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VALIDITY OF SPARKOL VIDEOSCRIBE BASED ANIMATED VIDEO FOR HANDLING UNDERNUTRITION IN TODDLERS

Validitas Video Animasi Berbasis Sparkol Videoscribe untuk Penanganan Gizi Kurang pada Balita

Wiwien Ellora Ester Riang Harefa[1], Sri Mulyani[2], Tri Rejeki Andayani[3]
[1]Master Program of Nutritional Sciences, Graduate School, Universitas Sebelas Maret, Surakarta, Indonesia
[2]Midwifery Study Programme, Vocational School, Universitas Sebelas Maret, Surakarta,
[3]Department of Psychology, Faculty of Psychology, Universitas Sebelas Maret, Surakarta, Indonesia
*Email: wiwienellora@gmail.com

ABSTRAK

Gizi kurang merupakan suatu kondisi balita tidak mencapai berat badan ideal, yang bisa memengaruhi pertumbuhan tinggi badan, Berbagai upaya dapat dilakukan untuk menangani antara lain dengan memberikan edukasi gizi melalui media video animasi. Penelitian ini bertujuan untuk mengembangkan materi edukasi berupa video animasi berbasis Sparkol Videoscribe untuk membantu menangani masalah gizi kurang pada balita. Penelitian ini menggunakan metode Reasearch and Development yang mengacu pada kerangka kerja ADDIE meliputi (Analyze, Design, Development, Implementation, dan Evaluation). Validasi video animasi berbasis Sparkol videoscribe melibatkan 3 ahli yaitu ahli materi, ahli bahasa, dan ahli media. Selanjutnya dilakukan uji coba (sampel terbatas n = 10) pada ibu balita gizi kurang. Pemilihan sampel menggunakan teknik purposive sampling. Metode rancangan quasi expeimental dengan desain nonequivalent control group dan dampak penggunaan video diukur dengan tiga alat ukur, yaitu: kuesioner pengetahuan gizi (reliabilitasnya 0,71), kuesioner efikasi diri (reliabilitasnya=0,95), kuesioner pola asuh makan (reliabilitasnya=0,95). Hasil penelitian menunjukkan media video animasi berbasis Sparkol Videoscribe untuk menangani masalah balita gizi kurang dinilai layak dengan skor rata–rata dari ahli materi 84%, ahli bahasa 86,6% dan ahli media 86%, hasil uji coba video animasi dengan small group dihasilkan 85,5% dengan kategori sangat layak dan hasil uji coba kuesioner menunjukkan ada peningkatan pengetahuan gizi, efikasi diri dan pola asuh makan dengan kategori sedang. Kesimpulannya media video animasi berbasis Sparkol Videoscribe yang dikembangkan dalam penelitian dapat diterapkan untuk membantu menangani masalah gizi kurang pada balita.

***Kata kunci**: balita, gizi kurang, sparkol videoscribe, video animasi*

ABSTRACT

Undernutrition is a condition where toddlers do not reach their ideal body weight, which can affect height growth. Various efforts can be made to prevent this, including by providing nutritional education through animated video media. This research aimed to develop educational material in the form of animated videos based on Sparkol Videoscribe to help overcome the problem of undernutrition in toddlers. This research uses the Research and Development method which refers to the ADDIE framework including Analysis, Design, Development, Implementation, and Evaluation. Validation of Sparkol video scribe-based animated videos involves 3 experts, namely material experts, language experts, and media experts. Next, a trial was carried out (sample n = 10) on mothers who had underweight toddlers. Purposive nonrandom sampling was used in the sample

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selection process. Three measuring instruments were used to determine the effect of using videos with a quasi-experimental design with a non-equivalent control group: Nutrition Knowledge Questionnaire (Reliability 0.71), Self-Efficacy Questionnaire (Reliability=0.95), Parental Dietary Patterns Questionnaire (Reliability=0.95). The research results show that Sparkol Videoscribe-based animated videos are considered appropriate by the percentage of material experts (84%), language experts (86.6%), and (86%) media experts. the results of the small group animation video trial produced 90.5% in the very feasible category and the results of the questionnaire trial showed an increase in nutritional knowledge, self-efficacy, and parents' eating patterns which showed the moderate category. In conclusion, the Sparkol Videoscribe-based animated video media developed in the research can be applied to help deal with the problem of undernutrition in toddlers.

Keywords: animated video, sparkol videoscribe, toddlers, undernutrition

INTRODUCTION

Nutritional problems in Indonesia related to growth in toddlers are undernutrition which is still one of the main public health problems caused by the unfulfilled nutritional needs obtained from the food consumed [1] [2]. undernutrition is when the baby's weight is below the average or normal range according to his age with a z-score of -3 SD < -2 SD[3]. According to the World Health Organization (WHO), undernutrition is the cause of more than 2.7 million child deaths each year, which is 45% of all child deaths caused by undernutrition [4]. Election in Surakarta City based on SSGI data, there was an increase in the prevalence of undernutrition in toddlers from 2021, namely 14.5% to 15.5% in 2022. Thus, researchers stated that the rate of malnutrition in Surakarta City has increased every year. This is one of the points of nutritional problems in toddlers because malnutrition can affect various dietary problems such as stunting.

This study uses Sparkol Videoscribe-based animated video media so that animated videos are more efficient and simple in conveying messages, information, or concepts with impressive effects [5]. Animated video aids have significantly increased respondent knowledge in various age groups and disease groups [6] Health workers need to provide health education through animated videos as an appropriate intervention for different age groups. Videos are said to be effective because it has advantages when compared to lecture methods[5]. Health education through video media has the advantage of providing good visualization to facilitates the absorption of knowledge and audio-visual media also involves the sense of hearing and sight [7].

The animated video in this study is different from other studies because it uses the Sparkol Videoscribe application to make it. The Sparkol Videoscribe application is often used in the context of education to help the learning process in schools. The majority of users of the application are teachers who use it in teaching activities. The methods commonly used in the field of nutrition are the lecture method, the video delivery method, and role-playing or games. The limitations of the lecture method are that it makes participants more passive, and easily bored and the interpretation of participants with what is explained is different, while the video delivery method is more effective in attracting respondents attention and making presentations lighter and more interesting[8]. This research is rarely conducted by academics in the health world, especially in the field of nutrition, using the Sparkol Videoscribe application to convey information to the public. Sparkol Videoscribe is a creative method that allows videos to display animations that make hands appear to move, write, or draw on the screen, creating the illusion as if someone is explaining directly on the board.

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This study aimed to develop educational materials in the form of animated videos based on Sparkol Videoscribe to help overcome the problem of undernutrition in toddlers. This software can adjust to the objects displayed on the screen, indicating that it was created manually by a person, and the advantage of the Sparkol Videoscribe video media is that it can present learning materials more efficiently and effectively [9]. This study aimed to develop educational materials in the form of animated videos based on Sparkol Videoscribe to help address the problem of undernutrition in toddlers, which is developed through the ADDIE model.

METHODS

This study has obtained an ethical eligibility letter with number 561/II/HREC/2024 at Dr. Moewardi Surakarta Hospital. The sampling technique used was purposive sampling on mothers who have toddlers with undernutrition who meet the inclusion and exclusion criteria. The inclusion criteria were mothers of toddlers with undernutrition aged 1-5 years, mothers of toddlers registered at the health center, mothers of toddlers who can write and read, mothers willing to be respondents after signing an informed consent, and the exclusion criteria were mothers of toddlers who were not present at the time of the study and mothers of toddlers had other diseases or mental disabilities. The location of this study was carried out at the Sibela Health Center in Surakarta City because the prevalence of undernutrition in the Sibela Health Center was higher than in other health centers and the selection of the research location in Surakarta City because the number of undernutrition increased every year, requires education through video media for handling undernutrition in toddlers. education through video media for handling undernutrition in toddlers.

The research examines the knowledge, self-efficacy, and eating patterns of mothers of undernutrition toddlers and selects the research sample us a simple random sampling technique with a quasi-experimental design method with a nonequivalent control group design and the impact of video use was measured with three measuring instruments, namely: nutrition knowledge questionnaire (reliability = 0.71 and validity = feasible), self-efficacy questionnaire (reliability =0.95 and validity =feasible), eating parenting questionnaire (reliability=0.95 and validity =feasible)[10]. The method in this study uses a research and development approach to produce products in the form of videos. The research design was Research and development (R&D) which is used to produce an animated video product and test its effectiveness in the research[11]. The subject of this study was mothers with undernutrition toddlers. The animated video product development model uses the ADDIE design including Analyze, Design, Development, Implementation, and Evaluation[12]. This research was conducted from February to June 2024.

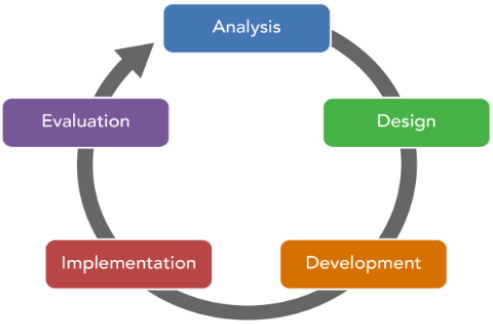

Figure 1. ADDIE Model

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First, the analysis aimed to clarify a problem, identify problems, evaluate audience characteristics, and select the delivery of information regarding the handling of undernutrition in toddlers delivered by respondents. Second, design, to design materials and prepare for making animated videos based on problem analysis. Third, the development aims to create animated video materials containing materials, objectives, animations, texts, voiceovers, and durations that will be validated by three material experts, namely material experts, media experts, and language experts. Selection of instrument testing with the CVI approach which states that the instrument is valid with 3 experts [13]. Validation aims to obtain assessments and suggestions so that the media developed is of good quality in terms of material and video appearance [14]. The validator assesses the video by giving a mark (✓) using a Likert scale, namely 1 = very bad, 2 = not good, 3 = enough, 4 = good, and 5 = very good [10]. After filling out the Likert scale form, the expert team assessed and gave comments, and suggestions on the undernutrition handling video that had been given to be revised, and after the animation video revision was continued with a product trial on a small group of mothers of toddlers at the Sibela Health Center in Surakarta City using a purposive sampling technique. The number of product trial samples in the small group was 10 selected mothers of toddlers and the selection of 10 samples was so that researchers could easily monitor, observe respondents, and obtain in-depth and detailed input on each participant during the product assessment [15]. The small group trial assessment used the same Likert scale as the assessment by three experts. The fourth stage, implementation, and the fifth, evaluation which was carried out after the trial was completed. Therefore, this study only reached the development stage.

The analysis techniques in this research are as follows:

(1) Analysis of validation results by three experts and a small group is calculated using the following formula:

$$NP = \frac{R}{SM} \times 100\%$$

Information :
NP = Percentage Score
R = Raw Score
SM = Maximum Score
(Purwanto, 2014)[16].

The results of the validation calculation conducted by the expert team then converted to the media feasibility criteria in Table 1

Tabel 1. Media Feasibility Criteria

Achievement Level	Qualification	Description
90% - 100%	Very Good (VG)	Very feasible, no need to revise
75% - 89%	Good (G)	Feasible, revised as needed
65% - 74%	Acceptable (A)	Fairly feasible, moderately revised
55% - 64%	Poor (P)	Less feasible, mostly revised
0 - 54%	Very Poor (VP)	Not feasible, totally revised

(Jannah dan Julianto, 2018)[17]

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After the feasibility assessment by experts and revisions according to the expert's recommendations in Table 1, the next step in the development stage is a trial on a small group with 10 samples who are potential users.

(2) Analysis of the results of the responses of mothers with undernutrition toddlers (questionnaire)

This data analysis is conducted by comparing the results of the pre-test and post-test, then the data is processed using the N-Gain formula as follows :

$$NGain = \frac{Post\ Test\ Score - Pre\ Test\ Score}{Maximal\ Score - Pre\ Test\ Score}$$

Furthermore, the results of these calculations are converted to the criteria as in the Table 2:

Table 2. N-Gain Criteria

Percentage	Criteria
0 ≤ n-g < 0.3	Low
0.3 ≤ n-g < 0.7	Medium
0.7 ≤ n-g < 1	High

(Pujiastuti, 2020) [18]

RESULTS

The results of this study produced an animated video for handling undernutrition based on Sparkol videoscribe. This video aims to increase understanding of undernutrition so that it is expected to be a medium for handling undernutrition in toddlers. The results of the development of this animated video are adjusted to the ADDIE model as follows:

1. Analysis

This analysis was conducted using a direct interview method with nutritionists at health centers and integrated health post cadres with the following results:

Table 3. Results of Problem Analysis

Identification	Problem	Solution
Toddler needs	1. Education that has been received by mothers of toddlers using power point media and is carried out using the lecture method. 2. According to cadres, mothers of toddlers need health media to increase the interest of mothers of toddlers in participating in health education, especially nutrition. 3. The toddler's mother has never received education regarding handling undernutrition in toddlers.	1. Create interesting and interactive animated video media 2. Developing animated video media regarding handling undernutrition based on Sparkol Videoscribe

Source: Primary Data 2024

The conclusion in Table 3 of the problem analysis was that mothers of toddlers in the health center environment who need education on handling undernutrition which can increase the interest and attraction of mothers of toddlers can be carried out interactively between mothers of toddlers or researchers.

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2. Design

Design a video based on the results of the problem analysis that suits the needs. Before designing an animated video, a storyline is created that contains images, screenshot text, and VO text to facilitate the video creation process. The animated video content is divided into four video clips, namely the first video discusses the prevalence of undernutrition, the definition of undernutrition, balanced nutrition, the contents of my plate, a table according to age that matches weight and height. The second video discusses the causes of undernutrition, signs and symptoms of undernutrition. The third video discusses efforts to deal with undernutrition and undernutrition problems related to maternal knowledge. The fourth video discusses the continuation of the third video on undernutrition problems related to self-efficacy and parenting patterns. The creation of animated videos is made with the help of a computer using the sparkol videoscribe application which can combine animated images, text, voice-overs, duration, music in customized videos that have been made. The duration of each effective animated video is no more than 6 [19]. The following is a picture of the front of video clips 1, 2, 3, and 4 handling undernutrition

Figure 2. Front Design of Four Clips for Handling Undernutrition Based on Sparkol Videoscribe

The animated video media contains the definition of undernutrition, causes of undernutrition, signs of undernutrition, symptoms of undernutrition, efforts to overcome it, and problems of undernutrition related to knowledge, self-efficacy, and parenting patterns in mothers of toddlers. This animated video is given to small groups with a sample size of 10 people and lasts approximately 6 minutes. This study was directly assisted by researchers and a team of enumerators. Data collection was carried out by filling out questionnaires on knowledge, self-efficacy, and eating patterns by providing a pre-test (before education) and post-test (after education).

3. Development

The development stage produces assessments from 3 experts, namely material experts, language experts, and media experts as well as assessments from small groups. The following is a description of the assessment analysis:

a. Material Expert Validation

Material expert validation is a lecturer who focuses on the field of nutrition and is a Masters graduate in nutrition. The results of validation by nutrition experts as expert I

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with 10 questions and the maximum score obtained is 50 points are in the Table 4 below.

Table 4. Material Expert Validation Results

Assessment Criteria	Score 5 VG	4 G	3 A	2 P	1 VP
Suitability of material with learning objectives	√				
Recency of material		√			
Concept or theory description		√			
Order of material presentation		√			
Suitability of material scope with objectives		√			
Understandability of terms and formulas		√			
Suitability of examples or illustrations with the material	√				
Summary provision		√			
Suitability of time duration with presentation material		√			
Use of spelling and grammar in presentation		√			
Total score of the material expert	42				

Source: Primary Data, 2024

The total score above is calculated as a percentage value as follows :

$$NP^1 = 42/50\times 100\ \% = 84\%$$

NP^1 = percentage score of validator I

The results of expert validation I obtained a score of 84%. This value is calculated with the media eligibility criteria by Table 3 and the video media category is feasible with the advice given, namely the addition of an age table that matches the height and weight of toddlers.

b. Linguist Validation

Linguist validation is a teacher at SMK N Gunungsitoli and a graduate of S1 in Indonesian literature. The results of the assessment by linguists as experts II with 6 questions and the maximum score that can be obtained is 30 points can be seen in Table 5.

Table 5. Linguist Validation Results

Assessment Criteria	Score 5 VG	4 G	3 A	2 P	1 VP
Educational videos using good and correct Indonesian language	√				
The educational video uses clear and easy-to-understand language that is not likely to lead to multiple interpretations	√				
Using appropriate punctuation in accordance with standard Indonesian grammar principles		√			
The language used is communicative and adjusted to the level of understanding of the learners		√			
The use of terms, symbols, equations, and foreign language is followed by an explanation to make it easier for students to understand		√			
Coherence and accuracy of language between video scenes		√			
Total score of linguists	26				

Source: Primary Data, 2024

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The total score above is calculated as a percentage value as follows :

$$NP^1 = 26/30 \times 100\ \% = 86{,}6\%$$

NP^2 = percentage score of validator II

The results of expert II validation obtained a score of 86.6%. This value is calculated with the media eligibility criteria by Table 5 and the video media category is feasible with the suggestions given, namely to pay attention to the words, and grammar in the animated video.

c. Media Expert Validation

Media validation is a graduate of media and digital marketing and works as the CO founder of Dako Indonesia and a content creator. The results of the assessment by media experts as expert III with 10 questions and the maximum score that can be obtained is 50 points can be seen in Table 5 as follows :

Table 6. Media Expert Validation Results

Assessment Criteria	Score				
	5 VG	4 G	3 A	2 P	1 VP
Typeface used	√				
Font size used		√			
Combination of font color with video background	√				
The font size in each part of the material is consistent		√			
The image design gives a positive impression so that it can attract learning interest		√			
Illustrations/images in accordance with the material		√			
Video media presentation supports mothers of toddlers to engage in learning		√			
Attractive image presentation		√			
Clarity of voice over in the video		√			
Selection of the backsound used in the video		√			
Media color combination is comfortable to read	√				
Total score of media expert	43				

Source: Primary Data, 2024

The total score above is calculated as a percentage value as follows :

$$NP^1 = \frac{43}{50} \times 100\ \% = 86\%$$

NP^2 = percentage score of validator III

The results of expert validation III obtained a score of 86%. This value is converted to the media eligibility criteria by Table 6 and the video media category is feasible with the advice given, namely to pay attention to the audio and backsound in the animated video. This video needs to be evaluated directly by the audience to get direct feedback, both in terms of information received and the comfort of the audience when watching this video.

d. Validator's Combined Assessment Score

The next research conducted a combined calculation of the percentage scores of the three validators with the following formula

$$NP = \frac{NP^1+NP^2+NP^3}{3} \times 100\ \%$$

$$NP = \frac{(84+86.6+86)}{3} \times 100\ \%$$

$$NP = 85.5\%$$

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The overall results of video media validation from 3 experts obtained an average result of 85.5% with decent categorization and revised as necessary.

Data Analysis of Validation Results From Toddler Mothers (Small Group Trial)

The results of distributing questionnaires to mothers of toddlers with undernutrition in Surakarta and selecting samples using purposive sampling techniques. Based on the results of the inclusion and exclusion criteria, 10 mothers were obtained as samples of potential users for the trial. The assessment used a Likert T scale, namely 1 = very bad, 2 = bad, 3 = enough, 4 = good, and 5 = very good. The following table 7 showed the results of the validation of the trial on the small group.

Table 7. Aspects of Respondent Assessment

No	Assessment Aspect	Answer Options					Total
		1	2	3	4	5	
1.	The material is in accordance with the topic of discussion	0	0	0	2	8	10
2.	The material supports the accomplishment of learning objectives	0	0	0	5	5	10
3.	Material in accordance with the ability to think	0	0	0	7	3	10
4.	Material in accordance with the development of science and technology	0	0	0	5	5	10
5.	The material explains concepts or theories according to the learning objectives	0	0	0	4	6	10
6.	Presentation of material is organized in sequence	0	0	0	4	6	10
7.	The extent of material coverage is in accordance with the objectives	0	0	0	4	6	10
8.	Use of terms is easy to understand	0	0	0	9	1	10
9.	Providing examples or illustrations is easy to understand	0	0	0	4	6	10
10.	The material summary covers the entire material presented	0	0	0	3	7	10
11.	The duration of the usage time is in accordance with the material presented	0	0	0	5	5	10
12.	Spelling and grammar are easy to understand	0	0	0	7	3	10
13.	The writing of the material is organized (systematic)	0	0	0	4	6	10
14.	Learning media is easy to use	0	0	0	5	5	10
15	Learning media can be run without malfunction	0	0	0	4	6	10
16.	Letters, numbers, and symbols on the media are clearly written	0	0	2	2	6	10
17.	Visual images (graphics) on the media are very good	0	0	0	5	5	10
18.	Very good audio quality	0	0	0	2	8	10
19.	Very good video quality	0	0	0	2	8	10
20.	Very good animation quality	0	0	0	3	7	10
21.	The color of the media contents is very good	0	0	0	4	6	10
22.	This media helps and enhances the learning material	0	0	0	6	4	10

Source: Primary Data, 2024

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The results of the assessment by the small group were then converted according to the video eligibility criteria, which are as follows in Table 8.

Table 8. Sparkol Videoscribe-Based Animation Video Feasibility

Number of Respondents	Total Score	Percentage (%)	Category
1	102	92.7	Very feasible, no need to revise
2	103	93.6	Very feasible, no need to revise
3	99	90.0	Very feasible, no need to revise
4	106	96.3	Very feasible, no need to revise
5	107	97.2	Very feasible, no need to revise
6	91	82.7	Feasible, revised as needed
7	90	81.8	Feasible, revised as needed
8	97	88.1	Feasible, revised as needed
9	101	91.8	Very feasible, no need to revise
10	100	90.9	Very feasible, no need to revise

Source: Primary Data, 2024

Based on Table 8. on the results of the Sparkol Videoscribe-based animated video media trial with a small group after being given an assessment, a percentage of 90.5% was obtained with the category Very feasible, no need to revise.

The Results of The Media Use Trial on Maternal Nutrition Knowledge

The results of the media user trial on knowledge with trial calculations using the N-gain formula, namely pre-test and post-test scores. The calculation results with the criteria contained in Table 9.

Table 9. The Results of The Media Use Trial on Maternal Knowledge

No	Initials	Pre-test Score	Post-test Score	Score	Criteria
1	R. 1	13	14	0.5	Medium
2	R. 2	6	10	0.67	High
3	R. 3	13	15	1	High
4	R. 4	4	9	0.5	Medium
5	R. 5	14	15	0.5	Medium
6	R. 6	13	15	1	High
7	R. 7	2	8	0. 5	Medium
8	R. 8	14	15	0.5	Medium
9	R. 9	8	12	0.6	Medium
10	R. 10	13	14	0.5	Medium

Source: Primary Data, 2024

Conclusion of the trial assessment on small groups using the average value of the N-gain formula from all subjects. The following table shows the results of the calculation of the knowledge of mothers of toddlers.

Based on data from Table 9 and Table 10, the average results of the pre-test and post-test scores increased from 10 to 12.7. With a minimum score of 2 on the pre-test and 8 on the post-test and a maximum score of 14 on the pre-test and 15 on the post-test. This shows that there is nutritional knowledge among the mothers after using Sparkol

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Videoscribe-based animated videos. Furthermore, for the results of toddler mothers' knowledge calculated using the N-Gain formula, the minimum score of 0.5 and the maximum score of 1 were obtained to get an average score of 0.62 which is included in the moderate category.

Table 10. Nutritional knowledge calculation results of toddler mothers

Data	Pre-test	Post-test	N-Gain
Minimum	2	8	0.5
Maximum	14	15	1
Average	10	12.7	0.62

Source: Primary Data, 2024

The Results of The Media Use Trial on Maternal Self-Efficacy

The results of the media user trial on self-efficacy with trial calculations using the N-gain formula, namely pre-test and post-test scores. The calculation results with the criteria contained in Table 11.

Table 11. The Results Of The Media Use Trial On Maternal Self-Efficacy

No	Initials	Pre-test Score	Post-test Score	Score	Criteria
1	R. 1	26	32	0.42	Medium
2	R. 2	31	35	0.45	Medium
3	R. 3	32	36	0.5	Medium
4	R. 4	27	37	0.76	High
5	R. 5	19	28	0.5	Medium
6	R. 6	24	31	0.42	Medium
7	R. 7	30	34	0. 4	Medium
8	R. 8	20	30	0.5	Medium
9	R. 9	29	38	1	High
10	R. 10	31	36	0.5	Medium

Source: Primary Data, 2024

Conclusion of the trial assessment on small groups using the average value of the N-gain formula from all subjects. The following is a Table 12 of the results of the calculation of the self-efficacy of mothers of toddlers.

Table 12. Calculation Results of Maternal Self-Efficacy

Data	Pre-test	Post-test	N-Gain
Minimum	19	28	0.5
Maximum	32	38	0.75
Average	26.9	33.7	0.54

Source: Primary Data, 2024

Based on the data from Table 11 and Table 12, the average results of the pre-test and post-test scores increased from 26.9 to 33.7. With a minimum score of 19 on the pre-test and 28 on the post-test and a maximum score of 32 on the pre-test and 38 on the post-test. This shows that there is an increase in self-efficacy in mothers after using Sparkol Videoscribe-based animated videos. Furthermore, for the results of maternal self-efficacy

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calculated using the N-Gain formula, the minimum score is 0.42 and the maximum score is 1 thus getting an average score of 0.54 which is included in the moderate category.

The Results of The Media Use Trial on Mother's Parenting

The results of the media user trial on parenting patterns with trial calculations using the N-gain formula, namely pre-test and post-test scores. The calculation results with the criteria contained in Table 13.

Table 13. The Results Of The Media Use Trial On Mother's Parenting

No	Initials	Pre-test Score	Post-test Score	Score	Criteria
1	R. 1	47	52	0.38	Medium
2	R. 2	58	60	1	High
3	R. 3	39	48	0.42	Medium
4	R. 4	36	44	0.33	Medium
5	R. 5	58	60	1	High
6	R. 6	39	46	0.33	Medium
7	R. 7	49	57	0. 72	High
8	R. 8	44	54	0.62	Medium
9	R. 9	43	54	0.64	Medium
10	R. 10	59	60	1	High

Source: Primary Data, 2024

The results of the media user trial on parenting patterns with trial calculations using the N-gain formula, namely pre-test and post-test scores. The calculation results with the criteria contained in Table 14.

Table 14. Calculation Results Of Mother's Parenting

Data	Pre-test	Post-test	N-Gain
Minimum	36	44	0.33
Maximum	59	60	1
Average	47.2	53.5	0.64

Source: Primary Data, 2024

Based on data from Table 13 and Table 14, the average results of the pre-test and post-test scores increased from 47.2 to 53.5. With a minimum score of 36 on the pre-test and 44 on the post-test and a maximum score of 59 on the pre-test and 60 on the post-test. This shows that there is an increase in parenting eating patterns in mothers after using Sparkol Videoscribe-based animated videos. Furthermore, for the results of parenting patterns of mothers of toddlers calculated using the N-Gain formula, the minimum score is 0.33 and the maximum score is 1 thus getting an average score of 0.64 which is included in the moderate category.

DISCUSSION

Mothers of toddlers have a very important role in toddlers. Toddlers who experience undernutrition are caused by the mother's lack of knowledge, self-efficacy, and poor parenting patterns in toddlers. This problem can have a direct impact on the nutritional status of toddlers. Therefore, a problem analysis is needed by providing health education

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by providing animated videos to mothers of toddlers. Based on the results of the study [6]. It was stated that animated videos are very effective in health education because they are interesting and artistic, easy to understand, and effective and informative and Sparkol Videoscribe-based animated video media for handling undernutrition is a visual media that can improve the knowledge of mothers of toddlers because it is presented with an attractive and not boring appearance [20].

Based on the validation results by three material experts, language experts, media experts, and trials on small groups, it was found that the animated video for handling undernutrition based on Sparkol Videoscribe developed in this study was feasible and could be used as an educational medium to overcome undernutrition in toddlers. The assessment criteria are based on Tegeh's theory, et al. for the development of animated videos as educational media. After the animated video media was declared feasible, the next step was a trial on a small group of 10 samples to determine the impact of education on handling undernutrition using animated videos. This trial was generated from the results of the pre-test and post-test questionnaires on knowledge, self-efficacy, and eating patterns. The results of the trial were then converted to an N-gain value to determine the increase in sample abilities before and after being given animated video media [21].

The results of the animated video trial showed an increase in knowledge from a score of 10 to 12.7, self-efficacy from a score of 26.9 to 33.7, and eating patterns from a score of 47.2 to 53.5. According to researcher Nelson, (2017) who stated that there was a difference in the N-gain value between the experimental and control groups, which means that the material delivered through animated video media is more effective. The increase in score is because the animated video displays moving visuals, as well as audio which requires sensitivity to all five senses, and animated videos can help respondents see an overview of the information received [22],[23],[24].

CONCLUSION

The animation video for handling undernutrition that has been developed in this study obtained validation results by three material experts 86.6%, language experts 86.6%, and media experts 86% with a feasible category, and the results of the validation test by a small group with a sample of 10 people were 90.5% with a moderate category and the results of the impact test based on a knowledge score of 0.65, self-efficacy 0.54, and parenting patterns 1 using N-gain with a moderate category. Based on the results of the research that has been conducted, it can be concluded that the animation video media for handling undernutrition based on Sparkol Videoscribe is feasible to use as an educational media. However, this study has limitations, such as the research sample does not cover the entire population of potential users, which indicates the need for further research to deepen the analysis and improve the quality of the application in the future.

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