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Animation-Based Interactive Media Education on Reducing Personal Hygiene Performance (PHP) Scores in Adolescents

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ABSTRACT

Dental oral health according to WHO (2012) is a condition of the oral cavity including teeth that are free from throat cancer, tooth decay, infections and wounds in the mouth, tooth loss, and other diseases that can limit individuals from chewing, biting, speaking, smiling and the psychosocial well-being of the individual. Increasing the degree of dental and oral health does not escape the provision of interesting dental and oral health counseling, one of which is animation-based interactive media. **The purpose**: to determine the effectiveness of animation-based interactive media on increasing knowledge, brushing teeth skills, and decreasing personal hygiene performance (PHP) scores in adolescents. **Research Methods**: This study uses a survey method with a pre-post design approach. The survey will be conducted on 32 adolescent respondents with the types of questionnaires, namely questionnaires, check list sheets and PHP examination sheets. **Results**: There was an increase in previous knowledge on a score of 50% for moderate criteria, 12.5% bad, 37.% good, experiencing an increase in the post test to 100% for good criteria. An increase also occurred in the act of brushing teeth with pre test score 93,75% of bad criteria, 6,25% of moderate criteria, that score change became 100% with good criteria. Scores of personal hygiene performance (PHP) also change with pre test scores 78,125% of moderate and 21,875% with bad criteria. That both scores change became 37,5% with very good crietria and 62,5% with good criteria. **Conclusion**: there is an effect of animation-based interactive media on increasing knowledge, brushing teeth skills and decreasing personal hygiene performance (PHP) scores in adolescents at SMAN 72 Jakarta.

INTRODUCTION

Dental and oral health is a condition of the oral cavity including teeth that are free from throat cancer, tooth decay, infections and sores in the mouth, tooth loss, and other diseases that can restrict the individual from chewing, biting, talking, smiling and psychosocial well-being of the individual (Ariastuty, 2018). Adolescence is a period of transition from children to adults, which includes all the development experienced in preparation for entering adulthood. Adolescence also includes biological, psychological, and social changes (Sofia & Adiyanti, 2013). According to Riskesdas 2018, the majority of Indonesians (94.7%) already have good brushing behavior. However, of this percentage only 2.8% brushed their teeth at the right time. If sorted according to age, the best percentage is at the age of 15-24 years, which is 98.5% with the percentage of the correct brushing time of 3.3% (Sakti, 2019). In DKI Jakarta province, 97.5% of the population has a frequency of brushing their teeth every day and 2.7% who brush their teeth at the right time. Dental hygiene can be measured by personal hygiene performance (PHP) index measurements. However, not many individuals know about the PHP index. This is due to the lack of knowledge and education provided by people who are experts in related fields. In addition, it is also influenced by brushing behavior (Puspitasari et al., 2018).

Brushing your teeth is one of the habits in maintaining healthy teeth and mouth. According to Riskesdas 2018, the majority of Indonesians (94.7%) already have good brushing behavior. However, of this percentage only 2.8% brushed their teeth at the right time. If sorted according to age, the best percentage is at the age of 15-24 years, which is 98.5% with the percentage of the correct brushing time of 3.3% (Sakti, 2019). Dental health education is a planned and directed effort in creating an atmosphere with the aim of a person or community group wanting to change old behaviors that are less beneficial to their

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dental health (Budiharto, 2010). The provision of dental health education can be done with the help of media in it, one of which is animation-based interactive media.

In research (Putra et al, 2018) about interactive multimedia applications to care for early childhood teeth, it proves that the application can run well so that it can provide information to children about how to take care of teeth. The use of autoplay-based interactive media can also increase material understanding of students (Rizqi, 2015).

METHOD

The type of research used is quantitative with survey methods as well as pre-test and post-test design approaches. Univariate analysis is used to measure each of the free and bound variables, while bivariate analysis is to determine the relationship between the two variables (Putri & Arifah, 2016). Sampling in this study used the Lemeshow formula which then obtained the following sample:

$$n = \frac{(1{,}96)^2 \; X \; 0{,}38 \; X \; (1-0{,}38) \; X \; 50}{(0{,}1)^2 \; X \; 49 + (1{,}96)^2 \; X \; 0{,}38 \; X \; (1-0{,}38)}$$

$$n = \frac{45{,}25}{1{,}395}$$

$$n = 32{,}43$$

$$n = 32$$

Figure 1. Research Samples

The process of making animation-based interactive media**, s**criptwriting according to Fathurahman, manuscripts are all written relics written by hand by past humans, whether on lontar, rattan, bark, and paper. Meanwhile, according to Poewadarminta and Damayanti, the manuscript is a handwritten essay either original or copied (Syukron, 2020). Making a Storyboard At this stage, the author creates a storyline with the theme of dental and oral health. After that, the storyline will be sorted starting from the beginning to the end so that the story continues (Fauzi, 2015).

The design process begins with the formation of each animated character that will be combined for each clip. The animation creation process is carried out through two stages, namely through Photoshop and then continued with the after effect application.

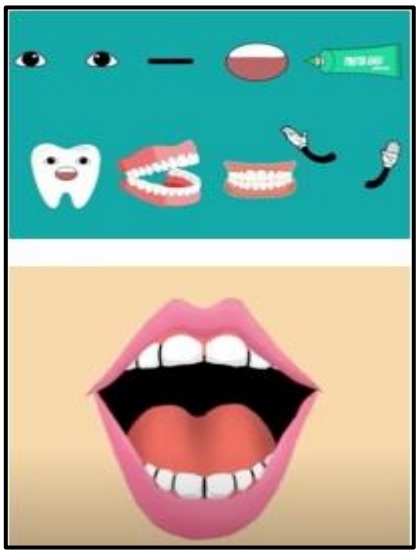

Figure 2. Animation Design Process

The editing stage is the stage of merging pre-made animations. Editing is done according to the existing storyboard in order to keep the animated video at the beginning of the story.

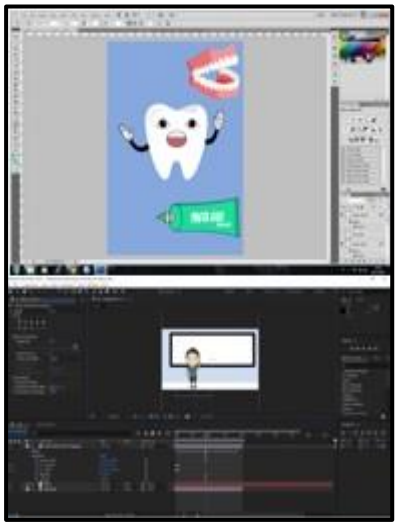

Figure 3. Animation Editing Process

How to provide interactive media in education (Pemerintah Kota Jambi, 2021), simulation (Husni, 2018), demonstration (Husni, 2018) and evaluation (Elsa, 2019).

RESULT

Results are the main part of scientific articles, containing: final results without data analysis

Table 1. Frequency Distribution of Pre test Knowledge Level

Value	n	Percent (%)	Criterion
9-10	0	0	Good
7-8	23	72	Moderate
5-6	10	28	Bad
Total	32	100	

Based on table 1, it shows the largest percentage shown on medium criteria (7-8) with 23 respondents or 71.875% of the total sample studied. Furthermore, for bad criteria as many as 9 respondents or 28.125%. Table 2. Distribution of post test frequency knowledge level

Table 2. Frequency Distribution of Post test Knowledge Level

Value	n	Percent (%)	Criterion
9-10	32	100	Good
7-8	0	0	Moderate
5-6	0	0	Bad
Total	32	100	

Based on table 2, it shows that all 32 respondents have experienced an increase in knowledge after being given counseling using animation-based interactive media. It is proven that the good criteria reach a percentage of 100%.

Table 3. Frequency Distribution of Pre test Brushing Teeth

Value	n	Percent (%)	Criterion
28-40	0	0	Good
14-27	0	0	Moderate
0-13	32	100	Bad
Total	32	100	

Based on table 3, it shows the procedure of brushing teeth before counseling for bad criteria of 100% of 32 respondents.

Table 4. Frequency Distribution of Post test Brushing Teeth

Value	n	Percent (%)	Criterion
28-40	32	100	Good
14-27	0	0	Moderate
0-13	0	0	Bad
Total	32	100	

Based on table 4, it shows that the act of brushing teeth after counseling has changed in terms of increasing the value, which is 100% for good criteria or consists of 32 respondents.

Table 5. Frequency Distribution of Pre test Personal Hygiene Performance

Value	n	Percent (%)	Criterion
0	0	0	Very Good
0,1-1,7	0	0	Good
1,8-3,4	25	78	Moderate
3,5-5	7	22	Bad
Total	32	100	

Based on the frequency table 5 for personal hygiene performance (PHP) scores before counseling was given was 78.125% or as many as 25 respondents for medium criteria and for bad criteria there were 7 respondents with a percentage level of 21.875%.

Table 6. Frequency Distribution of Post test Personal Hygiene Performance

Value	n	Percent (%)	Criterion
0	12	37,5	Very Good
0,1-1,7	20	62,5	Good
1,8-3,4	0	0	Moderate
3,5-5	0	0	Bad
Total	32	100	

Based on table 6, there is a decrease in the personal hygiene performance (PHP) score shown in the frequency table above. The data shows that the most common criteria obtained are good criteria with a percentage of 62.5% and consisting of 20 respondents. The criteria were very good for 12 respondents or 37.5%.

Table 7. Test the Normality of Knowledge Levels, Brushing Teeth and PHP

Variable	df	p-value
Pre_Knowledge	32	0.000
Post_Knowledge	32	0.000
Pre_Brushing Teeth	32	0.016
Post_Brushing Teeth	32	0.000
Pre_PHP	32	0.131
Post_PHP	32	0.000

**Shapiro-Wilk*

Based on table 7 using the Shapiro-Wilk test, it shows that almost all variables have a p-value of <0.05 which indicates that the data from the variable is abnormal. The next step is to test abnormal and paired data using the Wilcoxon test.

Table 8. Test of the Effectiveness of Animation-based Interactivve Media on Knowledge Levels

Variable	Mean±SD	p-value
Pre_Knowledge	37,5000±12,19796	0.000
Post_Knowledge	96,4063±6,15451	

**Wilcoxon*

Based on table 8, it shows the mean or average value for the post test variable of 68.6875 while the post test is 98.1250. The standard deviation for the pre-test is 10.31265 and the post test is 3.96558. The P-Value value is 0.000 (p-value <0.05), which means that there is an influence of providing animation-based interactive media on increasing knowledge in adolescents at SMAN 72 Jakarta.

Table 9. Test of the Effectiveness of Animation-based Interactivve Media on Brushing Teeth

Variable	Mean±SD	p-value
Pre_Brushing Teeth	68,6875±10,31265	0.000
Post_Brushing Teeth	98,1250±3,96558	

**Wilcoxon*

Based on the results of the analysis in table 9, it shows the average or mean value for the pre-test of brushing teeth of 37.5000 and the post test of 96.4063. The standard deviation of the pre-test is 12.19796 and for the post test it is 6.15451. The p-value of 0.000 (p-value < 0.05) means that there is an influence of providing animation-based interactive videos on improving the act of brushing teeth in adolescents at SMAN 72 Jakarta.

Table 10. Test of the Effectiveness of Animation-based Interactivve Media on PHP

Variable	Mean±SD	p-value
Pre_PHP	2,96259±0,621188	0.000
Post_PHP	0,21581±0,243495	

**Wilcoxon*

Based on the results of the analysis of table 10, it shows that there is an average value or mean personal hygiene performance (PHP) for 32 respondents in the pre-test of 2.96259 and for the post test of 0.21581. The p-value value of 0.000 (p-value <0.05) which means that there is an influence of animation-based interactive media on the decrease in personal hygiene performance (PHP) scores in adolescents at SMAN 72 Jakarta.

DISCUSSION

Based on table 8, it shows that the mean post test value of 68.6875 is smaller than the post test value of 98.1250. This happens because students at SMAN 72 Jakarta lack dental and oral health education, which has an impact on their level of knowledge. The results of the statitstic test obtained a P-Value of 0.000

(p-value <0.05), which means that there is an influence of providing animation-based interactive media on increasing knowledge in adolescents at SMAN 72 Jakarta. This interactive media can function as a learning medium which is used in learning and can help teachers or teachers in providing a material to be delivered.

Based on table 9, it shows that the mean pre-test value of 37.5000 is smaller than the post test, which is 96.4063. This happened due to the lack of knowledge of teenagers at SMAN 72 Jakarta which had an impact on the act of brushing their teeth to be less. The results of the statistical test obtained a p-value of 0.000 (p-value<0.05) meaning that there was an influence of providing animation-based interactive videos on increasing brushing actions in adolescents at SMAN 72 Jakarta.

There was a decrease in personal hygiene performance (PHP) scores with a pre-test score of 78.125% (25 respondents) with moderate criteria and 21.875% (7 respondents) who were on bad criteria. The score decreased in the post test to 62.5% (20 respondents) for good criteria and 37.5% (12 respondents) with excellent criteria.

CONCLUSION

The level of knowledge of adolescents at SMAN 72 Jakarta has increased after counseling using animation-based interactive media with a pre-test score of 50% (16 respondents) medium criteria, 12.5% (4 respondents) for bad criteria, and good criteria 37.5% (12 respondents). The post test score is 100% for good criteria.

The level of knowledge of adolescents at SMAN 72 Jakarta has increased after counseling using animation-based interactive media with a pre-test score of 50% (16 respondents) medium criteria, 12.5% (4 respondents) for bad criteria, and good criteria 37.5% (12 respondents). The post test score is 100% for good criteria.

Contains conclusions and suggestions. Conclusions include answers to research questions. Suggestions refer to the results of the study and take the form of practical actions, mention to whom and for what advice is intended. Written in essay form, not numerical form.

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