

Learning the Five Senses of Humans in Children aged 11-15 Years through Digital-Based Media in Lubuk Pandan Village

Anisa Septiawan^{1*}, Asep Bayu Dani Nandiyanto²

Universitas Pendidikan Indonesia, Bandung^{1,2}

anisasept@upi.edu^{1*}



Riwayat Artikel

Diterima pada 14 Mei 2022

Revisi 1 pada 25 Mei 2022

Revisi 2 pada 11 Juni 2022

Revisi 3 pada 21 Juni 2022

Revisi 4 pada 25 Juni 2022

Disetujui pada 3 Agustus 2022

Abstract

Purpose: This study aims to share information, teach, and repeat learning about the five human senses to 23 children aged 11-15 years in Lubuk Pandan Village.

Research Methods: This research method uses various digital-based media such as Google, WhatsApp and Youtube to collect and share information with children and uses Google Forms to provide pre-test and post-test in measuring the level of success in delivering material.

Result: The results of both tests showed that most children experienced an increase in scores on the post-test, although there were some children who experienced a decrease in the post-test. This can be proven by the average score which has increased from 57.61 in the pre-test to 82.17 at the post-test. So these results show that digital media is able to improve children's literacy and understanding of the learning that has been delivered.

Limitations: The limitation in this study is that it is difficult to be interactive between researchers and children due to various obstacles, one of which is due to the limited schedule of using cellphones by parents.

Contribution: This research contributes to children to help them to know and learn and repeat the lessons of the five senses that have been learned in school.

Keywords: Children, Five Senses, Digital Media, Pre-test, Post-test

How to Cite: Septiawan, A., Nandiyanto, A, B, D. (2022). Learning the Five Senses of Humans in Children aged 11-15 Years through Digital-Based Media in Lubuk Pandan Village. *Jurnal Nusantara Mengabdi*, 1(2), 183-189.

1. Introduction

The success of the learning process must begin with careful planning. Careful planning will facilitate implementation and provide success in the learning process that is carried out (Hakim, 2019). The selection of the right strategy must be done in order to achieve the learning objectives, so that the learning strategy becomes the educator's decision in determining the various activities to be carried out, the methodology used, the material presented, the facilities and infrastructure used, including the type of media selected in carrying out learning activities and evaluation used (Sulhadi, Rahma, & Sumarti, 2016).

Since the Covid-19 pandemic in Indonesia, all face-to-face activities have been shifted to online (in the network), especially at work and school. The corona virus causes the common cold to chronic respiratory syndrome. The method of avoiding the spread of Covid-19 can be done by keeping a distance from infected people. More than that, Covid-19 has also affected the world of learning. Therefore, all learning activities that were originally carried out face-to-face are now carried out online or distance education using technology (Siregar, et al., 2021). The development of digital technology has promised great potential in changing the way a person learns, obtains information, adapts information and so on (Bustomi, 2010). According to Batubara (2021), digital learning media

are media that work with digital data or can produce a digital image that can be processed, accessed and distributed using digital devices.

Right now, the internet is very familiar with the students, especially in online learning in the Covid-19 pandemic. The internet can help the students look for the material of learning quickly and easily and up to date without any trouble [\(Kuning, 2021\)](#). There are many digital media choices, such as google meet, google classroom, Whatsapp, and Zoom meetings, which teachers can choose. However, the effectiveness of learning is not only determined by the medium but rather by digital literacy [\(Sartipa, 2021\)](#). Digital literacy is the interest, attitude, and ability of individuals to use digital technology and communication tools to access, manage, integrate, analyze, evaluate information, build new knowledge and communicate with others effectively. According to [Gilster \(2017\)](#) digital literacy is the ability to understand and use information from various digital sources, and the ability to use technology and information from digital devices effectively and efficiently in various contexts, such as academic, career, and everyday life.

[Solikhatun \(2015\)](#) stated that most of the students considered biology as a rote lesson, so that in class, students tended to take notes and listen to the teacher's explanation. Kusuma (2011:402) argues that it is undeniable that this new media/digital media is more familiar to young people than parents or teachers. Banning is no longer an option. Raising awareness to be able to carry out critical dialogue can help them/students to better understand the meaning of their digital experiences [\(Sahidillah & Miftahurrisqi, 2019\)](#). [Jayawardana \(2017\)](#) stated that the learning process that is less fun can reduce students' learning motivation. The application of monotonous learning methods, a learning process that is too serious and boring, can also hinder the construction process of students' mindsets. The overstructuring learning process also has an impact on the low learning motivation and student learning outcomes.

The results of previous research on maternal assistance to children in using the internet, it was found that children as internet users have known their internet from infancy. Children access the internet after school and spend an average of 2 hours a day [\(Cendrasari, Claretta, & Sumardji, 2020\)](#). With this fact, children can use the internet as a source of their literacy which is of course accompanied by supervision and guidance for the child. So the purpose of this study is to see and analyse the use of digital media by children as learning media and literacy resources.

Therefore, researchers are interested in analysing and exploring more about the use of digital media in learning about the Panca Indra to children aged 11-15 years in Lubuk Pandan Village, 2X11 Enam Lingkung District, Padang Pariaman Regency, West-Sumatra, Indonesia. In their research, [Sophia Khaneghahi and friends \(2022\)](#) said mobile learning allows teachers and students to engage in a specific environment of discussion and interaction on a topic that expands their horizons. So, this research is expected to have a good impact and increase children's knowledge and insight about the learning provided, namely the five human senses.

The novelties in this research are (i) Research subjects are children with an age range of 11-15 years and learning is done digitally; (ii) Do a pre-test and post-test to see the development of the subject's understanding of the material presented. So through that it can be expected that children can use digital media as a source of literacy and broaden their horizons, besides that they are also familiar with the learning process that is commonly used during this pandemic.

2. Methods

The method used in the learning process in this research is a digital-based learning method. This research was conducted with 23 children aged 11-15 years in Lubuk Pandan Village, District 2X11 Enam Lingkung, Padang Pariaman Regency, West Sumatra, Indonesia, using PowerPoint and Canva media to design the information collected, Youtube media to support imagination and understanding, and WhatsApp Group as a medium to share the information obtained. In this method, children are taught and guided to know about the material presented and be able to apply it in everyday life. In

addition, they are also required to be able to use social media as a source of seeking information and increasing literacy. The results of understanding and the success rate of children's understanding are evaluated by conducting a pre-test and post-test, each of which consists of 20 questions. Before the learning process takes place, the children are asked to be able to determine true/false 20 statements contained in the pre-test via Google Form according to their respective knowledge. After the learning process was completed, the children were again asked to fill out the post-test by determining true/false 20 statements were the same as before. The 20 pre-test and post-test questions are shown in table 1.

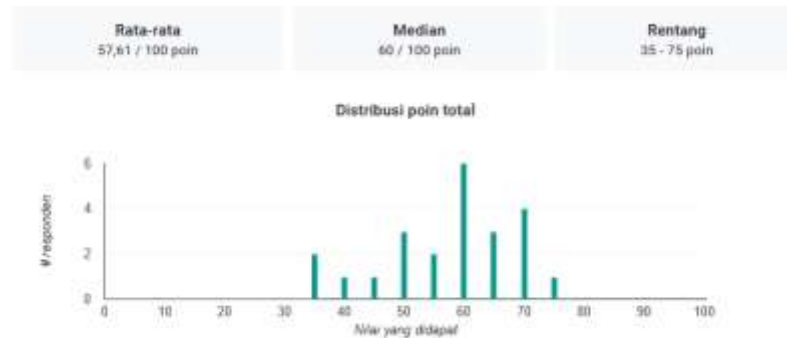
Table 1. Pre-test and Post-test Questions.

No.	Pre-test & Post-test Questions
1	The five senses consist of eyes, nose, ears, mouth, skin, brain
2	The sense used to recognize the surrounding environment and distinguish colors is the sense of taste (tongue).
3	Eyebrows protect the eyes from sweat, and eyelashes protect the eyes from dust and dirt.
4	Blurred vision when looking at distant objects and usually wearing concave (minus) glasses. This eye disorder is known as myopia or nearsightedness.
5	The ideal distance to read a book is 15 centimeters, counting from the book to the eye. In addition, it is recommended to read a book while lying down.
6	If you smell good food, you will salivate too. This shows the relationship between the senses of smell and sight.
7	The nose can smell because it has odor receptors. The location of these receptors is in the nose or more precisely in the auditory nerve.
8	NosebleedIt occurs when the tiny blood vessels (capillaries) in the walls of the nasal passages are damaged. The damage is usually caused by dry air,picking your nose,have a cold, and blowing your nose too hard.
9	In the nose, chemicals contained in the air will dissolve in the mucous membranes.
10	The eustachian tube is a tube that connects the space behind the eardrum or middle ear with the throat and the back of the nasal cavity. If this channel is damaged, the air pressure balance will be disturbed.
11	The part of the ear that functions to capture sound waves and convert them into vibrations is the eardrum.
12	The ear is an organ that cannot clean itself. It takes cotton buds to clean the ears so that the ears stay clean and earwax does not accumulate.
13	The sense of taste receives stimuli in the form of chemicals in solid form.
14	The part of the tongue for tasting bitter tastes is the tip of the tongue.
15	Small sores on the tongue or in the mouth caused by vitamin deficiency and a weak immune system, this problem is called canker sores.
16	Brushing the tongue with a toothbrush can decrease the tongue's ability to taste food.
17	The epidermis is the layer below the dermis which consists of loose cells that are located slightly apart from one cell to another. Consists of blood vessels, capillaries, oil glands, sweat glands, and others.
18	Skin is susceptible to health problems because the skin's role as the body's main protector makes it very easy to be exposed to harmful substances and germs that cause disease.
19	Hair and nails are part of the skin.
20	Entering 11 noon we should bask in the sun. Entering 11 a.m. to 4 p.m., the sun's light is stronger and straight at us. So it will be very good for the skin.

Based on Table 1, the pre-test and post-test used the same questions but at different times. The pre-test questions are given before the start of learning about the five senses, while the post-test is given after the learning is done. This is done so that students can find out whether the facts in the question are true or false and increase their insight and knowledge about the five human senses.

3. Results and Discussion

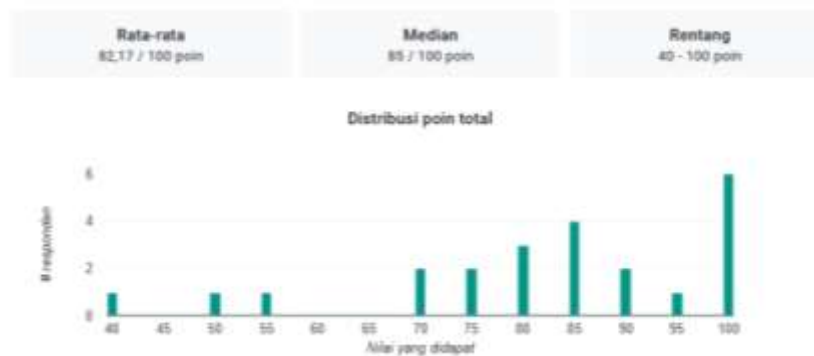
The following are the results of the children's answers to the pre-test and post-test questions given:



Source: Processed by Researchers

Figure 1. Pre-test Average Score of 23 Children.

Figure 1 shows the average pre-test score of 23 children who were tested on the five senses. The highest score on the pre-test was 75 by 1 child. While the lowest score is 35 by 2 children. The overall average in this pre-test is 57.61.



Source: Processed by Researchers

Figure 2. Post-test Average Score of 23 Children.

Figure 2 shows the average value of 23 children who carried out the post-test on the five senses. The highest score was 100 which was achieved by 6 children. While the lowest value is 40 by 1 child. The average post-test score overall reached 82.17.

The following are the results and discussion of the pre-test and post-test questions:

- In question number 1 regarding "The five senses consist of eyes, nose, ears, mouth, skin and brain" increased from 34.8% to 91.3% so that the increase was 56.5%. This is because the explanation of the various senses is easy to remember and only consists of 5 senses.
- In question number 2 regarding "The sense used to recognize the surrounding environment and can distinguish colors is the sense of taste (tongue)" increased from 69.6% to 95.7% so that the increase was 26.1%. This is due to the children's lack of accuracy in filling out answers when carrying out the pre-test, and the senses used to recognize the surrounding environment and can distinguish colors are the sense of sight (eyes).
- In question number 3 regarding "Eyebrows function to protect the eyes from sweat, and eyelashes to protect the eyes from dust and dirt" increased from 87% to 100% so that the increase was 13%. The statement in question number 3 is correct. This is because there were some children who were initially wrong in answering the pre-test because they still did not know the function of the parts of the sense of sight.
- In question number 4 regarding "Blurred vision when seeing distant objects and usually using concave (minus) glasses. This eye disorder, usually called myopia or nearsightedness" has

- increased from 82.6% to 95.7% so that the increase is 13.1%. The statement in the problem is true because in nearsightedness the vision is blurry when seeing distant objects.
- e. In question number 5 regarding "The ideal distance to read a book is 15 cm, counting from the book to the eye. In addition, it is recommended to read a book while lying down" which increased from 73.9% to 78.3% so that the increase was 4.4%. The statement in this problem is wrong because the ideal distance to read a book is 30 cm.
 - f. In question number 6 regarding "If you smell good food, your saliva will be stimulated to come out. This shows that there is a relationship between the senses of smell and sight" which has increased from 17.4% to 87% so that the increase is 69.6%. The statement in this question is wrong because it shows a relationship between the sense of smell and the sense of taste, not the sense of sight.
 - g. In question number 7 regarding "The nose can smell because it has odor receptors. The location of this receptor is in the nose or more precisely in the auditory nerve" which increased from 8.7% to 43.5% so that the increase was 34.8%. The results on the post-test are only 43.5% so it is still far from 100%. This is because of the difficulty of children in remembering the names of nerves. The name of the nerve is not the auditory nerve, but the olfactory nerve, so that statement is false.
 - h. In question number 8 regarding "Nosebleeds occur when the small blood vessels (capillaries) in the walls of the nasal passages are damaged. The damage is usually caused by dry air, picking your nose, have a cold, and blowing your snot too hard" increased from 82.6% to 95.7% so that the increase was 13.1%. This is because at first children still do not know the cause of nosebleeds. The statement in this question is true.
 - i. In question number 9 regarding "In the nose, chemicals contained in the air will dissolve in the mucous membranes" there was an increase from 87% to 91.3% so that the increase was 4.3%. This is because there are some children who do not know about the mechanism of the nose. This statement is true because one of the functions of the nose is to dissolve chemicals in the air.
 - j. In question number 10 regarding "Eustachian canal is a channel that connects the space behind the eardrum or middle ear with the throat and the back of the nasal cavity. If this channel is damaged, the balance of air pressure will be disturbed" increased from 78.3% to 82.6% so that the increase was 4.3%. This is due to the ambiguity of the channel name as it is quite difficult to remember. While his statement is true.
 - k. In question number 11 regarding "The part of the ear that functions to capture sound waves and convert them into vibrations is the eardrum" increased from 91.3% to 95.7% so that the increase was 4.4%. This is because most already know the function of the eardrum. That statement is true.
 - l. In question number 12 regarding "The ear is an organ that cannot clean itself. It takes cotton buds to clean the ears so that the ears are clean and earwax does not accumulate" increased from 13% to 60.9% so that the increase was 47.9%. This is because the statements are misleading and the children are less careful in reading the statements. This statement is false because the ear can clean itself, so there is no need for cotton buds. Using cotton buds can push wax back in and eventually build up in the ear.
 - m. In question number 13 regarding "The sense of taste receives stimulation in the form of chemical substances in solid form" it increased from 56.5% to 60.9% so that the increase was 4.4%. This statement is wrong because the sense of taste should receive stimuli in the form of substances in the form of a solution.
 - n. In question number 14 regarding "The part of the tongue to taste bitter taste is the tip of the tongue" there was an increase from 21.7% to 60.9% so that the increase was 39.2%. This statement is wrong because the base of the tongue is used to taste bitter tastes, while the tip of the tongue is used to taste sweet tastes.
 - o. In question number 15 regarding "Small sores on the tongue or in the mouth caused by vitamin deficiency and a weak immune system, this problem is called canker sores" increased from 87% to 100% so that the increase was 13%. This is because in general children already know about canker sores. And this statement is true.
 - p. In question number 16 regarding "Brushing the tongue with a toothbrush can reduce the ability of the tongue to taste food" there was an increase from 60.9% to 87% so that the increase was 26.1%. This statement is true, so use a tongue cleaner to clean, not a toothbrush.

- q. In question number 17 regarding "The epidermis is the layer below the dermis which consists of loose cells that are located slightly apart from one cell to another. Consists of blood vessels, capillaries, oil glands, sweat glands, and others" increased from 8.7% to 79.3% so that the increase was 70.6%. This is because at the time of the pre-test, the children did not know or remember about the layers of the skin. This statement is wrong because the definition and characteristics are the dermis layer, not the epidermis layer.
- r. In question number 18 regarding "Skin is susceptible to health problems because the role of the skin as the body's main protector makes it very easy to be exposed to harmful substances and germs that cause disease" increased from 87% to 95.7% so that the increase was 8.7%. The statement in the question is true.
- s. In question number 19 regarding "Hair and nails are part of the skin" there was an increase from 47.8% to 73.9% so that the increase was 26.1%. This is because many do not know the fact that hair and nails are part of the skin. The statement in the question is true.
- t. In question number 20 regarding "At 11 o'clock in the afternoon we should bask in the sun. Entering 11 a.m. to 4 p.m., the sun's light is stronger and straight at us. So it will be very good for the skin" increased from 56.5% to 73.9% so that the increase was 17.4%. The statement in the question is wrong because the sunlight is good for the skin from 7-10 am. Meanwhile, from 11 a.m. to 4 p.m., it is recommended to avoid sun exposure because it can burn the skin.

From the discussion above, it can be seen that there was an overall increase. So it can be concluded that there was a significant increase in understanding from pre-test to post-test, which was 24.56% based on the average comparison of the two. When viewed from the percentage of pre-test and post-test scores, the questions with the lowest pre-test scores were in questions number 7 and 17, namely only 8.7% of the answers were correct or equal to 2 out of 23 children who could answer correctly. Meanwhile, in the post-test results, the question with the lowest score was question number 7 with a percentage of 43.5% or equal to 10 of 23 children who could answer correctly.

4. Conclusion

Digital literacy learning about the five senses to 23 children in Lubuk Pandan Village, 2X11 Enam Lingkung District, Padang Pariaman Regency, West Sumatra, Indonesia, showed good results and experienced a significant increase of 24.56% based on the comparison of the average pre-test and post-test. Judging from the value of each individual, most of the children experienced an increase in scores from pre-test to post-test. The learning method and research focus by choosing a discussion about the five senses are the main factors for the success of this learning process.

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.

References

- Batubara, H. H. (2021). *Media Pembelajaran Digital*. Bandung: PT Remaja Rosdakarya.
- Bustomi, A. Y. (2010). Aplikasi Pembelajaran Panca Indra Pada Manusia Berbasis Android. *Jurnal Telematika*, 3(1).
- Cendrasari, Y., Claretta, D., & Sumardjiajti. (2020). Digital Literacy Development and Assistance to Improve the Quality of Youth in Using the Internet. *Journal of Community Service*, 611-618.
- Gilster dalam Kurnianingsih, d. (2017). Upaya Peningkatan Kemampuan Literasi Digital bagi Tenaga Perpustakaan Sekolah dan Wilayah Jakarta Pusat Melalui Pelatihan Literasi Informasi. *Jurnal Pengabdian Kepada Masyarakat*, 3(1), 61-76.
- Hakim, L. (2019). *Perencanaan Pembelajaran*. Bandung: PT. Sandiarta Sukses.
- Jayawardana, H. (2017). Paradigma Pembelajaran Biologi di Era Digital. *Jurnal Bioedukatika*, 5(1), 12-17.

- Khaneghahi, S., Nasripour, F., & Mahmoud Zehi, M. A. (2022). Investigating the Relationship Between E-learning and Mobile Learning on Students' Academic Self-handicapping During the Outbreak of COVID-19. *Journal of Social, Humanity, and Education (JSHE)*, 269-281.
- Kuning, D. S. (2021). CultureShock: Online Learning in the Covid-19 Pandemic Phase. *Jurnal Humaniora dan Ilmu Pendidikan (Jahidik)*, 55-62.
- Sahidillah, M. W., & Miftahurrisqi, P. (2019). Whatsapp Sebagai Media Literasi Digital Siswa. *Varia Pendidikan*, 31(1), 52-57.
- Sartipa, D. (2021). Online English Learning during Covid-19 Pandemic. *Jurnal Humaniora dan Ilmu Pendidikan (Jahidik)*, 64-69.
- Siregar, M. I., Khamisah, N., Maryati, S., Pratiwi, T. S., Siregar, D. L., Mavilinda, H. F., . . . Kesuma, N. (2021). Sosialisasi dan Pelatihan Terkait Media Daring Google Classroom dan Google Form di Masa Pandemi Covid 19 pada Sekolah Dasar Negeri 23 Palembang. *Yumary: Jurnal Pengabdian kepada Masyarakat*, 69-77.
- Solikhatun, I., Santosa, S., & Maridi. (2015). Pengaruh Penerapan Reality Based Learning Terhadap Hasil Belajar Biologi Siswa Kelas X SMA Negeri 5 Surakarta Tahun Pelajaran 2012/2013. *Jurnal Pendidikan Biolog*, 7(3), 49-60.
- Sulhadi, S., Rahma, A. D., & Sumarti, S. S. (2016). Implementasi Pembelajaran Sains Dengan Media Fotonovela Untuk Meningkatkan Motivasi Belajar Siswa SD/MI. *Journal of Primary Education*, 1-9.