



Development of Blog-Based Kvisoft Maker E-Book Learning Media to Improve Students' Cognitive Learning Outcomes in Science Class Vii Students of Smp

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Abstract

The purpose of this study was to produce learning media in the form of an e-book kvisoft dliipbook maker and to improve cognitive learning outcomes for class VII students of SMP Negeri 1 Kota Bangun. This research is a development research using the 4d model. Data collection was carried out through observation and tests of students' cognitive learning outcomes. Data analysis used quantitative descriptive. Recap analysis of students' practicality test data when using e-modules, namely 89.1 in the very practical category. Recap analysis of the effectiveness test data pretest value 53.9 and posttest 84.4. The results of the normality and homogeneity tests show that there is an influence of media use on student learning outcomes with a significance value of 0.00 and the n-gain test at the trial stage is 1.2 high, namely 0.81 and 0.70 and trial 3, namely 0.66 moderate. The results of the study show that this animated video media is appropriate for use according to material experts and media experts in the "good" category. The product developed is also proven to be effective in improving the cognitive learning outcomes of students at SMP Negeri 1 Kota Bangun. The average score of cognitive learning outcomes in the experimental class is higher than the control class. Based on these data it was concluded that there was an increase in students' cognitive learning outcomes by using the Kvisoft Flipbook Maker e-book media.

Keywords: Media; Ebook Kvisoff Flipbook Maker; cognitive learning outcomes.

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1. Introduction

Active learning is learner-centered learning. Active learning helps students to hear, see, ask questions about a particular subject, and discuss it with others in class. One indicator of active learning can be seen from the activeness of students in asking and answering questions from the teacher during the learning process. Asking is an effective stimulus that encourages thinking skills. So student participation in learning really needs to be owned by every student as an educational subject.

In the practice of learning environmental pollution, students can gain direct experience and can add strength to receive, store, and apply the concepts they have learned in everyday life in their respective environments. This statement is also in line with the statement [1]. Environmental Pollution in studying the objects of study in the form of natural objects and events uses direct practice as well as the use of procedures commonly called the scientific method or process. Therefore, the learning process and assessment of environmental pollution learning outcomes should be able to reflect these scientific characteristics. Learning about environmental pollution in the classroom is currently still dominated by teaching materials in the form of print media, namely textbooks. Educators generally only provide teaching materials that are already available, so that in the end students who take part in the learning process feel bored and less enthusiastic, causing the learning process to be ineffective and inefficient.

Education itself has the goal of developing the potential of students to become human beings who believe in and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become citizens of a democratic and responsible state (Law Number 20 of 2003 concerning the National Education System). Efforts that can be made to achieve educational goals can be pursued through a good and planned educational process. The educational process according to the Regulation of the Minister of Education and Culture Number 59 of 2014 is a process that provides opportunities for students to develop their own potential into the ability to think rationally and academic excellence by giving meaning to what is seen, heard, read, and learned to be applied in everyday life .

However, in practice, the educational process still provides very little opportunity for students to develop their potential. To develop students' self-potential, students are required to be active in the learning process. This activity can be achieved by using teaching materials that are innovative, varied, interesting, contextual, and in accordance with the level of student needs. By using such teaching materials, it is hoped that a fun learning process can be created, so that it can trigger an effective learning process. Therefore, teaching materials that are able to make the learning process fun need to be held. One of them is an e-book based module that is packaged in an attractive way.

Modules are the smallest learning program units that can be studied by students individually [2]. The module contains a description of the learning objectives, a teacher's guide sheet that explains how to teach efficiently, reading materials for students, answer key sheets on student worksheets, and learning evaluation tools. By using modules, students can measure their own level of mastery of the material discussed in each module unit.

Each individual has the ability to construct his own knowledge by continuously interacting with his environment (Fahyuni, 2016). This view supports the holding of teaching materials that are concretely related to real life and provides opportunities for students to interact actively with their environment. This is in line with the function of the module which can be used by each individual in evaluating the understanding of the material received. The printed module has drawbacks, namely the lack of ability to display material using simulations, so that students become bored and monotonous. Print modules make the learning process less interesting, less interactive and unable to convey historical messages through pictures and videos.

The e-book-based module is expected to increase the activeness of students' learning provided that it is packaged in an interesting and innovative way. One of them is by not only transferring the text (hardcopy) from print media to digital media (softcopy) but also including pictures explaining the phenomenon of environmental pollution being studied and videos because videos contain images and sounds that can stimulate the participants' senses of sight and hearing. students so as to facilitate the learning process.

Based on the results of observations at 5 public junior high schools in Kota Bangun, the learning outcomes of class VII students were classified as moderate when seen from the results of the tests in the previous chapter, namely 63.24% of students passed based on the KKM. The number of students who graduated from all classes VII on average was only 17 out of 30 students with the expected KKM being 75. In addition, many students claimed that practical lessons and analyzing environmental pollution were not fun, the lessons were the least interesting 5 because according to them these lessons absorb a lot of energy to think.

In addition, there were students who revealed that the educator's factor in explaining also influenced their lack of understanding of environmental pollution lessons. The learning media used by educators to explain material is considered less varied because it only uses blackboard media and PowerPoint learning media so that students feel bored when learning physics takes place. It can also be seen during the learning process that not all students focus on the environmental pollution material presented, many of them are sleepy, chatting with friends, and playing cellphones.

Based on the problem above, it is necessary to find a solution immediately. One way is to develop learning media based on e-book modules that are packaged creatively and innovatively. With the development of e-book-based modules, students will be more active in learning with the hope that it will increase interest in learning and cognitive learning outcomes of students in environmental pollution subjects.

Based on the background of the problems above, the researcher is interested in researching "Development of Blog-Based Kvisoft Flipbook Maker E-Book Media on Environmental Pollution Materials to Improve Cognitive Learning Outcomes of Students at Kota Bangun Middle School".

The purpose of this research is to design the blog-based Kvisoft Flipbook Maker e-book media, to validate the blog-based Kvisoft Flipbook Maker e-book media, to practicalize the blog-based Kvisoft Flipbook Maker e-book media, to increase students' cognitive learning outcomes by using media. Blog-Based Kvisoft Flipbook Maker E-Book.

2. Research Methods

1.1. Types of research

The type of research used in this research is Research and Development (R & D). The R & D method is a method used to produce certain products and test them through research that is needs analysis and product effectiveness testing [3]. Research and Development (research and development) is carried out through several steps. [3] suggests modification of Research and Development (research and development) steps including: potential and problem analysis, collecting data and information, product design, design validation, design revision, product trials, product revisions, usage trials, usage revision (end) and mass production. In research and development methods there are several types of models. The model used is the development of a 4-D model

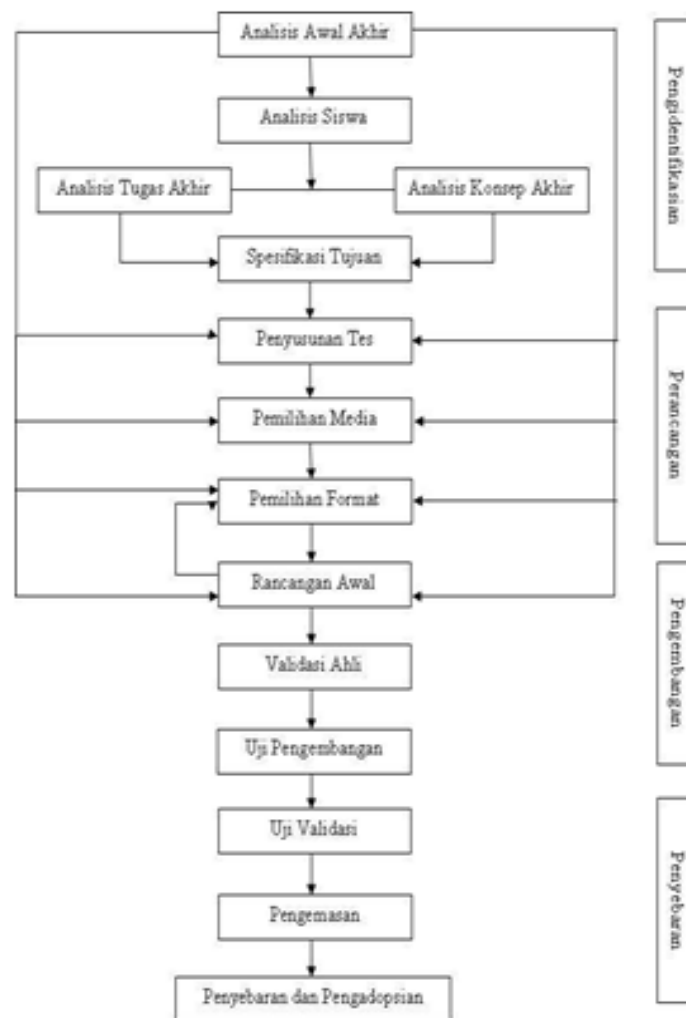


Figure 1: 4-D Model Development Procedure.

Source: (Thiagarane, 1974)

The research was carried out at SMP Negeri 1 and 4 Kota Bangun class VII on the subject of environmental pollution in October - November 2022.

Product trials consist of three stages, namely initial field trials, main field trials, and operational field trials. Prior to product trials, this learning tool was validated by material experts and media experts and then revised.

The test subjects in this study were: class VII students of SMP Negeri 1 Kota Bangun and SMP Negeri 4 Kota Bangun. Classes VIIA and VIIB of SMP Negeri 4 Kota Bangun were the initial field trial classes, with 30 students as subjects, and 30 students as the main field trials. Class VIIA of SMP Negeri 1 Kota Bangun as the experimental class with 30 students and Class VIIB of SMP Negeri 1 Kota Bangun as the control class with 30 students.

Data collection techniques and instruments Data collection techniques used in this study were systematic and unsystematic observation, structured and semi-structured interviews, rating scales, and expert judgment. While the instruments used in this study were interview guides to teachers and students, product assessment sheets, guidelines for observing student learning activities, a scale measuring learning motivation, a national spirit character scale, and guidelines for observing national spirit characters.

Data Analysis Techniques Data analysis consists of two types, namely qualitative and quantitative data analysis. Qualitative data were obtained from observational data, interviews, suggestions from expert validation. The data were analyzed and then described qualitatively in relation to the development of animated video media. Quantitative data were obtained from expert assessment scores, scores of students' cognitive learning outcomes.

The data in the form of scores is converted based on Table 1 regarding Value Conversion [4].

Table 1: Percentage Range and Qualitative Criteria Testing the Validity of Learning Media by the Expert Team.

Rating Scale (100%)	Criteria
86 – 100	Very valid (not revised)
68 – 85	Valid (not revised)
49 – 67	Valid enough (no revision)
25 – 48	Invalid (revision)
< 25	Invalid (revision)

(Sudjana, 2014)

Table 2: Percentage Range and Qualitative Criteria for Media Practicality Test by Teachers and Students.

Percentage Range	Qualitative Criteria
81% - 90%	Very Practical
71% - 80%	Practical
61% - 70%	Quite Practical
50% - 60%	Less Practical
< 50%	Impractical

(Sudjana, 2014)

3. Results and discussion

At the preliminary study stage, interviews were conducted with class VII teachers at SMP Negeri 1, 2, 3, 4, 5 Kota Bangun. Based on the results of interviews conducted on 29-30 July 2021, information was obtained that the five schools were still implementing the K13 Curriculum at all grade levels. In the K13 Curriculum, there are many competencies that students must achieve in these two semesters. Some of the material in the lesson content must be delivered quickly. One of the subject matter whose material is very complex and broad is Natural Sciences. However, because the material is too complex and broad, students are not enthusiastic about learning even though they are supported by existing media. The material in the content of science lessons is indeed very typical of memorization activities. The learning resources used by students were limited to textbooks.

Class VII teachers provide information that the information memorized by students is only temporary. Students easily forget the subject matter. Students need interesting media. Media that can convey information in an interesting way so that it is meaningful and continues to be remembered by students. The media that has been used so far has not been able to improve students' cognitive learning outcomes. During science learning, the teacher conveys learning material in a conventional way. That is, the teacher still dominates his role in class in delivering material using the lecture method. Meanwhile, the students seemed engrossed in talking with their classmates. Students also seemed less enthusiastic in paying attention to the information conveyed by the teacher.

The teacher uses media pictures about environmental damage that are obtained from textbooks only. The media contained in printed books that have been presented by teachers in classroom learning are images only. However, the pictures contained in the printed book have poor display quality so that students are not interested in listening and the pictures are not clear. In order to make maximum use of existing facilities in schools, it is necessary to develop interesting media in the form of e-book media. After the e-book media material "Environmental Pollution" is developed, the next stage is the validation stage. As for the value of the learning media validation test carried out, a value of 98% was obtained with a very valid category for use in learning at school. The results of this study indicate that several elements of media validation, namely the aspects of general appearance, special appearance, and application presentation have been fulfilled very well in media design in the form of kvisoft flipbook marker ebooks.

This is in line with the opinion [5]. stating that operational learning media can be used as a basis for developing learning media which contains aspects of natural science material that cannot be directly observed and implemented. So that the learning media in the form of ebooks, kvisoft flipbook markers developed by researchers, are very suitable for the need for online and offline based learning media.

This research is in line with previous research conducted by [6] regarding "Development of an integrated Science E-Module based on Kvisoft Flipbook Maker with the theme of ecosystems in the environment as a source of independent learning for class X high school students in the biology education study program, faculty of science and technology, Sunan Kalijaga University Yogyakarta. So that teachers can create a blog-based

media. From the results of the media validity test it showed that 98% proved that the learning media in the form of the ebook kvisoft flipbook maker that the researchers developed was in a very valid category. So that the kvisoft flipbook maker ebook media is feasible to be tested without revision.

Validation by media experts aims to obtain information, suggestions, and criticism so that learning media using the Kvisoft Flipbook marker e-book are developed into a quality product in terms of the readability aspect of environmental pollution material with media in the form of the Kvisoft Flipbook marker e-book. The maximum score of each statement item in the validation sheet is 5 and the minimum score is 1.

As for the value of the learning material validation test carried out, a value of 90.7% was obtained with a very valid category for use in school learning. The results of this study indicate that from several elements of material validation, namely from the aspect of content and material content, and aspects of the readability of the material in the media form of e-books, kvisoft flipbook markers have been fulfilled very well. Based on the assessment of material experts, the kvisoft flipbook marker e-book media is feasible to be tested without revision.

According to [7], in developing a creative and innovative learning media it must be based on appropriate learning resources. The researcher stated that the selection of learning resources was in accordance with the material that was poured into the learning media e-book flipbook marker material on environmental pollution. Media e-book kvisoft flipbook marker has a display background, icons, colors, and images that match the theme of environmental pollution.

Validation by linguists aims to obtain information, suggestions, and criticism so that learning media using the kvisoft flipbook marker e-book are developed into a quality product in terms of readability and instructions for using the kvisoft flipbook marker e-book media for use in schools. The maximum score of each statement item in the validation sheet is 5 and the minimum score is 1.

Language validation is more focused on aspects of readability and the use of language presented in the media. Linguists assess the suitability of the language and readability listed in the e-book media kvisoft flipbook marker has been fulfilled. The language validation questionnaire obtained 88% data with a very valid category, and the media is suitable for testing without revision. This means that the validity in terms of suitability of Indonesian writing and spelling is very good. Because the book is published by the Ministry of Education and Culture in PDF format. So that the development of e-book kvisoft flipbook marker media meets the requirements as a good learning media and can be used in schools.

Table 2: below is the result of product evaluation by media, material and language experts.

Assessment Aspect	Score	Category
Media Medium	97,2	Highly Valid
Materi Material	90,77	Very Valid
Bahasa Language	88	Very Valid

Based on table 2, it can be seen that the results of the assessment obtained from the validation of media experts

were 97.2. From this score, if it is categorized, it is very valid. From material experts it is 90.77 which can be categorized as very valid and from linguists it is 88 which can be categorized as very valid. The results of the initial field trial were conducted on Monday 3 October 2022 at SMP Negeri 1 Kota Bangun involving 30 students randomly based on their ability level (low, medium, and high).

Student and teacher responses were obtained through interviews. Based on the results of the interviews, students felt interested and happy not to be bored anymore by using e-book media. Previously, students had never used e-book media when learning natural sciences on environmental pollution. Usually only use textbook media from school, usually the pictures are also not clear. Background animation emphasizes students' imagination about pollution in the surrounding environment because the images in the e-book media are taken from photos of real conditions in their own environment, namely in Kota Bangun.

The results of the interview stated that the teacher did not find it difficult to use e-book media. Teachers find it easier to give an overview to students about environmental pollution around them. Students seem so curious and serious about reading and analyzing the readings and pictures in the e-book. The assignments given by the teacher can be completed properly. Teachers also assess student cooperation has increased. This can be seen from the cohesiveness in the study group. Student knowledge about pollution in the environment is increasing. Initially, students were only able to say that pollution was just vehicle exhaust. After using the e-book, students were able to distinguish between air, water and land pollution. During learning using e-book media, students seemed enthusiastic when answering questions in the e-book. Usually students joke when the teacher explains the subject matter. However, it is different when students use e-book media, students look serious and really listen and pay attention. Concentration focused on displaying images and animations in e-books. This is evidenced by the conducive and relatively quiet classroom atmosphere. Students are more serious when working on assignments in groups. Between students already respect each other, especially when discussing and expressing opinions. Harmony between students is well maintained, both during learning and outside the classroom. This is in line with the opinion [7], stating that learning media is in the form of learning process aids to convey subject matter. According to the researchers, the media developed is very practical to do in schools, especially teachers and students, both in online and offline learning. Utilization of these media can be carried out anywhere and at any time, not limited in time or flexible. Student Practicality Tests were carried out at SMP Negeri 1 Kota Bangun with 4 class VII and SMP Negeri 4 Kota Bangun with 2 class VII. From the average percentage of student practicality tests can be seen in table 3 below.

Table 3: Recap of Student Practicality Test.

No	School	Grade	Component assessed
			Student Practicality Percentage
1.	SMP Negeri 1 Kota Bangun	VII A	84.9
		VII B	89.1
2.	SMP Negeri 4 Kota Bangun	VIIA	89,1
		VII B	89,1
Average Percentage of Practicality of Students			89.1
Category			VERY PRACTICAL

Table 3 shows a recap of the results of the practicality test by students of SMP Negeri 1 and SMP Negeri 4 Kota Bangun. The results of these data provide an average practicality test score for students in all VII grades of 89.1% with a very practical category so that the use of the flippbook marker ebook module is very practical to teach students at SMP Negeri 1 Kota Bangun and SMP Negeri 4 Kota Bangun.

The effectiveness test was carried out at SMP Negeri 1 Kota Bangun using 2 classes VII A, B and SMP Negeri 4 Kota Bangun using 2 classes VII A, B. The effectiveness test was carried out using the students' pretest and posttest scores. A recap of the average pretest and posttest scores of students can be seen in table 4.9.

Table 4: Recap of Effectiveness Test Data Analysis.

No	School	Class	Grades	
			Pretest	Posttest
1.	SMP Negeri 1 Kota Bangun	VII A	55.63	84.80
		VII B	54.27	81.60
2.	SMP Negeri 4 Kota Bangun	VII A	52.13	90.93
		VII B	54.13	86.13
Average Score Pretest – Posttest			53.9	84.4

Table 4 shows the recap of the average student pretest score of 53.9 and the student's posttest score of 84.4.

There is a significant difference of 30.5 so that learning using the kvisof flipbook marker ebook module is very effective for use in SMP Negeri 1 Kota Bangun and SMP Negeri 4 Kota Bangun class VII.

This is in line with the opinion [8] which states that the practicality level of a learning media can be measured based on the ease of use in learning activities and with the aim of developing the learning media.

According to the researchers, the use and application of the kvisoft flipbook marker ebook media is very practical, this is because when teachers and students are very easy to try in the installation process of applying it to the use of media in the science learning process in the form of a link.

This is in line with [9], stating that the characteristics of educational products have a high practicality quality when experts and teachers consider that the product can be used easily for teachers and students to use the product.

From the effectiveness test, it is continued with the normality test to find out student learning outcomes on whether the learning media is effective or not.

a. Normality test

The normality test in this study is used to determine whether the research sample is normally distributed or not.

The normality test results can be seen in the following table:

Table 5: Normality Test of Learning Outcomes.

Test results	Class	Kolmogorov-Smirnov ^a		
		Statistic	Df	Sig.
Cognitive Learning Outcomes	<i>pre-test</i> (eksperimen)	.124	30	.200*
	<i>post-test</i> (eksperimen)	.143	30	.119
	<i>Pre-test</i> (kontrol)	.128	30	.200*
	<i>post-test</i> (kontrol)	.108	30	.200*

Information : *. *This is a lower bound of the true significance.*

a. *Lilliefors Significance Correction*

Based on the normality test table above, it is known that the significance value for the control class is 0.200 and $0.200 > 0.05$, while the experimental class has a significance value of 0.200 and $0.119 > 0.05$, meaning that it can be concluded that the research sample is normally distributed.

a. Homogeneity Test Results of SMP Negeri 1 Kota Bangun

This test aims to determine whether student learning outcomes in the control class and experimental test class are homogeneous or not.

Tabel 6: Uji Homogenitas Varians Hasil Belajar.

		Levene Statistic	df1	df2	Sig.
Student learning outcomes	<i>Based on Mean</i>	1.093	1	58	.300
	<i>Based on Median</i>	.668	1	58	.417
	<i>Based on Median and with adjusted df</i>	.668	1	56.342	.417
	<i>Based on trimmed mean</i>	.988	1	58	.324

Based on the table above, it is known that at the homogeneity significance level of 0.300 (> 0.05) it shows that the pretest variables in the experimental and control classes are homogeneous, with Levene Statistics 1.093. Furthermore, the significant level of homogeneity is 0.324 (> 0.05) indicating that the posttest variables in the experimental and control classes are homogeneous with Levene Statistics 0.668

The t test begins with test 1 at SMP Negeri 1 Kota Bangun. In the initial test here using a paired sample t-test to determine the influence of media use on students' cognitive learning outcomes. The results of test 1 can be seen in table 7 below:

Table 7: Paired Samples Test.

		T	Df	Sig. (2-tailed)
Pair 1	<i>Pre-test eksperimen</i> <i>Post-test eksperimen</i>	-31.975	29	.000

From the results of the paired sample t-test conducted, it shows that there is an effect of using media on increasing students' cognitive learning outcomes as evidenced by the significance value of $0.00 < 0.05$.

After knowing that there is an influence on the use of media, it can be tested using an independent sample t-test to determine the effectiveness of using media to increase students' cognitive learning outcomes.

From test 1, it was tested first through dissemination at SMP Negeri 4 Kota Bangun can be seen in table 8 below:

Table 8: Independent sample test.

		t-test for Equality of Means		
		T	Df	Sig. (2-tailed)
Student learning outcomes	Equal variances assumed	4.441	58	.000
	Equal variances not assumed	4.441	56.762	.000

From the results of the independent t-test conducted, it shows that the media is effective in increasing students' cognitive learning outcomes as evidenced by the significance value of $0.00 < 0.05$.

Then tested again, namely the n-gain test can be seen in table 9 below:

Table 9: N-Gain Test.

No.	Tahap	Rerata Pretest	Rerata Post test	Indeks Gain	Katagori
1	Uji coba 1	44,23	88,60	0,81	Tinggi
2	Uji coba 2	47,67	86,13	0.70	Tinggi
3	Uji coba 3	47,90	83,10	0,66	Sedang

The $\langle g \rangle$ symbol is the value of the gain score obtained. Gain scores are categorized as high ($\langle g \rangle > 0.7$), moderate ($0.3 \leq \langle g \rangle \leq 0.7$) and low ($\langle g \rangle < 0.3$). Learning is said to be effective if the gain score is at a moderate or high level, if the gain score is at a moderate level or, it means that the learning media has a positive influence on student learning outcomes.

The results of the n-gain test showed that at the first trial stage at SMP Negeri 1 Kota Bangun class VII A with a gain score of 0.81 was in the high category because the gain score was greater than 0.7. In the second trial phase at SMP Negeri 4 Kota Bangun class VII A with a gain score of 0.70 is in the high category because the gain score is greater than 0.7. In the third trial at SMP Negeri 4 Kota Bangun Class VII B with a gain score of 0.66 in the moderate category because the score is greater than 0.3 and less than 0.7.

Closing

A. Conclusion

Based on the formulation of the problem, research objectives, and research results, it can be concluded as follows:

1. The kvisoft flipbook maker e-book learning media that has been developed has a nuanced design with images with backgrounds of various kinds of environments, very much in line with the media called e-book kvisoft flipbook maker material on environmental pollution as evidenced by the percentage of media validity of 97.2% with information very valid.
2. The validity of the kvisoft flipbook maker e-book learning media developed has very valid quality to be carried out in learning as evidenced by the validity of the material in the media of 90.77% which is very valid and the validity of the language in the e-book media kvisoft flipbook maker is 88% which is very valid .
3. The practicality of the kvisoft flipbook maker e-book learning media that has been developed has a very practical quality for use by teachers and students in learning as evidenced by the practicality test for teachers at SMP Negeri 1 Kota Bangun of 95.3% very practical and the practical test for teachers at SMP Negeri 4 Kota Bangun 98.4% is very practical.
4. The effectiveness of the kvisoft flipbook maker e-book learning media developed has the quality of being effectively used by students in learning. Based on the data on learning outcomes using the e-book kvisoft flipbook maker that has been implemented by the teacher, it is proven that it can improve students' cognitive learning outcomes. This was reinforced by the results of testing the effectiveness of the Kvisoft Flipbook Maker e-book when it was used for teaching trials in the classroom.

B. Suggestion

Based on the results of this study, the researcher recommends the following suggestions:

1. To school principals to provide support in the form of complete facilities for technological developments such as the internet, especially the use of blog-based flipbook maker e-book learning media in the school environment.
2. For teachers to use blog-based flipbook maker e-book learning media in the teaching and learning process both offline and online.
3. For future researchers, it is necessary to develop an advanced blog-based flipbook maker e-book media so that it is even more interesting with different concepts of biological material.

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