Developing Online Teaching Materials for Science Subject During Covid-19 Era

Nurhikmah H[1], Abdul Hakim[2], Dedi Kuswadi[3], Sulfianti[4], Sujarwo[5]

[1,2,4]Teknologi Pendidikan-Universitas Negeri Makasar
[3]Teknologi Pendidikan-Universitas Negeri Malang
[5]Pendidikan Bahasa Inggris-Universitas Megarezky

INFO ARTIKEL	ABSTRAK
	Abstract: Research aims (1) to develop online teaching materials (2) to design online teaching materials (3) to determine the validity, practicality, and effectiveness of online teaching materials for science subjects in grade V SD Negeri 32 Bungloe, Bantaeng Regency during Covid-19 era. This used Research and development methods (R & D) which is focused on developing online teaching materials using flipbooks. The ADDIE model consists of 5 stages, namely: analysis, development, implementation, and evaluation. The results showed that the online teaching materials using the developed flipbook were declared valid, where the validation of the material and the media obtained very valid category results. The results of the assessment of respondents in small group trials and teacher responses to teaching material products were very practical, it can be seen from the responses of students and teachers who obtained the very practical category. The development of online teaching materials that are effectively developed, It can be seen from the average learning outcome recapitulation that there is an increase of student learning outcomes between before and after the use of online teaching materials. **Abstrak:** Tujuan penelitian (1) mengembangkan bahan ajar *online*, (2) mendesain bahan ajar *online*, dan (3) mengetahui kevalidan, kepraktisan, dan keefektifan bahan ajar online mata pelajaran IPA di kelas V SD Negeri 32 Bungloe Kabupaten Bantaeng di Era Covid 19. Metode penelitian pengembangan (*Researh and Development/R&D*) yang difokuskan untuk mengembangkan bahan ajar online dengan menggunakan *flipbook*. Model ADDIE yang terdiri atas lima tahap, yaitu analisis (*analysis*), desain (*design*) pengembangan (*development*), implementasi (*implementation*), dan evalusai (*evaluation*). Hasil penelitian menunjukkan bahwa bahan ajar online menggunakan *flipbook* yang dikembangkan dinyatakan valid, dimana validasi materi ddan media memperoleh hasil kategori sangat valid. Hasil penilaian responden uji coba kelompok kecil dan tanggapan guru terhadap produk bahan ajar dinyatakan sangat praktis dilihat dari respon siswa dan guru yang memperoleh kategori sangat praktis. Pengembangan bahan ajar *online* yang dikembangkan efektif dilihat dari rata-rata rekapitulasi hasil belajar menunjukakan adanya peningkatan hasil belajar siswa antara sebelum dan sesudah penggunaan bahan ajar *online*.

Alamat Korespondensi:

Nurhikmah H
Teknologi Pendidikan
Universitas Negeri Makasar
Jalan A. P. Pettarani, Tidung, Kec. Rappocini, Kota Makassar, Sulawesi Selatan 90222
E-mail: nurhikmah.h@unm.ac.id

The education quality is a direct consequence of a change and development in various aspects of life. The demand for the quality of education is the most important requirement to be able to answer the challenges of change and development. This is necessary to support the realization of smart Indonesian people and live a peaceful, open, and democratic life, and able to compete openly in the global era. For this reason, and improvement of educational performance are essential. Education in Indonesia is directed at shaping students to become Indonesian citizens to achieve a dignified Indonesian nation. Pattaufi stated that the time/period continue to develop rapidly, various technological advances have followed every pace of the times, and all of these have an impact on changes in human lifestyles, including in the field of education. So that teachers are required not only to transfer knowledge but also be able to become professional in guiding students to be better at dealing with learning problems (Pattaufi 2020). The development of technology is a challenge in improving the quality of education in Indonesia considering that not everyone can use technology to its full potential (Cole, Shelley, and Swartz 2014). Technology is one of the tools used by society in anticipating change (Laudon and Laudon, 2014 as cited by (Sukmawati and Nensia 2019), (Darmalaksana and Dkk 2020), (Francis Umbit 2016), Technology can help the learning process in schools both as a means and a source of learning for teachers and students.

Therefore, education is not left behind from the development of science and technology, there is a need for adjustments. In addition, the development of science and technology increasingly encourages renewal efforts in the use of technological results in the learning process (Hidayatulah, yushardi, and Wahyuni 2015). There are several components including in the learning activities: objectives, learning materials, assessment, methods, and tools or teaching materials. The teaching materials cover all the materials used in teaching including the lesson plan (RPP) because this learning implementation plan is an important aspect of the learning process as stated in (Regulation of the Minister of National Education No. 41 of 2007) regarding process standards, among others, regulates regarding the planning of the learning process which requires educators in educational units to develop plans for implementing learning, especially at the primary and secondary levels of formal education. Teaching materials can be used by students to study independently or be combined with classroom learning which makes it easier to achieve learning outcomes (HL et al. 2020), (Kurniawati, Anitah, and Suharno 2017), (Marjanovikj-apostolovski and Macedonia 2019), (Prabajati 2015), (Arismunandar & Nurhikmah, 2017), (Sholehudin, 2017). Preparing teaching materials is one of the responsibilities of educators to attract students' attention in learning activities, the presence of teachers to direct learning activities, textbooks as information and other media are also needed to increase student activities as a tangible form of learning activities. This is in line with Nurhikmah's opinion that "teachers are expected to be able to design learning media that are innovative, creative, efficient and effective so that they can increase the activeness of students in the learning process"(Nurhikmah & Haling, 2020). One of the facilities to meet learning needs is in the form of teaching materials that can contain text and media as a whole, which can be found in the form of e-learning/online. Online learning teaching materials are also known as internet or web-based teaching materials. Because the characteristics of the teaching material can only be used online. Online teaching materials are learning that uses the internet, where teaching materials are prepared or placed on a website (Alabbasi, 2017), (Cole et al. 2014), (Jamaluddin et al. 2020), (Gray and DiLoreto 2016), (Khalid 2014), (Luaran et al. 2014), (Panyajamorn et al. 2018), (Stefanovic et al. 2011), (Sujarwo et al. 2020). All of this is inseparable from the role of educational technology as a tool for developing and designing multidimensional teaching materials(Martin 2009), (Yasa 2019).

The main problem is the enthusiasm, lack of student learning activity, and the students' learning attractiveness is still low. One of the reasons is because teachers still use student activity sheets as the main teaching materials, and students have experienced boredom at home during the Covid 19 outbreak, so that students' scores have tended to decline 1 year. The development of teaching materials is used as a way to identify, develop, and evaluate learning content and strategies. Development of teaching materials as an understanding of learning design. This technological development creates many sophisticated and interesting teaching material innovations. So that with this development, students can study anywhere, anytime and with anyone according to their needs and desires. According to Ferdiansyah et al, stated that good learning tools will guide students to improve learning outcomes well and vice versa (Akhiruddin; Sujarwo, 2020), Ferdiansyah, Haling, & Nurhikmah, 2021),. This is the reason researchers are interested in conducting this research entitled the Development of Online Teaching Materials for Science Subjects in Class V SD Negeri 32 Bungloe, Bantaeng Regency in the Covid 19 Era.

METHOD

This study used a type of Research and Development (R & D). R & D is a research method used to produce certain products. The development model used is ADDIE which consists of 5 stages, namely Analysis - Design - Development - Implementation - Evaluation (Branch 2009), (Hannum, 2005 as cited in Muruganantham 2015) ADDIE model Molenda, M as cited in (Reinbold and Reinbold 2013), these phases systematically lead the creation of instruction from the initial request to evaluation and revision (Rooij 2009). Each researcher had to decide about who and how many respondents to study. The research subjects were participants who participated in the research, the subjects of this study were 2 experts, namely media experts and material experts, each consisting of one-person, prospective users, namely 1 teacher and effectiveness, namely all fifth-grade students of SD Negeri 32 Bungloe, Bantaeng Regency. Several students were 16 students (6 male and 10 Female students).

Data collection technique was an important part of the research process. In the following, we will describe some of the techniques and understanding of data collection. The types of data collection methods described were common and frequently mentioned. Specifically, data collection methods vary. Data collection techniques used were interviews, observation, questionnaires, tests and documentation. To obtain validity results, firstly conducted a validation test of online teaching material products developed in February 2021 by 2 experts, namely material expert, and media expert, after that the next stage was to conduct trials in the first development stage taking as many as three research subjects to determine students' reactions on online teaching materials using a flipbook, and test teacher responses to determine the practicality of the product. The trial at the second development stage involved 16 research subjects to measure the effectiveness of the product that had been developed. This study obtained qualitative and quantitative data. Qualitative data was obtained from responses, suggestions, and input as a reference in improving the product. While the quantitative data was obtained from the scores in the questionnaire. The quantitative data analysis technique used in this research is descriptive quantitative. The data analyzed included the validity of teaching materials from material experts, media experts, and the responses given by teachers and students as test objects.

All data obtained from the validators and respondents were analyzed using descriptive techniques. To obtain the developed data and instruments, validation formats were given to the validator to provide an assessment of the aspects listed in the instrument sheet. The following was the guideline for assessing the validity of the online teaching material assessment sheet using a Likert scale 1-5 (Sugiyono, 2018). Meanwhile, to determine the level of practicality, it can be seen from the responses of teachers and students at the online trial process stage of teaching materials using a flipbook. Arikunto defines practicality in educational evaluation as the conveniences that exist in evaluation instruments both in preparing, using, interpreting/obtaining results, as well as ease in storing them. The results of observing student and teacher responses were analyzed to determine the frequency of practicality. The level of effectiveness of online materials was based on student achievement in completing the learning outcome test. The maximum value on the learning outcome test was 100 with the Minimum Completeness Criteria set in the Science subject, which was 80. This can be seen from the students learning outcomes.

RESULTS

The results of the development in this study were online teaching materials using the Kvisoft Flipbook Maker Pro 3.6.10 application developed from the product. In accordance with the research objectives, namely developing online teaching materials in science subjects using the ADDIE model which aims to produce online teaching materials, to determine the need for developing online teaching materials, knowing the design of online teaching materials, and knowing the level of validation, practicality and effectiveness of online teaching materials.

Requirement Level Description

Description of the Need for Online Teaching Materials Development in Science Subjects in Class V at SD Negeri 32 Bungloe, Bantaeng Regency in the Covid 19 Era. The initial stage carried out in the ADDIE model was analysis. At this stage, observations and interviews were carried out in collaboration with science subject teachers in Class V to obtain the data needed to make teaching materials using a flipbook. According to Parlin stated that need to be analyzed are curriculum analysis, student character analysis and needs analysis (Parlin, Iswanto, and Budi 2015)." So that at this stage the researcher analyzes 3 things, namely, needs analysis, curriculum analysis and analysis of student characteristics. 5) Most of the students did not collect assignments on time and even some students did not do the assignments due to saturation and the material was not interesting, meaning that the material in the student activity sheet was incomplete so that sometimes it confused students in doing the assignments. 6) The students 'scores, especially class V SD 32 Bungloe, decreased in science subject because the students' ability to spend more time playing gadgets. The results of the analysis are carried out by considering the science material to be developed in teaching materials, adjusting the competency standards, basic competencies, and indicators of student achievement that must be achieved in accordance with the subject matter. With the aim of the material being developed in accordance with school standards. The curriculum used in SD Negeri 32 Bungloe, Bantaeng Regency is the 2013 Curriculum (K13). The design of teaching materials using flipbooks in science subjects has been adjusted to the competency standards and basic competencies in the 2013 curriculum so that it is expected to be able to achieve learning objectives. Student analysis is an analysis of student characteristics which include abilities, background knowledge, and levels of student cognitive development. From the results of this analysis, it will be used as a frame of reference in preparing learning resources.

Student analysis was carried out to determine student characteristics that were in accordance with the design and development of online teaching materials in learning. The design of teaching materials using flipbooks in science subjects has been adjusted to the competency standards and basic competencies in the 2013 curriculum so that it is expected to be able to achieve learning objectives. Student analysis is an analysis of student characteristics which include abilities, background knowledge, and levels of student cognitive development. From the results of this analysis, it will be used as a frame of reference in preparing learning resources (Trianto, 2015 as cited in Triana Indrawini, Ach. Amirudin 2017). Student analysis was carried out to determine student characteristics that were in accordance with the design and development of online teaching materials in learning. The design of teaching materials using flipbooks in science subjects has been adjusted to the competency standards and basic competencies in the 2013 curriculum so that it is expected to be able to achieve learning objectives. Student analysis is an analysis of student characteristics which include abilities, background knowledge, and levels of student cognitive development. From the results of this analysis, it will be used as a frame of reference in preparing learning resources. Student analysis was carried out to determine student characteristics that were in accordance with the design and development of online teaching materials in learning. and students' level of cognitive development. From the results of this analysis, it will be used as a frame of reference in preparing learning resources. Student analysis was carried out to determine student characteristics that were in accordance with the design and development of online teaching materials in learning. and students' level of cognitive development. From the results of this analysis, it will be used as a frame of reference in preparing learning resources Student analysis was carried out to determine student characteristics that were in accordance with the design and development of online teaching materials in learning.

Based on the results of the researcher interview with the school, namely the science subject teacher, several explanations were obtained about the characteristics of students, as follows (1) students used gadgets more often than opened their books, (2) most of the students had their scores decreased, (3) most of the students' abilities obtained in science subjects have not yet reached the value of 80 according to the KKM, (4) lack of student interest and motivation to learn, this is because the teaching materials used are still not having an effect on students so that students sometimes feel bored to study, especially studying at home, (5) in general, the learning styles of the fifth grade students of SD Negeri 32 Bungloe are more likely to have an audio-visual learning style, the students are more able to understand when using audiovisual media. Based on the results of the analysis of students' needs, curriculum, and character, it can be concluded that students need teaching materials that can stimulate and arouse enthusiasm for learning and as an alternative learning resource that can be used both at school and at home.

An overview of the design of online teaching materials using a flipbook in grade V SD

The design or design stage is in the second stage in the ADDIE model, which is done at this stage, namely compiling the teaching material framework, storyboarding the selection of teaching materials, selecting the format and initial design, and preparing the online teaching material assessment instrument Furthermore, the design of teaching materials that will be developed consists of 3 parts, namely the first part contains a cover, introduction, core competencies, basic competencies and a table of contents. The second part, namely the content or material of the healthy theme is important and the ecosystem, each of which consists of 3 sub-themes in 1 theme and each sub-theme has a task according to the content of the material. And the third part is about evaluation and bibliography.

The beginning design of this teaching material was made in a material, namely that healthy material is important and an ecosystem. Faced with this teaching material can support students' knowledge related to important healthy materials and ecosystems that include eight learning meetings: understanding the differences between the large circulatory system and the small circulatory system in humans, understanding how the circulatory process of humans and animals works, understanding the causes of disorders health in circulatory organs, understand the factors that affect human health, understand ecosystem balance, understand changes in food webs, understand ecosystem components, understand differences in ecosystems, individuals and populations, and understand the relationships between living things in ecosystems.

Level of Validation, Practicality and Effectiveness of the Development of Online Teaching Materials Using a Flipbook In Class V

The third stage of the ADDIE development model, namely the development is carried out by combining all assets into a development product, namely online teaching materials using flipbooks that have been designed and combined then published in application form then this design is given to two expert validators to assess the validity of this aspect. media and material is called the first draft.

Level of Validity

Alhamdulillah, the first validation is media validation, only 1 suggestion was given, which was related to the formulation of indicators in the flipbook. Suggestions had been revised based on input after a limited trial. Expert validation involved two expert validators consisting of one material expert validator and a media expert. As for those who acted as validators in the validity assessment of the existing instruments, Mr. Muhammad Irfan S.Pd, M.Pd. while the one who acted as a media validator is Mrs. Dr. Faridah Febriati, SS, M.Si. the results of the two validators each provided very valid results in the development of online teaching materials.

Table 3. Results of Validation by Material Experts

No	Aspects	Validation Score
A	**Materials**	
1.	The suitability of the material presented in accordance with core competencies	5
2.	The material presented in online teaching materials is in accordance with basic competencies	4
3.	The learning objectives are clear	5
4.	Encourage the learning independence of students	5
5.	Applications can function as support for the independent learning process	5
6.	Clarity and appropriateness of the language used	5
7.	The suitability of the material and characteristics of students	5
8.	The attractiveness of the content	5
	The average validity of each criterion in the material aspect	4,9

No	Aspects	Validation Score
A	**Materials**	
B	Completeness Aspects of Content	5
9.	The material is presented clearly and concisely	5
10.	Coverage (breadth and depth) of material content	5
11.	The material is described coherently	5
	The average validity of each criterion in the Completeness Aspects of Content aspect	5

Source: Processed from the results of the Material Validation instrument, 2021

Based on the validator's assessment on the material aspect, it was obtained an average score of 4.9 which indicates that this aspect is in the very valid category. In the aspect of completeness of the material content, an average score of 5 is obtained which indicates that this aspect is in the very valid category. While the completeness and accuracy obtained an average score of 5. The average obtained material validation has the criteria of "very valid", so online teaching materials using flipbooks are feasible to be tested, but improvements must be made first in accordance with the suggestions given by validator. The suggestions given are that in making flipbook teaching materials, writing learning objectives should take precedence over indicators. These suggestions have been implemented before the field researcher.

Table 4. Media Expert Validation Results

No	Aspects	Validation Score
A	Design	
1.	Product conformity to design	5
2.	Consistency and clarity of color proportions	5
3.	Appropriateness of media use and learning objectives	5
4.	Suitability of material and indicators with video	5
5.	Appropriateness of the use of media and learning materials	5
6.	Appropriateness of media use and student characteristics	4
7.	Font selection suitability	4
8.	Suitability of font size selection	5
9.	Clear contrast between text and background	5
10.	Image quality is clear	5
11.	Consistency and accuracy	4
	The average validity of each criterion in the design aspect	4,7
B	Display	
12.	Clear program identity	4
13.	Clarity of instructions for use	5
14.	Readability of paragraph arrangement	5
15.	The suitability of the use of color proportions	5
16.	Image display clarity	5
17.	Animated clarity	5
18.	Video display clarity	5
	The average validity of each criterion on the display aspect	4,9

Source: Processed from the results of the media validation instrument, 2021

Based on the validator's assessment on the media aspect, it was obtained an average score of 4.7 which indicates that this aspect was very valid category. The validator's assessment on the aspect of display quality obtained an average score of 4.9 which indicates that this aspect was very valid category. In the use aspect, an average score of 4.4 was obtained which indicates that this aspect was valid category. Whereas in the utilization aspect, an average score was obtained of 4.8. So that the average score of the validation score on the learning media was 4.7 which indicated that which media was very valid category. The average validation obtained by Madia has very valid criteria. The suggestions given by the media validator are (1) the cover used should use animation based on student characteristics and the contents of the flipbook, (2) include objectives and indicators, (3) make evaluations according to themes and objectives, (4) complete table of contents.

Implementation Results (Implementation)

The results of the completion of teaching materials at the development stage were then tested in the first stage. A total of three students were the subject of the trial to determine students' reactions to the flipbook learning. The first development evaluation was carried out by asking students for their opinions on flipbook teaching materials, the number of subjects was limited. The teacher explained the important theme of health by using a flipbook, students pay attention to the teacher's explanation, after the teacher explained it online, students were then given the opportunity to use the teaching material in the form of a flipbook.

Evaluation Results (Assessment)

The fifth stage of the ADDIE development model was the evaluation or assessment stage. After the implementation stage was carried out, the next stage was reviewing the learning module. At this stage, the assessment of teaching materials that was seen practicality and effectiveness of online teaching materials. The practical aspect can be seen from filling out the teacher and student response questionnaires. Meanwhile, the effectiveness aspect is seen from the results of the post-test scores. The post-test and student response questionnaires were carried out on April 1, 2021. The following is an explanation of the results of the evaluation stage as follows:

Product Practicality Test

The user trial consisted of 3 stages of testing, namely the first trial involving 3 students, and the subject teacher's response test. Students and teachers as respondents are directly involved in the product trial process. Participation is required from respondents to obtain data that will be used as a basis for determining the level of practicality.

The results of the assessment through a questionnaire in the small group trial obtained an average percentage of 3.6 with a very practical category so that it could be continued at the next stage. After passing through the small group trial stage, the product is then tested based on the responses from the subject teachers. The average percentage obtained from the responses of science subject teachers in class V shows that the teaching material is in the very practical category with an average score of 3.7.

Table 5. Teacher Response Results

No	Aspects	Validation Score
A	**Design**	
1.	The instructions for filling out the questionnaire were clearly stated	4
2.	Teacher response choices are clearly stated	4
	The average validity of each criterion in the design aspect	4

Based on the results of the responses that have been obtained from students and teachers to the developed online teaching materials, it can be concluded that the online teaching materials in the developed science subjects meet the practical criteria for use in the teaching and learning process in The following table shows the results of the posttest Source: Processed from Student Post-Test Results, 2021.

Product Effectiveness Test

Retrieval of student post test data was used to see student scores after using online teaching materials with the flipbook application. The following is the recapitulation of the post-test scores of the fifth-grade students of SD Negeri 32 Bungloe, Bantaeng Regency.

Table 6. Teacher Response Results

Student Code	Form of Problem			Score	Description
	Multiple Choice	Stuffing	Essay		
s1	12	9	12	83	Completed
s2	12	8	12	80	Completed
s3	11	8	14	85	Completed
s4	13	9	14	85	Completed
s5	15	8	13	90	Completed
s6	13	9	13	88	Completed
s7	13	8	11	80	Completed
s8	13	7	12	80	Completed
s9	13	7	13	83	Completed
s10	13	7	13	83	Completed
s11	15	7	8	80	Completed

s12	12	6	11	75	Not finished yet
s13	14	8	14	90	Completed
s14	15	8	12	83	Completed
s15	11	7	12	75	Not finished yet
s16	14	9	14	85	Completed
	Average			83	

Based on Table 6, it shows that the post test score gets an average score 83 which means that the student's mean score is above the KKM. This means that the use of online teaching materials using flipbooks is effective in SD Negeri 32 Bungloe, Bantaeng Regency.

DISCUSSION

This research is research on the development of online teaching materials at SD Negeri 32 Bungloe in Class V using the ADDIE development model. Where at the design analysis stage, the development, implementation and evaluation stages which aim to produce teaching materials, in this case online teaching materials that use flipbooks and are evaluated to obtain teaching materials that are valid, practical, and effective so that it is suitable for use, especially in the subject of science in Class V SD Negeri 32 Bungloe, Bantaeng Regency.

Learning products are developed based on a needs analysis conducted at SD Negeri 32 Bungloe. The analysis was obtained based on the results of student observations and interviews directly with the teacher. The information obtained after the initial observation is that classroom learning only uses student books as a source of learning lent by the school on the condition that students are not allowed to scribble on books, let alone write or work directly on school activity sheets or assignments given but the questions must be rewritten in a notebook then answered. Meanwhile, in the matter of circulatory processes and ecosystems, students are required to carry out many activities, for example knowing the work process of the heart by counting the pulse after and before doing activities.

The learning products developed by researchers for online teaching materials are considered suitable because the level of validity of the two validators is very good with the level of practicality after being given limited trials of students getting categories strongly agree with the acquisition of an average score of 3.6 and the level of effectiveness of online teaching materials using this flipbook can be seen during the field test students are given pretest and posttest with the acquisition of an average score 77% at the time of the implementation of the pretest and during the implementation of the posttest obtained an average score 83%.So that online teaching materials using flipbooks in science subjects can help teachers to expedite the learning process more effectively. The feasibility of teaching material products can be achieved because it meets the criteria for assessing teaching materials products consisting of material according to the curriculum, using clear discussion, material accuracy, learner control, up to date material, students can participate in it, provide instructions for use, can increase student motivation (Heinich 1996). In addition, the quality of the flipbook media is appropriate, namely involving student participation in use, covering all student learning styles, generating motivation with the right composition of colors, graphics, pictures, animation and video, more interactive using the buttons provided, consistency of appearance and students can control according to their wishes (Halliday 2000).

The results of research on the development of online teaching materials using flipbooks show that after a limited trial, the teaching materials are feasible and can be used as teaching materials in grade V SD Negeri 32 Bungloe, this is supported by some previous results studies such as: the use of contextual-based electronic modules using the flipbook application in learning can improve student physics learning outcomes (Susanti, Yennita, and Azhar 2020) and Flip Books can improve physics problem solving skills in students (Maynastiti, Serevina, & Sugihartono, 2020), also it developed belonged to a valid category and was worth to use. 2) Understanding students' concepts during learning activities has increased significantly (Permata, Safitri, and Jumadi 2021). The results of this study indicated that the multimedia-based physics flipbook media made suitable for use in learning physics and can improve student learning outcomes.

CONCLUSION

Based on the needs and characteristics of students so that it is interesting to use for learning and determine the menu bar that will be contained the application of teaching materials using the flipbook. The results of the development through the stages of validation, practicality and effectiveness are carried out by two experts, namely media experts and material experts, teachers and students gave very satisfying results.(Vahlia 2017), (Yasa 2019), so it can be obtained that the results of the development of online teaching materials have met the valid, practical and effective criteria in learning process during the COVID-19 era. Based on the results of this research and development, it can be suggested as follows: (1) Teaching materials using flipbooks in science learning in elementary schools have been developed and the results are valid, practical, and effective in SD Negeri 32 Bungloe, Bantaeng Regency, so it is recommended to use them in elementary schools other. (2) Teachers of science subjects are expected

to be able to apply learning media not only in blood circulation and ecosystem materials but in other appropriate materials in learning so that students can be motivated to study more deeply the material studied at school and at home; (3) There is a need for schools to better prepare facilities and infrastructure so that the learning process is more effective by using flipbook-based teaching materials.

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