewife
D	52	Teacher
E	29	Housewife
F	29	State Civil Apparatus
G	30	Enterpriser
H	47	State Civil Apparatus
I	53	Teacher
J	38	State Civil Apparatus
K	51	Housewife
L	57	Housewife
M	20	Student
N	22	Student
O	21	Student
P	49	Teacher
Q	50	Housewife
R	21	Student
S	21	Student
T	53	Teacher

2.2. Research Design Analysis

Research data collection was carried out by distributing questionnaires using Google Forms to residents of Cigugur Girang village, Parongpong, Indonesia. There are 3 stages in data collection, namely (i) distribution of pre-test questionnaires; (ii) providing educational actions through animation media; and (iii) distribution of post-test questionnaires. The data processing approach used is quantitative. We made 20 questions pre-test and post-test. **Table 2** shows the pre-test and post-test questions in this study. Making questions focused on education about the characteristics of malnourished children. The types of pre-test and post-test questions are types of right and wrong answers. The scoring of the answers is marked as 1 for correct answers and 0 for incorrect answers.

Table 2. Pre-test and post-test questions.

No	Question	Answer	
		True	**False**
1	Malnutrition is a condition when the child does not receive enough nutrients, minerals, and calories to support the development of vital organs.		
2	Characteristics of malnourished children are children's weight and height below the normal average for their age.		
3	Characteristics of malnourished children have delayed child growth.		
4	The characteristic of malnourished children is the child's appetite like children his age.		
5	Characteristics of malnourished children do not affect the level of concentration and focus children.		
6	Characteristics of malnourished children are dry skin and hair and fallout		
7	Characteristics of malnourished children are children often find it difficult to accept and follow lessons at school.		
8	Insufficient calories received by children often cause children to be malnourished.		
9	One of the characteristics of malnourished children is that if the child is injured, the wound is difficult to recover.		
10	The condition of children who get sick easily is one of the characteristics of malnourished children.		
11	Children who are easily tired and look lethargic are an indication of a child who is malnourished		
12	Malnourished children are less concerned about the environment		
13	Physical conditions that can be used as an indication of a child being malnourished are the condition of the eyes and cheeks looking sunken.		
14	The cheerful and active nature of the child can be used as an indication that the child is malnourished.		
15	Children who receive insufficient mineral intake can cause children to be malnourished.		
16	Lack of nutritional intake received by children is one of the causes of child malnutrition.		
17	Malnourished children will affect the development of the child's vital organs.		
18	A child who is always crying or fussy is one of the characteristics of a child who is malnourished.		
19	Faster or later the child attending the lesson does not have a relationship with the condition of the child being malnourished.		
20	One of the consequences of undernourished children is a decreased immune system.		

2.3. N-Gain Nilai Value Analysis

The normalized gain or N-Gain value analysis aims to determine the effectiveness of using certain methods or treatments/actions in a one-group pre-test post-test design study. The formula used in calculating the N-Gain value is shown in Equation (1).

$$N\ Gain = \frac{Skor\ Posttest - Skor\ Pretest}{Skor\ Ideal - Skor\ Pretest} \tag{1}$$

where the ideal score is the maximum value that can be obtained by the respondent when filling out the pretest and posttest questions.

There are several categories of obtaining N-Gain values that can be used as a reference for determining the conclusion of the final result. **Table 3** shows the classification of the N-Gain value acquisition categories (Prastiwi & Nurita, 2018).

Table 3. Distribution of N-Gain score n.

N-Gain Value	Category
g > 0.7	High
0.3 ≤ g ≤ 0.7	Medium
g < 0.3	Low

3. RESULTS AND DISCUSSION

Table 4 shows the results of the gain value analysis. The calculation of the gain value is carried out to show the quality of improving the skills possessed by each respondent after an action is taken (Serevina *et al.,* 2018). Based on the data in **Table 4**, it is known that the average value of N-Gain is 0.21 (21%) indicating that the method or treatment carried out is the use of animation media in educational activities on the characteristics of malnourished children that are not effectively used in the community. With a minimum N-gain score of 0.04 (4%) and a maximum of 0.44 (44%). In line with research conducted by Anshori and Wulandari (2020) which states that if the N-Gain presentation value is <40%, it is included in the category of ineffective interpretation. The results of the ineffectiveness of the media are influenced by the respondents' initial pretest scores which are quite large. This shows that knowledge about the characteristics of malnourished children is well known in the community.

Table 4. Analysis of pre-test and post-test gain values.

No	Name	Score		N-Gain	Categories
		Pre-Test	Post-Test		
1	A	60	100	0.39	Medium
2	B	60	90	0.29	Low
3	C	75	85	0.09	Low
4	D	65	95	0.29	Low
5	E	85	100	0.14	Low
6	F	80	95	0.14	Low
7	G	80	100	0.19	Low
8	H	90	100	0.09	Low
9	I	70	100	0.29	Low
10	J	90	100	0.09	Low
11	K	65	85	0.19	Low
12	L	70	85	0.14	Low
13	M	90	95	0.04	Low
14	N	70	95	0.24	Low
15	O	60	90	0.29	Low
16	P	60	90	0.29	Low
17	Q	60	90	0.29	Low
18	R	95	100	0.04	Low
19	S	90	100	0.09	Low
20	T	55	100	0.44	Medium
Average		73.5	94.75	0.21	
Min		55	85	0.04	
Max		95	100	0.44	

Figure 2 shows the analysis of differences in the results of the pretest and posttest per question. Based on the picture, it can be seen that all respondents' results have increased

from each question indicator. Therefore, if seen from these results the use of animated media can still be used in conveying material to the public even though in this study it does not have a high level of effectiveness. The use of animated videos as an educational medium for the characteristics of malnourished children in the people of Cigugur Girang Village, Parongpong, Indonesia has a positive impact on the perception and understanding of respondents to increase their knowledge (Oktavianingtyas *et al.*, 2018; Anggraeni & Maryanti, 2021; Millatina *et al.*, 2022).
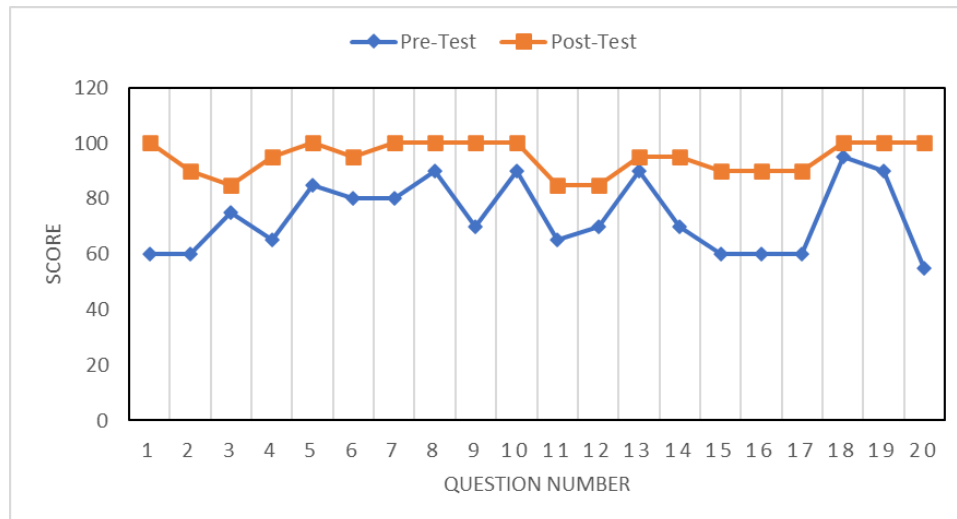
Figure 2. Graph of pre-test and post-test results.

Table 5 shows the results of the t-Test analysis: paired two samples for means. Pre-Test has an average value of 73.5 out of 20 data. The post-test had an average score of 94.75 out of 20 data (see **Table 4**). The average t-test of two paired samples shows that the t-count (-8.213) is smaller than the t-table (2.086) showing the t-count < t-table means that the student's post-test score increases not significantly (Nasution & Ichsan, 2020).

Table 5. t-Test: Paired two samples for means.

	Pre-Test	Post-Test
Mean	73.5	94.75
Variance	168.6842105	32.82894737
Observations	20	20
Pearson Correlation	0.454416232	
Hypothesized Mean Difference	0	
df	19	
t Stat	-8.213221199	
P(T<=t) one-tail	5.65727 10^{-8}	
t Critical one-tail	1.729132812	
P(T<=t) two-tail	1.13145 10^{-7}	
t Critical two-tail	2.093024054	

From each data analysis that has been carried out, it can be seen that animation media has a positive impact on increasing the understanding of the people of Cigugur Girang Village, Parongpong, Indonesia. As in line with research conducted by Aghni (2018) animated video, media can improve students' cognitive abilities and levels of understanding. On the other hand, the use of video media in conveying material on the characteristics of malnourished

children in this study obtained fewer effective results based on the N-Gain value. This is because basic knowledge about the characteristics of malnourished children is already known by the public as research respondents. Animation media has a positive but not significant impact based on the results of the t-test

4. CONCLUSION

The research that has been conducted aims to determine the effect of using animation media in educational outreach activities regarding understanding the characteristics of malnourished children in the residents of Cigugur Girang Village, Parongpong, Indonesia. There are 3 main steps carried out in this study, namely (i) taking the pre-test; (ii) educational actions through animation media; and (iii) taking the post-test. The results showed an increase between the average value of the pretest and posttest, starting with a value of 73.5 to 94.75. The n-Gain calculation is done to determine the effectiveness of the actions taken. The results show the average N-Gain value is 21% (N-Gain < 40%). This means that the provision of educational socialization through animated media regarding the characteristics of malnourished children is not effectively used in the Cigugur Girang village community, Parongpong, Indonesia. The ineffectiveness of the media is influenced by the pretest score that is not too small. Thus, it can be seen that the community's initial knowledge about the characteristics of malnourished children is sufficient. A t-test was performed in this study. Based on the results of the t-test, it is known that t-count (-8.213) < t-table (2.086). Thus, the students' post-test scores increased significantly.

5. ACKNOWLEDGMENT

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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