



## Weather and Its Effect Learning on Digital-Based Early Childhood Education Students

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### ABSTRACTS

This study aims to analyze the learning process of weather and its effects in terms of definitions and examples in everyday life in the program to develop digital literacy in early childhood education. The method used is digital learning using video and power point media to explain the material to be delivered. The learning process is carried out online and offline. Students' understanding was evaluated using 20 questions pretest and posttest. Learning is carried out on 21 early childhood education students. The results of the research from 20 pretest and posttest questions that were done by students, most of the questions increased. This shows that the learning carried out can be said to be successful because learning using videos and powerpoint makes students more interested and focused on studying the material presented and does not make students bored quickly. This research can provide information that video and power point can be used as learning media. However, the important thing is how to attract students' attention so that students don't get bored quickly and stay focused during the learning process.

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## 1. INTRODUCTION

Early childhood is an individual who is undergoing a process of growth and development that is very basic for the continuation of life in the future. At an early age, children will experience considerable physical and mental development and growth. At this age, children will respond and process various things they receive quickly. The importance of education at an early age is to provide as early as possible character education so that in the course of his age he will be able to undergo further education well. It's not just a matter of science but about manners, disciplinary training, social interaction, knowing religious knowledge, getting to know the culture of healthy living and others. Therefore, various things that are received by children at an early age will be the basic foundation that is very useful for later life. The COVID-19 outbreak requires everyone to maintain a distance so that its impact can be felt directly in all sides of life. Early childhood is one of the victims of the effects of the educational environment, they are limited to learning activities at school (Oktaria & Putra, 2020). In the 21st century, COVID-19 requires learning to be done online. Interestingly, in the midst of the COVID-19 outbreak, it has had an impact on all limitations, especially in early childhood education (Dini, 2021). The circular regarding school policies during a pandemic launched by the Minister of Education and Culture also provides provisions, namely the learning process is carried out from home to provide meaningful learning through online or distance learning. The hallmark of online or online learning is the integration of technology and innovation in it (Banggur *et al.*, 2018). This is done from the level of early childhood education to university. Natural Science is a science that deals with events based on observations. Success in teaching is determined by various things, including the ability of students and the ability of the teacher himself in carrying out a meaningful teaching and learning process in accordance with the learning objectives. One of the teacher's abilities that must be mastered is the selection and application of appropriate learning models so that the learning process is successful (Pebrianti, 2018).

There are several papers that discuss weather learning and its effects and digital learning. Discussed the effectiveness of distance learning activities in elementary schools. But my research is not in elementary school but learning in early childhood education. Discusses the effectiveness of using WhatsApp social media as a learning medium in elementary schools. But there are drawbacks, namely, if you only use WhatsApp as a learning medium, it will feel less, students will get bored easily and need other diverse media such as video and powerpoint to add variations to the learning media so that students don't get bored. Discuss the effectiveness of learning videos as a source of digital literacy on learning posters in elementary schools (Maulid & Sakti, 2022). My research uses Google Forms as an evaluation result that can determine the success or failure of the learning process given to students. Discussed the problems faced by elementary school students in the online learning process during the covid-19 pandemic (Azzahra *et al.*, 2022). But there are drawbacks that are not helping the problems faced by elementary school students for online learning such as making learning media that make it easier for students to learn. Discusses the factors that influence student satisfaction in digital learning (Anh, 2022). To influence student satisfaction in learning I use digital-based media such as power points and videos so that students are satisfied and happy during learning.

Therefore, by analyzing weather learning and its digital-based effects through definitions and examples in everyday life in the Early Childhood Education environment aims to determine the level of students' knowledge before learning using digital media and at the same time increasing students' understanding of weather material and its effects using digital

media to facilitate fun learning for students. Using digital media among the students in developing countries can improve the access to learning material and education service, particularly in rural and remote areas. By using digital learning such as videos and power points to explain the material to be given to students, it is hoped that it can help increase student knowledge.

The novelty of this research is (i) the weather material and its influence on early childhood education are very few; (ii) using 2 learning methods, namely online and offline; (iii) increase knowledge about weather and its influence in digital literacy programs. The learning process is carried out online and offline. Offline learning is needed by students for fun learning activities with friends and teachers directly. While online learning is needed to improve and develop digital skills in students. Students are given pretest questions through goggle form media to determine their level of ability and after completing the pretest questions, students are given posttest questions to find out whether there is an increase experienced by students or not. Understanding and improving student learning outcomes were assessed with 20 pretest and posttest questions. The learning was carried out by 21 students at PAUD Amir Machmud, Cibeber village, Cimahi city. The results of the evaluation of 20 pretest and posttest questions that have been done by students, most of the questions have increased. This shows that the learning carried out by early childhood education students can be said to be successful because helping students learn to use video and powerpoint media can make it easier for students to focus on the material presented. However, the most important thing is to keep students focused during the learning process. learning saturation is certain time range used to learn but not get results. Students who experience boredom of learning to feel as if knowledge and skills acquired from studying there is no progress. So, don't let students get bored while studying.

## 2. METHODS

The activities carried out are in the form of online and offline digital-based learning for early childhood education students. Learning is carried out by 21 early childhood education students. Learning using video and powerpoint media. By using video and powerpoint as learning media, students are expected to be able to focus and not get bored during learning. The understanding and improvement of the student learning process is evaluated by filling out the pretest and posttest questions that have been given in the form of a goggle form. The posttest and pretest questions contain 20 questions, where each question is given different points because there are easy level questions and difficult level questions. The pretest and posttest questions are shown in **Table 1**.

**Table 1.** Pretest and Posttest Questions.

No	Pretest and Posttest Questions
1	When in the sky there is a collection of thick and thick clouds, it is likely that it will rain
2	When the sky is clearly blue, the weather is dark
3	When the sky is clear, it will rain
4	During the rainy season the air will feel warm
5	The benefit of the rainy season is that it can cause flooding
6	Thin and absorbent clothes help us when the weather is hot
7	The air in mountainous areas will feel warm
8	A coat that can be worn during the dry season
9	Indonesia has a hot and dry season
10	Cloudy skies are a sign of rain

**Table 1 (continue).** Pretest and Posttest Questions.

No	Pretest and Posttest Questions
11	The water recedes in the rainy season
12	Water is one of the factors that affect weather conditions
13	Weather conditions are affected by wind speed
14	Fire is one of the main factors that causes the weather to feel hot
15	The Meteorology, Climatology and Geophysics Agency (BMKG) is the name of the agency tasked with estimating weather conditions
16	Farmers are greatly affected by seasonal conditions
17	Palawija can be planted in the dry season
18	Geographical rain occurs only locally around the mountains
19	Measuring wind speed using a thermometer
20	Sea water evaporates because it is exposed to sunlight is the beginning of the process of rain

### 3. RESULTS AND DISCUSSION

The results of the study can be seen in **Table 2**. It shows an increase in early childhood education students in learning using video and powerpoint. There is an influence positive and significant between the use of audio-visual video learning media on learning outcomes (Novita *et al.*, 2019). Video media can be an intermediary absorption through sight and hearing so as to build conditions which can enable students to acquire knowledge, skills, or attitude used to help achievement of learning objectives (Hayati & Harianto, 2017). this video media is very helpful for educators in delivering difficult material conveyed and difficult for participants to understand students, the advantages of audio-visual media This video is able to give experience for students in the process learning. Learning media has the function of generating learning motivation, clarifying the content material, stimulate interest in learning and overcome the limitations of space and time.

**Table 2.** Pretest and Posttest scores.

Question No.	Percentage	
	Pretest Score	Posttest score
1	90.5%	100%
2	90.5%	100%
3	95.2%	100%
4	95.2%	95.2%
5	76.2%	100%
6	95.2%	100%
7	85.7%	100%
8	76.2%	95.2%
9	66.7%	100%
10	100%	100%
11	61.9%	100%
12	33.3%	100%
13	28.6%	85.7%
14	52.4%	95.2%
15	38.1%	85.7%
16	76.2%	100%
17	38.1%	95.2%
18	0%	52.4%
19	52.4%	95.2%
20	42.9%	95.2%
Average	52.95%	91.62%

Microsoft PowerPoint is a software that can be used to develop media learning. In the PowerPoint program there are many features that can be used to be creative in interesting, interactive and fun learning media with several facilities provided by the powerpoint program are templates, custom shows, office art, graphic file formats, delivering presentation, animation. Using media power points can help teachers to develop teaching techniques, especially on material that has a lot of theory or explanation. Using power point media then students will not feel bored listen to the presentation of the material because interestingly presented material on a power point show (Khaerunnisa *et al.*, 2018). The use of power point media is expected to encourage interest in learning students because in its use students don't just listen to the explanation regarding the material presented by the teacher with lectures but students are also invited see evidence of historical relics visualized in power point media so that students easily understand material when the learning process takes place.

As for the discussion:

- (i) For question number 1 regarding "When in the sky there is a collection of thick and thick clouds, it is likely that it will rain" and question number 2 concerning "When the sky is clearly blue, the weather is dark" the results have increased from 90.5% or 19 students who answer correctly becomes 100% or 21 students answer the question correctly. This is because the learning materials using videos and power points that have been given to students are read and studied well. Use of media in learning can generate interest, motivation, provide stimulation and bring psychological influence to students in learning. Using of learning media at the orientation stage learning will greatly help learning activities and delivery of messages from the content learning. The use of learning media can provide stimulation to students in the learning process learning so as to foster interest and motivation to learn. In addition, the use of media learning can make students become active and play a role in the learning process and overcome the limitations of space and time.
- (ii) For question number 3 regarding "If the sky is clear, it will rain" and question number 6 regarding "Thin clothes and absorb sweat help us when the weather is hot" the results have increased from 95.2% or 20 students who answered correctly to 100% of all students that is, 21 students answered the questions correctly. This is due to student learning in earnest from the material that has been provided through digital media. The choice of the type of learning media actually affects students' learning motivation. Students' learning motivation is still low, which can be seen when students are less enthusiastic when participating in learning in class. When the teacher explains the material and shows the pictures contained in the book, the students look less enthusiastic. It can be said that learning that only uses picture media in books clearly has not been able to motivate students to learn. Learning motivation is still low, it also affects students' cognitive learning outcomes. Video as a learning media to create meaningful learning so as to increase student motivation and learning outcomes.
- (iii) For question number 4 regarding "During the rainy season the air will feel warm" the results did not increase or decrease. This is because there are still students who are not careful in reading the material and reading the questions which can deceive students if they are not read carefully. Disadvantages of learning this distance is that students are not focused study due to noise from activities of householders, students and teachers in their interactions outside learning is quite limited because short time, there are few

eyes lessons that can't be done online. Therefore, students must focus when studying so that it is easy to understand what is being learned.

- (iv) For question number 5 regarding "The benefits of the rainy season which can cause flooding" got a pretest result of 76.2% or 16 students answered the question correctly, question number 7 regarding "Air in mountainous areas will feel warm" got a pretest result of 85.7% or 18 students answered the question correctly, question number 9 regarding "Indonesia has a hot summer and dry season" got 66.7% results or 14 students answered the question correctly, question number 11 regarding "water recedes in the rainy season" got a pretest result of 61.9% or 13 students answered the question correctly, question number 12 regarding "Water is one of the factors that affect weather conditions" got a pretest result of 33.3% or only 7 students could answer the question correctly and question number 16 was about "Farmers are strongly influenced by seasonal conditions" got the result of 76.2% or 16 students answered the questions correctly. After carrying out the learning process and then filling out the posttest questions, all students experienced an increase to 100%, of which 21 students answered the questions correctly. This is because during the learning process using video and powerpoint media, students can find out the answers to the questions given. Instructional Media power point can attract students' interest in learning so that they get good results satisfactory, so that when student learning outcomes are satisfactory, the appropriate learning media in the form of power points effectively used by teachers when distance learning ([Hikmah & Maskar, 2020](#)). Therefore, the use of power point media is still a relevant medium to be developed, especially during the pandemic to increase student knowledge.
- (v) For question number 8 regarding "Coat clothes that can be worn during the dry season" got a pretest result of 76.2% or 16 students answered the question correctly, question number 14 regarding "Fire is one of the main factors that cause the weather to feel hot" got the result 52.4% pretest or 11 students answered the question correctly, question number 17 regarding "Palawija can be planted in the dry season" got a pretest result of 38.1% or 8 people who answered the question correctly, question number 19 regarding "Measuring wind speed using a thermometer" got the result 52.4% pretest or 11 students answered the question correctly, and question number 20 regarding "Sea water evaporates because it is exposed to sunlight is the beginning of the process of rain" getting a pretest result of 42.9% or 9 students answered the question correctly. The results of the posttest with the same questions, most of the students increased to 95.2% where 20 students answered the questions correctly. This shows that the student learning process using video and powerpoint media can be said to be successful. Video is a very effective medium to help the learning process, both for mass, individual, and group learning. Video is also a non-printed teaching material that is rich in information and complete because it can reach students directly ([Agustiniingsih, 2015](#)). Students become more understanding about various jobs that are around them by watching learning videos, because in these videos clearly explain real events that can be seen and heard directly by students.
- (vi) For question number 10 regarding "Cloudy sky is a sign that it will rain" the pretest results were 100% from 21 students who answered correctly and the posttest results remained 100% consistent. This is because students already know that a cloudy sky is a sign that it will rain. Students need to be helped to learn what they do not already know,

instead of being marched through course materials in lockstep, largely regardless of what they knew at the start of the course. Students already know about rain because it often happens to their life.

- (vii) For question number 13 regarding "Weather conditions are affected by wind speed" the pretest result was 28.6% or 6 students answered the question correctly and question number 15 regarding "The Meteorology, Climatology and Geophysics Agency (BMKG) is the name of the institution in charge of estimating weather conditions" received the pretest result was 38.1% or 8 students answered the questions correctly. After the learning process and continued to fill out the posttest, it increased to 85.7% or 18 students answered correctly. This is because during the given digital-based learning process, students can run well. It is known that the retention rate (absorption and memory) of students towards the subject matter can be significantly increased if the initial information acquisition process is greater through the senses of hearing and sight ([Agustiningsih, 2015](#)). Students are able to explain by just watching the video because it can be seen clearly how the work process takes place, but still by providing information from the teacher so that students can understand the material more clearly.
- (viii) For question number 18 regarding "Geographical rain occurs only locally around the mountains" the results have increased from 0% or none of the students answered correctly on the pretest to 52.4% or 11 students could answer the questions correctly. This is because the questions are difficult for early childhood education students but after the learning process is carried out some students experience an increase. Most of the students can answer correctly. Using video as a learning medium can affect student learning outcomes ([Agustiningsih, 2015](#)). Learning becomes more interesting so that it can increase students' motivation and level of understanding of learning materials weather and their effects.

#### 4. CONCLUSION

After conducting research by analyzing the learning process of weather and its effects in terms of definitions and examples in everyday life in the program to develop digital literacy in early childhood education, students experienced an increase in answering questions about weather and its effects. Evaluation of student understanding using pretest and posttest questions as many as 20 questions to 21 PAUD Amir Machmud students got the average pretest score of 52.95 which increased to 91.62%. This shows that the learning carried out by early childhood education students using digital media such as video and powerpoint can make students more focused and attract students' interest to make learning fun.

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## 6. AUTHORS' NOTE

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

## 7. REFERENCES

- Agustiningsih, A. (2015). Video sebagai alternatif media pembelajaran dalam rangka mendukung keberhasilan penerapan kurikulum 2013 di sekolah dasar. *PEDAGOGIA: Jurnal Pendidikan*, 4(1), 50-58.
- Anh, D. H. M. (2022). Factors affecting satisfaction on online education on students digital teaching page in Ho Chi Minh City, Vietnam. *Indonesian Journal of Multidisciplinary Research*, 2(1), 179-186.
- Azzahra, S., Maryanti, R., and Wulandary, V. (2022). Problems faced by elementary school students in the online learning process during the Covid-19 pandemic. *Indonesian Journal of Multidisciplinary Research*, 2(2), 245-256.
- Banggur, M. D. V., Situmorang, R., and Rusmono, R. (2018). Pengembangan pembelajaran berbasis blended learning pada mata pelajaran etimologi multimedia. *JTP-Jurnal Teknologi Pendidikan*, 20(2), 152-165.
- Dini, J. P. A. U. (2021). Pendidikan anak dalam keluarga era covid-19. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 5(1), 823-31.
- Hayati, N., and Harianto, F. (2017). Hubungan penggunaan media pembelajaran audio visual dengan minat peserta didik pada pembelajaran pendidikan agama islam di SMAN 1 Bangkinang kota. *Al-hikmah: Jurnal Agama Dan Ilmu Pengetahuan*, 14(2), 160-180.
- Hikmah, S. N., and Maskar, S. (2020). Pemanfaatan aplikasi microsoft powerpoint pada siswa smp kelas viii dalam pembelajaran koordinat kartesius. *Jurnal Ilmiah Matematika Realistik*, 1(1), 15-19.
- Khaerunnisa, F., Sunarjan, Y. Y. F. R., and Atmaja, H. T. (2018). Pengaruh penggunaan media power point terhadap minat belajar sejarah siswa kelas X SMA negeri 1 Bumiayu tahun ajaran 2017/2018. *Indonesian Journal of History Education*, 6(1), 31-41.
- Maulid, M. N., and Sakti, A. W. (2022). The effectiveness of learning videos as a source of digital literacy on poster learning in elementary schools. *Indonesian Journal of Multidisciplinary Research*, 2(1), 51-56.
- Novita, L., Sukmanasa, E., and Pratama, M. Y. (2019). Penggunaan media pembelajaran video terhadap hasil belajar siswa SD. *Indonesian Journal of Primary Education Penggunaan*, 3(2), 64-72.
- Oktaria, R., and Putra, P. (2020). Pendidikan anak dalam keluarga sebagai strategi pendidikan anak usia dini saat pandemi covid-19. *Jurnal Ilmiah Pesona PAUD*, 7(1), 41-51.
- Pebrianti, E. (2018). Upaya peningkatan hasil belajar ipa materi cuaca dan pengaruhnya bagi manusia melalui model pembelajaran kooperatif tipe student teams achievement division (STAD). *Jurnal Mutiara Pendidikan Indonesia*, 3(2), 1-7.