



Development of “Pop-Up Book for Kids” as a Learning Media Science theme “Perubahan Cuaca” for Student of Class 3 Elementary School

Johara Aulia Zaeni¹, Eny Winaryati², Eko Yuliyanto³

^{1,2}Departement of Chemistry education Faculty of mathematic and Natural Science,

³Faculty of mathematic and Natural Science

¹Joharaaulia2002@gmail.com, ²enie.weye@gamil.com, ³ekoyuliyanto@unimus.ac.id

Abstract

This study aims to develop “Pop-Up Book for Kids” as a learning media science worthy of use of theme “Perubahan Cuaca” for student of 3rd grade primary school. The model of this research is the development of Borg and Gall procedural methods. Data were obtained from two specialist material lecturers, two specialist media, two elementary school science teacher as reviewer and students as respondents. In this study, there were three and five students of class 3 in limited test from SD Negeri Kedungmundu. Techniques of data collection were observation, questionnaires, and interviews. the results of the above tests can be concluded that the Pop-Up Book for Kids media can attract students interest in the learning process, this is based on the results of observations that have been done. Based on the results of interviews with one of the subjects of research, according to him learning with this media is very fun because many colors and interesting with the existence of some Pop-Up Book techniques that appear this way student thinks easier in understanding the material.

1. Introduction

The quality of education is very influential of the progress of a nation. The success of particular nation to improve the quality of education serves as a barometer for measuring the degree of progress the country . A lot of people are of the opinion that that the quality of education in indonesia are still very

low when compared to neighboring countries. Test results and survey carried out by PISA (Programme for International Students Assessment) the results showed that some of the form or the indonesian students is still classified as low, by occupying rank for science, read, and mathematics in the three successive the final period that can be seen in the following table 1.1

Table 1.1 Hasil tes PISA

Kategori	Tahun		
	2009	2012	2015
Sains	60	64	62
Membaca	57	61	61
Matematika	61	65	62

On the outcome of pisa latest such as in 2015, indonesia is ranked

as the 62, 61, and 62 of 69 countries evaluated. Rank obtained indonesia



do not differ much on the outcome of pisa survey that have gone before also occupy their mastery of the material group low.

On the outcome of the questionnaire was which has been spread by OECD, or the results of that draws, where in the index of pleasure study sciences (index of enjoyment of learning science) for indonesia 0.65 higher than with an index reached by the countries with the highest score singapore by 0.59 and japan as much as -0,33 (Iswadi, 2016).

Based on these results where index pleasure study sciences indonesian children who high there should have been the introduction of science early on to improve understanding of science on the students in indonesia, so no need to delight in studies science but can be improve understanding science and it can be applied in daily life. The introduction of science should be introduced early on especially for students of the primary school to build individual that they would know that and understanding the scope of the science which have the effect of encouragement thorough on intellectual that will bring his intellectual of increasing the strength of. Deboer (in sumaji , dkk 2002) teach science means teaching a way of thinking scientific for use as the

problem solving in the lives of children. And what that means is with since the early age provide learning to science, so will prepare ahead of the children in the challenges and capable to fixed any problems.

Potential development learners need to be done as early as possible, since sitting in elementary school. This is based on the consideration that the development of any potential intelligence of the child at an early age is growing rapidly. In addition, students at elementary school age has a specificity in development psychology, that is seeing everything as a whole (holistic) and capable understand the relationship between concepts on a regular basis deep. The learning process is still depending on the concrete objects and experience experienced directly (Suliharti, 2007). One of that learning shows a holistic development there is on thematic learning. This thematic learning is used in the classroom low elementary school level. In accordance with the Malyana's (2008) opinion states that thematic learning is a lesson learned in low elementary school students in class 1, class 2, and class 3.

Thematic learning can be interpreted as a lesson with integrating multiple materials lesson in one theme / topic of discussion. In



addition, thematic learning will be provides integrated learning opportunities more emphasis on participation or student involvement in learning. Basic implement and implement learning thematic, there are some basic principles necessary note that are: 1. is integrated with the environment, 2. the form of learning designed so that students find a theme, and 3. time efficiency, material load, method, and use of authentic learning resources (Sungkono, 2006)

Based on the results of interviews that have been done with science teacher grade 3 in SD N 1 Kedungmundu, obtained the result that science learning in low grade that is class 3 is only limited to the introduction of basic Science and learning media used still by using the student's package books, whereas the lesson should be prepared to support the success of an education that is by using learning media in accordance with the stages of student development

According to Piaget in Izzaty (2008) the children at the low class in elementary school are included in the concrete operational stage. At that time the children begin to take on the nature of egocentrism that has been able to see things from the eyes of others; real processes in real

events, can be considered in general and not abstract; and began to develop his conversion skills. At these moments, children will relate to the educational process within the education system. In order for the learning process in accordance with the development of students, in addition to environmental factors and the school it is necessary by using teaching aids or learning media that is more concrete in accordance with the conditions of students.

Learning media serves as a means to achieve learning objectives. Hamalik (in Arsyad, 2005) argued that the use of learning media in the learning process can generate new desires and interests, generate motivation and stimulation of student learning activities. In addition, the use of instructional media is also useful to improve students' learning competencies, especially in science learning.

One of the learning media that can be used in learning Science for children in the concrete operational stage of the Pop-Up Book media, where Pop-Up Book was chosen because it is a paper art that forms three dimensions when opened and very interesting for children. Learning media Pop-Up Book is considered to have a special attraction for students because it is able to present the visualization with



forms made by folding, moving and appearing so as to give surprise and admiration for students when opening every page (Khoiraton, 2014). for that we need to develop the book "Pop-Up Book For Kids" as a media of science learning for that need to be developed book "Pop-Up Book For Kids" as media of thematic learning for class 3 elementary school.

2. Method

The development procedure in this research refers to 4D research and development model (R & D) according to Thiagarajan covering define, design, development and disseminate, but in this research the researcher only develop until the development stage. This is because the research is only done for one school and there are time limitations as well as the purpose of this research.

The initial stages are analyzing the needs, the material analysis includes the determination of the IPA study field to be integrated, mapping the Competency Standards and Basic Competencies, setting the theme, and media analysis including the drafting of the product. The result of the drafting of the next product is tested by the expert of media expert material as well as the validation by the elementary school teacher.

Phase draft development is

done by revising based on validation by some experts. Validated products were then tested on three and five students. Limited pilot activities were conducted to find out the students' responses to the developed media. Based on the results of these tests obtained data that can be analyzed so that can be revised back from the results tersebut.

Data obtained from the research development is qualitative and quantitative data. Quantitative data for material experts, media experts, and validation of teacher response in the form of numbers 5, 4, 3, 2, 1. The figure is then recapitulated on a scale of 5 so it can be concluded the level of media feasibility. While the qualitative data obtained from the results of questionnaires in the form of comments from observers at the time of limited tests, and student comments on the media learning.

Data analysis techniques in this study were conducted with the aim to obtain evidence of the quality or feasibility of Pop-Up Book media products developed. The feasibility of this product is seen from the results of limited product trials, teacher responses, and data from expert test results of material experts and media experts. Qualitative data were obtained from two data, namely (1) data analysis of students 'and



teachers' needs on the development of learning media Science of chemistry aspects with Pop-Up conducted with interview techniques with science teacher grade 3, and (2) test analysis data limited to 3 and 5 students obtained from the observation result of the product test on the students and the result of the interview. The quantitative data was converted to qualitative according to the criteria of the 5th scale assessment with the category that is very less (1), less good (2), good enough (3), good (4), and very good (5), according to S. Eko Putro Widoyoko (2009).

3. Results

The data in this study is limited test data on three and five students to know the feasibility of developed media. From the results of the assessment by experts and the validation of teacher responses, the results obtained that the media in the category of "very good" which then

carried out a limited test. At the trial stage the product aims to determine whether the media developed feasible to use or not. After the product is validated by media expert and material expert, Pop-Up Book media is tested to the research subjects of 3rd grade elementary school. In the first phase trials were conducted for three students and the second phase was tested on five students. The experimental process conducted by researchers and one student as an observer, this is done so that observation of test results is not subjective from the researchers only.

At the time of trial implementation on three students, there are two students who are also interested to see the learning media used as in figure 4.15 above. The observations made by the observer on the test to three and five students can be seen in table 3.1

Table 3.1 Result Limited Test

No.	Aspek	Hasil pengamatan
1.	Happiness	Students are very happy to follow the learning with Pop-Up Book.
2.	Curiosity	In learning using Pop-Up Book students are very enthusiastic and great curiosity, this is seen when the first page of Pop-Up Book opened, students directly examine the contents of the book with details.
3.	Spirit	Students are very passionate about learning using Pop-Up Book media.



4.	Activeness	Students are active in learning using Pop-Up Book media, students who are known to be passive can be active when Pop-Up Book is used in learning.
5.	Assistance	Students are very helpful in understanding the material with Pop-Up Book media, because in addition to containing the material, Pop-Up Book also features images so that students are able to explore the material further.
6.	Convenience	Students can use the learning media easily. This is because the Pop-Up Book is equipped with how to use or use the procedure at the beginning of the page.
7.	Practicality	Pop-Up Book learning media is practical to use and easy to carry or move anywhere because of its portable size and not too big.
8.	Interest	Students are very interested to use Pop-Up Book media because it has images and materials and language that is easily understood by students.

Based on the results in the table above, it can be seen that the developed learning media can attract the attention of students and also help students in learning.

4. Discussion

Research and development is motivated by science learning is still simple and theoretical, so less linking material with problems in everyday life. Everyday problems of course there are many things, among others: technology, society, and the environment. Learning science has an important role in providing experience to students viewed from the dimensions of science as knowledge, process and product, application or application, as well as a means of developing attitudes and scientific values.

Integrated thematic learning is a learning that integrates the

various competencies of the various subjects into a variety of themes.

The theme knows the meanings of basic concepts so that students do not learn basic concepts partially. Thus the learning gives the students intact meaning as reflected in the various themes available (Puspita, 2016).

Development of Pop-Up Book media is a media that helps students to do observing activities is when opening a section of the book that gave rise to a new image or shape; questioning activities, during the use of Pop-Up Book media students are given the opportunity to ask questions and also answer questions such as when children see images of the process of occurrence of rain; information gathering activities, students will collect information to collect answers from



each question contained in the Pop-Up Book media; reasoning activities, when using Pop-Up Book media students are freed to explore their knowledge which is then assisted with teacher guidance; Communicating activities, after students get information and find answers then students are given the opportunity to express the answers and opinions.

The quality of Pop-Up Book for Kids media can be seen in the test stages by the material and media experts, the results of the assessment by experts on the assessment also obtained some suggestions or input from each expert to improve the quality of the media developed, the average score of each material expert and a media expert showed the results in the "excellent" category after being converted on a scale of five, from the material expert got an average score of 4.5 and the media expert 4.6, it indicates that the developed learning media can be used for elementary school students.

The next stage of the trial is limited to 3rd grade students of SD N Kedungmundu, on a limited trial conducted during school breaks in three students and five students, this is because in a limited trial tested with variations in cognitive level of students from low, and high. The

experiment was conducted with one observer from the students because the observation result is not subjective from the researcher's observation. At the time of the experiment, the observer gave the result of his observation to the student's response of the entire limited test that is on three and five students from several aspects found on the observation sheet.

Students are enthusiastic to view each picture and try to tell about the image displayed on Pop-Up Book media. The next page students are shown again Pop-Up Book display about the rain cycle, on this page students are interested to read the process of rain and try to move clouds that are exposed to the wind and lower water when it rains. In this section of the page there are also kinds of clouds like sirus, cumulus, and stratus, some students respond when using media that "wah water can come down" and "good picture can appear and move".

At the time of observation the students looked enthusiastic and interested to read the book, this is indicated by the expression of responses from students.

Developed media can help students to explore the ability to tell the story of the images on the media, ask, and argue, this is because the media developed is a medium for



thematic learning elementary school where the learning process is student-centered (student center learning). The next page is about the chemical aspects, the first time to open the page the first thing students know about chemistry is borax on the meatballs, after being shown the chemical aspects of water students then given the explanation that the chemical was close to the daily life of students, students also gave opinion about the benefits of water for life and daily living for drinking, washing and bathing. Images in the media about the chemical aspects make it easier for students to think about the process of changing the shape of water from solids, solutions, aqueous, and gases. Students look enthusiastic when answering questions about the benefits and the influence of abundant water, students can also tell the cause of the flood is due to garbage piled up.

The advantages of Pop-Up Book for Kids media is that it can attract students to learn and read books with Pop-Up techniques and the appearance of color media, Pop-Up book selected as an alternative media learning because the book Pop-Up is one creative field paper with movable book and elevator the flap.

This is what makes Pop-Up easier to remember, because it has surprisingly surprising effects of the shocking effect of the resulting movement when the Pop-Up technique operates (Devi, 2017).

From the results of the above tests can be concluded that the Pop-Up Book for Kids media can attract students interest in the learning process, this is based on the results of observations that have been done. Based on the results of interviews with one of the subjects of research, according to him learning with this media is very fun because many colors and interesting with the existence of some Pop-Up Book techniques that appear this way they thinks easier in understanding the material.

5. Acknowledgement

I would like to express my highest gratitude and appreciation to my first consultant, Dr. Eny Winaryati, M.Pd and my second consultant, Eko Yuliyanto, S.Pd,Si.,M.Pd who have been very helpful, kind and patient in giving me advice, ideas, guidance, assistance, and their valuable time during the process of writing this articles. I also wish to express my sincere thanks to 3rd grade student SD N Kedungmundu and teachers who has helped a lot in this research process.



6. References

1. Arsyad, Azhar. 2005. *Media Pembelajaran*. Jakarta: PT Raja Grafindo Persada
2. Devi, Anggit Shita dan Siti Maisaroh. 2017. Pengembangan Media Pembelajaran Buku Pop-Up Wayang Tokoh Pandhawa pada Mata Pelajaran Bahasa Jawa Kelas V SD. *Jurnal PGSD Indonesia*. Vol.3. No.2
3. Iswadi, Hazrul. 2016. "Sekelumit Dari Hasil Pisa 2015 Yang Baru Dirilis". (<http://www.ubaya.ac.id/2014/content/articles-detail/230/Sekelumit-Dari-Hasil-Pisa-2015-Yang-Baru-Dirilis.html>, diakses 20 juni 2018)
4. Malyana, Andasia. 2008. Teknik Pembelajaran Tematik dengan Metode Edutainment untuk Meningkatkan Hasil Belajar Siswa Kelas I di Sekolah Dasar. *Jurnal Nuansa Pendidikan*. Vol. 6, No. 1. Halaman 27-34
5. Rita Eka Izzaty dkk. 2008. *Perkembangan Siswa*. Yogyakarta: UNY Press.
6. Suliharti, Susun. 2007. Konsistensi Kebijakan Pemerintah dalam Pelaksanaan Pembelajaran Tematik di Sekolah. *Jurnal Teknologi Pendidikan*. Vol. 9, No. 3
7. Sumaji. 2002. *Pendidikan Sains yang Humanistis*. Jakarta
8. Sungkono. 2006. Pembelajaran Tematik dan Implementasinya di Sekolah Dasar. *Jurnal Majalah Ilmiah Pembelajaran*. Vol. 2, No. 1. Halaman 51-58
9. Widoyoko, Eko Putro. 2010. *Evaluasi Program Pembelajaran*. Yogyakarta: Pustaka Pelajar