

# Smart Toothbrush as an Educational Medium to Improve the Toothbrushing Skills of Blind Children

Dwi Rezky Aulyah\*<sup>1</sup>, Masrifan Djamil<sup>2</sup>, Bedjo Santoso<sup>3</sup>, Lanny Sunarjo<sup>4</sup>, Waljuni Astu Rahman<sup>5</sup>  
Dental Therapist and Hygienist Department,  
Poltekkes Kemenkes Semarang, Tirto Agung Rd,  
Semarang Jawa Tengah 50258,  
Indonesia

**Abstract:-** Blindness is a physical disability that affects the eye organs, where a person cannot see the surroundings. The role or behavior of parents is very important to improve children's dental and oral hygiene. Behavior change can be done by providing training, education, simulations and demonstrations. Smart Toothbrush provides education to blind parents and children to improve their teeth brushing skills. **Research Objectives:** Producing a Smart Toothbrush as an educational medium in improving the teeth brushing skills of blind children guided by their parents.. **Research Methods:** This type of research is Mixed Method and Research and Development (R&D) research design. There are five research stages, namely: information gathering, model design, expert validation and revision, model testing using the Quasy Experiment Pre and Post Test with Control Group Design method. The sample was divided into 2 groups: 15 students in the intervention group and 15 students in the control group. Sampling using the Lemeshow formula. The data were tested using the Interclass Correlation Coefficient, Paired t-test, and Independent t-test. **Result of Research:** Smart Toothbrush is appropriate as an educational medium about brushing teeth ( $p=0.011$ ). The implementation of this media was effective in increasing knowledge ( $p=0.015$ ), attitude ( $p=0.009$ ), and brushing skills of parents of blind students ( $p=0.021$ ) compared to the control group. **Conclusion:** Smart Toothbrush is feasible and its application is effective as an educational medium in improving the teeth brushing skills of blind children.

**Keywords:** Blind Children, Smart Toothbrush, Teeth Brushing Skills.

## I. INTRODUCTION

Oral health is a condition in the oral cavity that is free from pain, congenital abnormalities, tooth decay, and other periodontal diseases. The presence of health problems in the oral cavity and is serious will cause a decrease in the quality of life of individuals. (1) According to data from Riskesdas in 2018, the proportion of dental and oral health problems in Indonesia is 57.6% and only 10.2% receive services from dental medical personnel, while the proportion of brushing behavior in The population over 3 years of age was 94.7%

and only 2.8% practiced brushing behavior correctly. (2) Parental behavior plays a huge role in guiding the child's dental and oral health. The handling of children's teeth is influenced by parents' awareness and habits in caring for dental health and the habits that parents need to have, among others, by regulating diet, checking teeth regularly and cleaning teeth. So that the role or behavior of parents is very important to improve the child's dental and oral hygiene and is one of the efforts in maintaining children's dental and oral health. (3)

Blind people are one of the physical disabilities that affect the eye organs, where a person cannot see his surroundings. Based on data from the results of SUSENAS (National Socioeconomic Survey) in 2012, the Indonesian population with disabilities amounted to 2.45% of the total population in Indonesia with the largest percentage of 29.63% being disabled regarding difficulty seeing or blind (Ministry of Health RI, 2014). Data from the Population Survey (SUPAS) in 2015, the number of blind people in Indonesia is 6.36% of the total population of Indonesia. (4) Poor dental and oral hygiene in blind people is caused by 3 things, namely, karyogenic foods, the shape of tooth position and lack of knowledge about dental and oral health in blind people due to lack of education on how to maintain dental and oral hygiene. Poor dental and oral hygiene also leads to plaque and calculus. Plaque and bacterial accumulation contribute to the deterioration of oral health and cause periodontal disease. One form of health that must be maintained is dental and oral health by brushing teeth. Brushing your teeth properly and correctly makes your teeth healthy. (5),(6)

A study has been conducted by Al Sadhan (2017) he examined as many as 162 blind students having an average plaque index value of 1.72, this result is included in the moderate category. The results of Muthia's research (2015) stated that there are several Special Schools (SLB) in Semarang, including SLB N Semarang, SLB A Dria Adi Semarang, and YKTM Budi Asih Semarang which have blind students. The results of previous studies showed that the average plaque index score of blind students in the three SLBs was 3.02 which could be categorized as moderate. (7) If a person has lost one of the most precious senses, namely sight, then one will have difficulty in imitating a movement or receiving information done through the inner sense of

sight daily life, activity difficulties such as self-care activities such as brushing teeth.<sup>(8)</sup>

In this modern era, technological developments are growing very rapidly in various aspects of life, especially in the field of health. Toothbrushes have become an integral part of daily routines in many cultures around the world from ancient times to the 21st century. Over the years, several types of toothbrushes have been invented. Some of them are useful for people with physical and mental disabilities.<sup>(9),(10)</sup>

Brushing teeth is one of the preventive efforts against the risk of developing dental and oral diseases. Brushing your teeth as an effective way to clean dental plaque. One factor that affects the effectiveness of cleaning dental plaque is the accuracy of brushing teeth on each tooth surface.<sup>(11)</sup>

## II. METHODS

This type of research is a Mixed Method, which is a combination of qualitative and quantitative approaches in producing models. The study collected data by descriptive methods while in testing the effectiveness of the model with analytical methods. The design of this research is Research and Development (R&D). The research and development procedure includes 5 steps, namely:

- 1) information gathering, 2) model design, 3) expert validation and revision, 4) model testing, and 5) model results.

The method used in model testing is quasy experiment (pre and post – test with control group design). This study provides an initial test (pretest) before being given treatment, after being given treatment then give a final test (posttest). The population used in this study was blind children in SLB Semarang City for the intervention group and in SLB A Dria Adi for the control group. The research sample used in this study was blind students in Special Schools who fit the researchers' inclusion criteria.

The determination of the number of samples in this study was determined based on the Lemeshow formula. Based on research by Kristianto J., et al: For meaning 95% ( $\alpha = 0.05$ ): 1.96 and power 95% ( $\beta = 0.10$ ): 1.96

$$\begin{aligned}
 n_{\square} = n_2 &= \frac{2(1,96 + 1,96)^2 0,622^2}{(2,106 - 1,162)^2} \\
 &= \frac{2 \times 15,37 \times 0,39}{0,89} \\
 &= 13,47
 \end{aligned}$$

Rounded up to 13 blind children, for each group. To anticipate the event where respondents will drop out, the number of samples is added by 10% so that the number of samples becomes 15 blind children. So that the minimum number of samples in each group is 15 blind children. Instrument dalam penelitian ini terdiri dari angket media expert due diligence assessment, knowledge questionnaire, attitude, toothbrushing skills observation sheet for Parents. For blind children, toothbrushing skills obervation sheet and dental and oral hygiene examination card (Debris Index).

Information collection is processed descriptively qualitatively in the form of tables, namely concluding answers from the results of interviews that have been carried out. This information collection data is used to design the study. Expert validation tests and revisions are carried out with the Intraclass Correlation Coefficient statistical test to determine the feasibility of Smart Toothbrush. In this study because the sample was <50 people, using the shapiro wilk normality test it was found that the variables were normally distributed. Furthermore, test the effectiveness of paired data using paired t-test and test the effectiveness of unpaired data using independent test.

## III. RESULT

### ➤ Information Collection

Information collection is carried out through the interview method. It can be concluded that, blind children are children with special needs with obstacles to the sense of sight. Blind children are divided into two, namely total blindness and low vision. The characteristic of blind children is that they need assistance, especially when they are in a new environment. And blind children are intellectually better than other children with disabilities. Efforts to provide dental and oral health maintenance education for blind children by conducting self-development activities. Such as by providing social communication mobility orientation subjects. Self-building activities such as brushing teeth. Design and Build

### ➤ Design And Build

Design a model using the ADDIE framework (Analysis, Design, Development, Implementation, and Evaluations)

### ➤ Expert Validation

There are 3 expert validations, namely: Media experts, health promotion experts, extraordinary education experts. This validation was carried out as a basis to test the feasibility of Smart Toothbrush as a medium to improve the toothbrushing skills of blind children with a questionnaire containing 10 questions from each expert validator.

Table 1 Expert Validation Statistical Test Results

Expert Validity			
	N	F (%)	P -value
Relevant	10	100	0,011
Not Relavant	0	0	

\*Intraclass Correlation Coefficient

The results of expert validity show that the p-value = 0.011 (p<0.05) which means that the Smart Toothbrush model is relevant and feasible as a medium to improve the toothbrushing skills of blind children.

➤ *Model Test*

Test the Smart Toothbrush model as an educational medium to improve tooth brushing skills in blind children using quasi-experimental methods with pretest and posttest research design with control group design.

Table 2 Test of the Effectiveness of Paired Data on Variables of Knowledge, Attitudes and Skills of Parents of Blind Students.

Variable		Test Paired Data *			
		N	Mean±SD	Delta	P-Value
<b>Knowledge</b>					
Intervention	Pre	15	7,47±1,506	1,067	0,000
	Post	15	8,53±1,246		
Control	Pre	15	6,40±1,682	0,867	0,060
	Post	15	7,27±1,438		
<b>Attitude</b>					
Intervention	Pre	15	33,87±4,794	5,267	0,000
	Post	15	39,13±2,446		
Control	Pre	15	33,07±4,832	2,600	0,200
	Post	15	35,67±4,152		
<b>Skills</b>					
Intervention	Pre	15	14,53±2,446	3,467	0,000
	Post	15	18,00±1,690		
Control	Pre	15	13,87±2,560	2,200	0,350
	Post	15	16,07±2,549		

*\*Paired Sample Test*

The effectiveness test of parental knowledge data showed that the Smart Toothbrush model in the intervention group effectively increased parental knowledge, evidenced by a p-value result of 0.000 (p<0,05). The provision of counseling and demonstration of brushing teeth with a manual toothbrush (ordinary) in the control group was not effective in increasing parental knowledge, as evidenced by the results of a p-value of 0.060 (p>0.05).

Tests of the effectiveness of parental attitude data showed that the Smart Toothbrush model in the intervention group effectively improved parental attitudes, evidenced by the results of a p-value of 0.000 (p<0.05). The provision of counseling and demonstration of brushing teeth with a manual toothbrush (usual) in the control group was not effective in improving parental attitudes, evidenced by the results of a p-value of 0.200 (p>0.05).

The effectiveness test of parental skill data showed that the Smart Toothbrush model in the intervention group effectively improved the parents' brushing skills, evidenced by a p-value of 0.000 (p<0.05). The provision of counseling and demonstration of brushing teeth with a manual toothbrush (ordinary) in the control group was not effective in improving the brushing skills of the elderly, as evidenced by the results of a p-value of 0.350 (p>0.05).

Table 3 Test of the Effectiveness of Unpaired Data on Variables of Knowledge, Attitudes and Skills of Parents of Blind Students

Variable		Test Unpaired Data *			
		N	Mean±SD	Delta	P-Value
<b>Knowledge</b>					
Intervention Control		15	8,53±1,246	1,267	0,015
		15	7,27±1,438		
<b>Attitude</b>					
Intervention Control		15	39,13±2,446	3,467	0,009
		15	35,67±4,152		
<b>Skills</b>					
Intervention Control		15	18,00±1,690	1,933	0,021
		15	16,07±2,549		

*\*Independent Sample Test*

The effectiveness test of parental knowledge data showed that the Smart Toothbrush model was more effective in increasing parental knowledge than ordinary toothbrushes (manual) and toothbrushing demonstrations, evidenced by the results of a p-value of 0.015 (p<0.05).

Tests of the effectiveness of parental attitude data showed that the Smart Toothbrush model was more effective in improving parents' attitudes than ordinary toothbrushes (manual) and toothbrushing demonstrations, evidenced by the results of a p-value of 0.009 (p<0.05).

The effectiveness test of parents' toothbrushing skills data showed that the Smart Toothbrush model was more effective in improving parents' brushing skills than ordinary toothbrushes (manual) and toothbrushing demonstrations, evidenced by the results of a p-value of 0.021 (p<0.05).

Table 4 Test the Effectiveness of Paired Data on Skill and Debris Index Variables of Blind Children

Variable		N	Test Paired Data *		
			Mean±SD	Delta	P-Value
<b>Skills</b>					
Intervention	Pre	15	7,93±1,831	4,467	0,000
	Post	15	12,40±3,158		
Control	Pre	15	7,20±1,935	3,067	0,173
	Post	15	10,27±2,282		
<b>Debris Index</b>					
Intervention	Pre	15	1,65±0,822	0,733	0,000
	Post	15	0,91±0,542		
Control	Pre	15	2,00±0,655	0,467	0,098
	Post	15	1,53±0,743		

\*Paired Sample Test

The effectiveness test of data on toothbrushing skills of blind children showed that the Smart Toothbrush model in the intervention group effectively improved the rubbing skills of blind children, as evidenced by the results of a p-value of 0.000 (p<0.05). The use of manual toothbrushes (usual) and demonstration of brushing teeth in the control group were not effective in improving the brushing skills of blind children, as evidenced by the results of a p-value of 0.173 (p>0.05). The effectiveness test of the debris index data of blind children showed that the Smart Toothbrush model in the intervention group was effective in reducing the debris index of blind children, as evidenced by the results of a p-value of 0.000 (p<0.05). The use of manual toothbrushes (usual) and toothbrush demonstrations in the control group effectively reduced the debris index of blind children, as evidenced by the results of a p-value of 0.098 (p>0.05).

Table 5 Test the Effectiveness of Unpaired Data on the Skills and Debris Index of Blind Children

Variable		N	Test Unpaired Data *		
			Mean±SD	Delta	P-Value
<b>Skills</b>					
Intervention Control		15	12,40±3,158	2,133	0,043
		15	10,27±2,282		
<b>Debris Index</b>					
Intervention Control		15	0,93±0,704	0,600	0,031
		15	1,53±0,743		

\*Independent Sample Test

The effectiveness test of data on brushing skills of blind children showed that the Smart Toothbrush model was more effective in improving the brushing skills of blind children compared to manual toothbrushes (ordinary) and toothbrushing demonstrations, evidenced by the results of a p-value of 0.043 (p<0.05).

The effectiveness test of the debris index of blind children showed that the Smart Toothbrush model was more effective in reducing the debris index of blind children compared to manual toothbrushes (ordinary) and demonstration of brushing teeth, evidenced by the results of p-value 0.031 (p<0.05).

➤ *Product Results*

The results of the media made in this study are Smart Toothbrush media which contains good and correct brushing

procedures with audio as an educational medium in improving the toothbrushing skills of blind children.



Fig 1 Electric Toothbrush Handle

Electric toothbrush handle. The handle is turned to the right (towards ON) so that the toothbrush vibrates. And to turn off the vibration, on the contrary the handle is turned towards the left (towards OFF).



Fig 2 Toothbrush Bristles Electric Toothbrush Head Refill

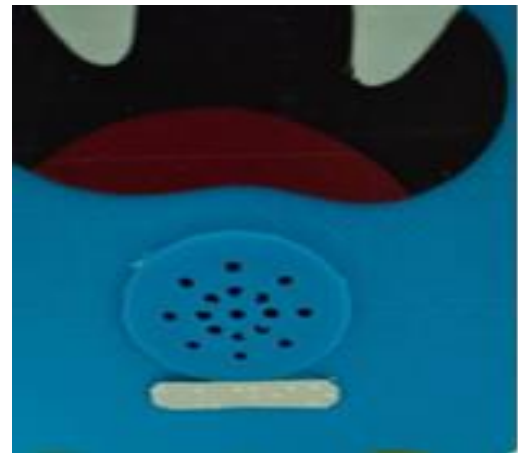


Fig 5 Speakers

This is the speaker output section on the Smart Toothbrush.



Fig 3 Toothbrush Holder and On/Off Button

The red button part is the ON/OFF button to activate Smart Toothbrush. Just press once to turn Smart Toothbrush on or off. The large roundabout section is where the toothbrush is stored. The second part of the small bud is the place to refill the electric toothbrush head.



Fig 6 Charger bay

This is the part for charging Smart Toothbrush. Can use Charger type C



Fig 4 Touchscreen Audio

The black dot part is the touch part of the Toothbrush. By pressing on the black dot until a sound is heard.



Fig 7 Guidebook

This is a guidebook on how to use SmartToothbrush



#### IV. DISCUSSION

##### ➤ *Model Media Smart Toothbrush*

The Smart Toothbrush media model in addition to using media adapted to the characteristics of blind children, is also supported by implementation in the form of parent training, education and simulation, demonstration and evaluation. The design of the Smart Toothbrush media model is the result of the translation of analysis in the form of a package and creates a model, improves an existing model, used to increase understanding in the presentation of a material to be delivered to the target. The design is adjusted to the characteristics of blind children. Based on the results of information collection, it is revealed that blind children have obstacles to the sense of vision so that this limitation is one of the obstacles to obtaining knowledge about dental and oral hygiene such as brushing teeth skills so that blind children need the help of others, both teachers at school and parents at home.

The participation of parents is very necessary in guiding, understanding, reminding, and providing facilities to children in order to maintain their dental hygiene. The role of parents is very important, because parents are the closest people to children, especially in maintaining healthy teeth and mouth. Parents must know how to care for their children's teeth and must also guide their children how to brush their teeth properly and correctly. Parents should have sufficient knowledge about oral and dental health.

Interventions on dental and oral health education can be provided by parents to blind children, but in the process parents need to be given training first. The provision of training to parents aims to improve the attitude, attitude, and actions of maintaining dental health towards the implementation of the model, so that parents are expected to be able to transfer knowledge of skills to children.

The validation process is carried out to produce a useful and quality extension media model. Feasibility tests were conducted to media experts, health promotion experts, and PLB (Extraordinary Learning) experts. This aims to find out the feasibility of learning media and find out the weaknesses of the media.

##### ➤ *Model Trial*

The trial in this study was conducted on 15 students of blind children intervention group and 15 students blind students control group. The intervention group was treated using a Smart Toothbrush and the control group was treated using a manual toothbrush (ordinary).

##### • *Test Media on Parents*

Smart Toothbrush media model training is conducted to improve knowledge, attitudes and skills of maintaining dental and oral hygiene. Training on dental and oral health maintenance is a planned activity through a teaching-learning process that aims to provide knowledge, instill attitudes and train dental and oral hygiene maintenance skills.<sup>(12)</sup>

The increase in knowledge in parents of blind students is due to the fact that during training, parents follow activities well, so that parents' understanding of oral and dental health has increased. Knowledge is the result of knowing, occurring after people sense a particular object.<sup>(13)</sup>

The increase in attitude in parents occurs because during the process of implementing the model, parents are directly involved and accompany their children to brush their teeth after meals / snacks during breaks, this is done continuously for 10 days, so that parents' attitudes towards maintaining dental and oral health increase because of the response that has been given according to the information. Attitude improvement occurs when a person responds after being given information and then assumes that he will act according to the information provided. One of the determinants of the formation of a person's attitude is social communication in the form of information received by the individual. Information provided to respondents in the form of providing health education using appropriate educational media will increase parents' knowledge and attitudes and understanding of oral and dental health maintenance.<sup>(14)</sup>

The improvement of parents' toothbrushing skills occurs when parent training is given material on how to brush their teeth properly and correctly through simulations and demonstrations of brushing their teeth, this is also proven because parents can properly carry out the transfer of knowledge process to their children by brushing their teeth for 10 days at school.

The implementation of the Smart Toohbrush model was declared successful because parents of blind students had attended training and had been given knowledge about maintaining oral and dental health, simulating and brushing their teeth correctly according to the material provided.

The role of parents has an influence in maintaining the health of children's teeth and mouth. Through changes in parents' attitudes and behaviors towards the importance of maintaining healthy teeth and mouth, it plays a major role in improving the degree of dental and oral hygiene of children. The more active the participation of parents in educating their children, the better the change in positive behavior of children. Parents not only participate in taking action in forming healthy living behaviors but will also improve dental health status which is influenced by health behavior factors that Among others, it consists of factors of knowledge, attitudes, and actions (practices). Therefore, the role of parents is very important in guiding, providing knowledge, controlling and providing the best model so that children are able to grow and develop well, parental responsibility and loving attention equipped with facilities for children so that children can maintain good dental and oral health. Especially children with special needs who require more attention than normal children in general.<sup>(15)</sup>

##### • *Test the Model on Blind Children*

The skill of brushing the teeth of blind children has increased because Smart Toothbrush media has many advantages there are stimulus, provoke thoughts, attraction,

creativity so as to make them understand the skill of brushing teeth because the media utilizes one of the advantages of blind children in terms of the sense of hearing. Children one by one do good and correct tooth brushing practices after eating / snacking during recess or during school hours. This is in accordance with the theory of behavior change Stimulus Organism Response (SOR) which states changes in behavior depending on the stimulus or stimulation given. The implementation of brushing teeth is also applied directly from day 1 – 10 (2 weeks) the practice of brushing teeth is carried out in the classroom yard and each child is accompanied by their parents. In the second week the child begins to show changes in the way he brushes his teeth.

The debris index score of blind children decreased because the sample had been taught to understand good and correct brushing practices. Basically, the intelligence ability of blind children with normal children is the same, but if the ability of teeth brushing skills of blind children is lacking, it will affect the dental and oral hygiene (Oral hygiene) of blind children.

The Smart Toothbrush media model was declared successful in changing the habit of brushing the teeth of blind children, this can be seen because after 10 days end blind children continue to brush their teeth after rest hours and blind children are able to brush their teeth properly and correctly so that the debris index number decreases. The success of the Smart Toothbrush media model is due to the implementation that has been carried out for 10 days to provide more stimulus in the learning process by involving parents in guiding and accompanying children in carrying out toothbrushing skills, especially at home.

## V. CONCLUSION

Smart Toothbrush is feasible and its application is effective as an educational medium in improving the toothbrushing skills of blind children guided by their parents. This is evidenced by the results of the following research:

- The Smart Toothbrush media model is worthy as an educational medium about brushing teeth in blind children. This has been carried out expert validation tests with the classification of health promotion experts, media experts and Special Education experts (PLB) with a p-value of 0.011 ( $p < 0.05$ ).
- The Smart Toothbrush media model is more effective in increasing the knowledge score of parents of blind children on how to brush their teeth than counseling on dental and oral hygiene using a regular toothbrush (manual) and brushing demonstrations. This is proven to be statistically significant with a p-value of 0.015 ( $p < 0.05$ ).
- The Smart Toothbrush media model was more effective in improving the attitude score of parents of blind children on how to brush their teeth than counseling on dental and oral hygiene using a regular toothbrush (manual) and brushing demonstrations. This is proven to

be statistically significant with a p-value of 0.009 ( $p < 0.05$ ).

- The Smart Toothbrush media model is more effective at improving the skill scores of parents of blind children on how to brush their teeth than counseling on dental and oral hygiene using regular toothbrushes (manual) and toothbrushing demonstrations. This is proven to be statistically significant with a p-value of 0.021 ( $p < 0.05$ ).
- The Smart Toothbrush media model is more effective in improving blind children's skill scores on how to brush their teeth than dental health counseling by using regular toothbrushes (manual) and brushing demonstrations. This is proven to be statistically significant with a p-value of 0.043 ( $p < 0.05$ ).
- The Smart Toothbrush media model is more effective in increasing the debris index score of blind children on how to brush their teeth than dental health counseling using a regular toothbrush (manual) and brushing demonstration. This is proven to be statistically significant with a p-value of 0.031 ( $p < 0.05$ ).

## REFERENCES

- [1]. Zuhriza RA, Wulandari DR, Skripsa TH, Prabowo YB. Hubungan Motivasi Perawatan Gigi Terhadap Kualitas Hidup Terkait Kesehatan Gigi (Oral Health Related Quality of Life - OHRQoL) Mahasiswa Fakultas Kedokteran Universitas Diponegoro. *e-GiGi*. 2021;9(2):145–51.
- [2]. C.E Mamluatul Kutsiyah, Larasati R, Edi IS. Systematic Literature Review Efektivitas Edukasi Kebersihan Gigi dan Mulut Ditinjau dari Penggunaan Media Braille dan Audio Pada Penyandang Tunanetra. *Ilm keperawatan Gigi*. 2021;3(2):434–51.
- [3]. Santosa B, Sutomo B, Maula NA. Pengaruh Perilaku Orang Tua Terhadap Status Kebersihan Gigi Anak Di SDN 03 Karangjati. *J Kesehat Gigi*. 2017;04(2):0–5.
- [4]. Astuti DAT, Hidayati S, Edi IS. Pengetahuan Tentang Kebersihan Gigi dan Mulut Anak Tunanetra Ditinjau dari Penggunaan Dental Braille Education (DBE) dan Dental Audio Education (DAE) (Systematic Literature Review). *Ilm keperawatan Gigi*. 2021;2(2):225–40.
- [5]. Sabilillah MF, Kristiani A. Hubungan Oral Hygiene dengan Keterampilan Menggosok Gigi Pada Anak Tunanetra. e-ISSN 2548-3986 [Internet]. 2017;2(2):23–8. Available from: <http://edukasional.com/index.php/ARSA/article/view/78>
- [6]. Najiah I, Nur L, Rahman T. Pengembangan Media Healthy Dental Box (HDB) Untuk Memfasilitasi Keterampilan Menggosok Gigi Anak Usia 4-5 Tahun. *J Paud Agapedia*. 2020;4(1):131–44.

- [7]. Hilmanaufar DM, Arti DWK, Failasufa H. Pengaruh Metode Penyuluhan Audio Taktil Kesehatan Gigi Dan Mulut Terhadap Penurunan Indeks Plak Siswa Tunanetra di SLB Semarang. ISSN 2654-766X. 2019;2:126–32.
- [8]. Rahmawahti NL, Hartono W. Metode Drill Terhadap Kemampuan Menggosok Gigi Anak Tunanetra di SDLB - A. J Pendidik Khusus. 2017;1–14.
- [9]. Pramudita H, Riyantomo A, Budiyanto NE. Sosialisasi Perawatan Gigi dan Mulut pada Anak Berbasis Android. J Inform dan Rekayasa Perangkat Lunak. 2020;2(2):113–9.
- [10]. Mehta S, Vyaasini Cvs, Jindal B, Sharma W, Jasuja T. Sikat gigi, Desain dan Modifikasinya : Gambaran Umum. Penelit dan opini medis saat ini. 2020;03(08):570–8.
- [11]. Pratiwi L, Sandy A. Peran Orang Tua Terhadap Keterampilan Menyikat Gigi dan Mulut Pada Anak Disabilita Intelektual. Teknosains. 2017;7(1):53–8.
- [12]. Santoso B, Eko Ningtyas EA, Fatmasari D. Improving Elderlys Dental Hygiene Through Nursing Home Staffs Dental Health Education at the Nursing Home. J Kesehat Masy. 2017;12(2):189–98.
- [13]. Kurnadi FN. Hubungan Tingkat Pengetahuan Tentang Anemia dengan Kejadian Anemia pada Remaja Putri. J Med Hutama [Internet]. 2021;03(01):1293–8. Available from: <http://www.jurnalmedikahutama.com/index.php/JMH/article/view/266/181>. Diakses pada 4 Desember 2022 pukul 7:35 PM.
- [14]. J H, Oktavidiati E, Astuti D. Pengaruh Pendidikan Kesehatan Media Video dan Poster terhadap Pengetahuan dan Sikap Anak dalam Pencegahan Penyakit Diare. J Kesmas Asclepius. 2019;1(1):75–85.
- [15]. Kristianto J, Noviana NH, Dwiastuti SA., Ratuela J. The Efficiency Model Of Mentoring Through Ebook Keep Your Teeth & Oral Healthy, Based On Android To Improving The Degree Of Dental And Oral Hygiene And Knowledge In Student Of Elementry Class V Jakarta, IN 2022. J Heal Sains. 2022;3(10).