The Validity of *Pop-up Book* Media at Changing the Form of Objects Topic

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A B S T R A K

Hasil analisis buku siswa kelas V sekolah dasar pada semester II Tema 7 dan hasil observasi di SD menyatakan bahwa buku pedoman yang digunakan guru dan siswa dalam proses pembelajaran masih terbatas terutama pada materi IPA. Tampilan buku juga kurang menarik, sehingga siswa menjadi kurang memahami materi yang dijelaskan. Selain itu, kurangnya penggunaan dan pengembangan media didalam proses belajar mengajar juga mendasari dilaksanakannya penelitian ini. Adapun tujuan penelitian ini adalah untuk mengembangkan media *pop-up book* pada topik perubahan wujud benda yang teruji validitasnya. Penelitian ini dilakukan menggunakan model pengembangan ADDIE (*analyze, design, development, implementation, evaluation*). Namun, karena keterbatasan waktu, sumber daya, dan finansial penelitian ini hanya dilaksanakan sampai tahap *development*. Subjek dalam penelitian ini adalah media *pop-up book* pada topik perubahan wujud benda. Sedangkan objek penelitian ini adalah validitas media *pop-up book* pada topik perubahan wujud benda. Metode yang digunakan dalam penelitian ini adalah kuesioner yang diberikan kepada dua orang guru dan dua orang dosen sebagai ahli. Instrumen yang digunakan adalah *rating scale* berupa lembar penilaian media untuk para ahli. Data yang diperoleh kemudian dianalisis dengan rumus *mean* untuk mengetahui validitasnya*.* Nilai rata-rata media *pop-up book* setelah di *review* oleh ahli adalah 4,87 dengan kualifikasi sangat baik. Implikasi penelitian ini yaitu adanya media *pop-up book* yang memiliki kualifikasi sangat baik. Berdasarkan hasil analisis tersebut maka media yang dikembangkan dinyatakan valid dan dapat dimanfaatkan oleh guru untuk mempermudah guru dalam menjelaskan materi khususnya pada topik perubahan wujud benda di kelas V sekolah dasar

A B S T R A C T

The results of the analysis of the fifth-grade elementary school students' books in the second-semester Theme 7 and the results of observations in elementary schools state that the manuals used by teachers and students in the learning process are still limited especially in science material. The appearance of the book also less attractive, so students become less understanding of the material explained. In addition, the lack of use and development of media in the teaching and learning process also underlies the implementation of this research. The purpose of this research was to develop a pop-up book media on the topic of changing the form of objects with validity tested. This research was conducted using the ADDIE development model (analyze, design, development, implementation, evaluation). However, due to limited time, resources, and finances, the research was only carried out until the development stage. The subject in this research was the pop-up book media on the topic of changing the form of objects. Whereas the object of this research was the validity of the pop-up book media on the topic of changing objects. The method used in this study was a questionnaire given to two teachers and two lecturers as experts. The instrument used was a rating scale in the form of media assessment sheets for experts. The data analyzed with the mean formula to find out its validity. The average score of the pop-up book media after being reviewed by experts was 4.87 with very good qualifications. The implication of this research was the existence of pop-up book media that have very good qualifications. Based on the results of the analysis, the developed media was valid and can be used by the teacher to facilitate the teacher in explaining the material, especially on the topic of changing the form of objects in the fifth grade of elementary school

1. **Introduction**

The process of good teaching and learning activities must be carried out in all subjects at school, no exception to science subjects at the elementary school level (Saputri & et al, 2018). Science is important. Science is not only knowledge in the form of facts, concepts, or principles, but also a process of discovery, it discusses materials related to how to find out nature systematically (Panjaitan, 2017). Science is a subject that discusses events that occur in nature and are close to the student’s life (Hutauruk & Simbolon, 2018). The use of learning media that developed creatively can expedite the process of teaching and learning activities, so learning objectives can be achieved (Arda & et al, 2015).

Learning media can make it easier for students to understand the learning given by the teacher, so it is necessary to use learning media that can be used as examples of concrete objects that are easily understood by students. Good classroom learning activities cannot be separated from the role of the media that can be used in the learning process (Dewanti & et al, 2018). The role of the media is very important as a tool for students’ learning. In its selection, the media must be in accordance with the characteristics of students because they can play an active role in the learning process. Media can be interpreted as a tool that delivers learning by the teacher to students (Arsyad, 2016).

However, the use of instructional media is still less than optimal because teachers as instructors only use student books. Media as one of the factors that can support the success of teaching and learning activities in schools because it can help the process of delivering information from teachers to students and vice versa (Arda & Dkk, 2015). Based on the needs analysis conducted on fifth-grade student’s books, in the second semester at Theme 7 Events in Life and supported by observations on SD Gugus VII Kecamatan Sukasada 2019/2020 academic year, which was conducted on 7 and 14 November 2019 by providing a questionnaire to the teacher and fifth-grade students, the result: (1) 83.3% of the teachers stated that the material contained in the science books in students’ book is narrow, (2) 90% of students stated the material contained in the science book is not complete, (3) 100% the teacher states that it is necessary to develop science content material in student books, (4) 77% of students state the need to develop science content material in the form of pop-up book media, and (5) 100% of teachers agree if the science content material in student books is developed in the form of pop-up book media. This proves that learning media is very important in the learning process.

Based on the results of interviews with the fifth-grade teachers in SD Gugus VII Kecamatan Sukasada 2019/2020 academic year, the media in learning available at each school is still limited to student books. It because teachers do not develop their creativity in making learning media, teachers only use media in simple learning in the form of pictures and student books. Students feel easily bored in participating in learning activities. It can cause low students’ interest in learning, so the learning goals achieved not running optimally.

The learning process always involves three main components: (1) the teacher as the sender of the message, (2) the student as the recipient of the message, and (3) the component of the message itself is material (Sanjaya, 2006). When the learning process takes place sometimes communication errors or failures will happen. This means that learning material delivered by the teacher cannot be understood by students optimally, even students misunderstand the message or material delivered by the teacher. To minimize, the teacher can plan learning strategies by utilizing various media and learning resources.

The selection of media in the learning process that can attract students' learning interest is very necessary. The teacher should be able to understand the characteristics of students first, so the teacher can choose the media that is suitable and can be influential in the learning process. One of the media that can be used to attract students' learning interest is the pop-up book media. This is supported by the results of observations by giving questionnaires to students and teachers who get that 77% of students stated the need to develop science content material in the form of pop-up book media, and 100% of teachers stated strongly agree if the material content of science in student books was developed in the form of the pop-up book.

Pop-up book media is a teaching aid that can stimulate children's imagination in three dimensions and able to increase children's knowledge, so it can facilitate children in knowing the depiction of an object, increase children's understanding, and enrich the vocabulary (Nurhikmah & et al, 2018). Pop-Up Book is a media that can be seen through various viewpoints that have a length, width, and height or three dimensions that can be made by hand (Najahah & Oemar, 2016). A visual display that displays three-dimension images on each page and some can move, the reader not feel bored to read it (Sholikhah & et al, 2017). Pop-up book media criteria in the book display component and the pop-up book technique used are (1) media that is made able to be closed and opened without tearing other sheets of paper, (2) media pages that are made do not intersect each other, so they do not there are obstacles when opening or closing a book, (3) when closed the media can be neatly closed, (4) Elements of the media that are made are elements of color, shape, attractive texture, (5) media that is made is not easily damaged ( Fadillah & Lestari, 2016). Pop-up book media is very suitable to be used to create a varied learning atmosphere (Ningtiyas & et al, 2019). Pop-up book media have a visual dimension in the form of images that can arise, so when the page is opened a three-dimensional image will appear on each page (Masturah & et al, 2018). Pop-up book media is similar to origami where both of these arts use paper folding techniques, pop-up book media presents visualization with shapes made by folding and so on, therefore pop-up book media is suitable in learning science (Anggraini & et al, 2019). One of the contents of science especially on the topic of changes in the form of objects still needs to be discussed and developed in-depth.

The topic of changing the form of the object is in fifth-grade elementary school, semester II on Theme 7 Events in Life material. Changes in the form of objects are a change in the composition of the object caused by heat energy which can change from one level to another form (Astawan & et al, 2015). Therefore, teachers must be more creative and innovative to make pop-up book media, especially on the topic of changing objects to attract students' attention. Students consider learning to be interesting to learn if there is something that is considered new, students will feel bored with learning that does not vary.

Based on the explanation above, the development research was carried out with the title "Validity of Pop-up Book Media on the Topic of Changes in Objects", then the goal to be achieved in this study was to develop a pop-up book on the topic of change in the fifth grade of an elementary school in 2019/2020 lessons that prove their validity. In addition, there has been no research into the development of pop-up book media, especially on the topic of changing objects. Therefore, in this research, a pop-up book media was developed on the topic of fifth-grade elementary school. The limitations of the development in this study are, firstly the development of the pop-up book media is develop based on the characteristics of fifth-grade elementary school students in Gugus VII Kecamatan Sukasada in 2019/2020 academic year, the second discussion in this study is limited to the topic of changes in the form of objects discussed in media pop-up book, these three studies use the ADDIE model, analysis, design, development, implementation, and evaluation, at the implementation and evaluation stages are not carried out due to limited time, energy, resources, and finance.

1. **Research Method**

This research was a research development of pop-up book media on the topic of changing the form of objects in fifth-grade elementary school. This research included development research. This research model used the ADDIE development model (Analyze, Design, Development, Implementation, and Evaluation) which is one of the systematic learning design models. The ADDIE model is easy to understand, systematically developed, builds on the theoretical foundation of learning design, then the selection of the ADDIE model has based on the consideration that the ADDIE model has a systematic and clear development process flow in the effort to solve learning problems related to learning resources that are appropriate to the needs and characteristics of students, so this model was chosen to use in this study (Tegeh & Jampel, 2017). The procedure or stages of the ADDIE Model consisted of five stages: (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation, but in this research development only reach the development stage. The implementation and evaluation stages were not carried out because of the limited time, energy, resources, and finances.

A pop-up book media trial was conducted to determine the validity of the media. The subject in this research was the pop-up book media in changes the form of the subject of fifth-grade elementary school, the research subject was tested to experts, two lecturers and two fifth grade teachers to determine the feasibility of the media pop-up book developed. The object of this research was the validity of the pop-up book media for fifth-grade elementary school that will be developed. The method of collecting data in this research was development of pop-up book media for fifth-grade elementary school by giving questionnaires with a rating instrument. The rating scale was the acquisition of raw data in the form of numbers using a rating scale from 1-5, then interpreted in a descriptive sense, such as: often done-never done, weak-strong, positive-negative, bad-good, active-passive (Ilhami & Dino, 2017). The instrument validity test then analyzed using Gregory formula.

This instrument was a measuring instrument used to collect data processed in research. The rating scale instrument used was a pop-up book media assessment sheet. The assessment sheet was given to experts, two lecturers, and two teachers to assess the validity of the developed media. The instrument used must be valid before being tested in research. The validity of the instrument could be ensured by making the instrument lattice, then consulting with the supervisor, and writing the instrument based on the supervisor's advice. Efforts to ensure the validity of the instruments are carried out by making lattice tables consult with supervisors, writing instruments. The media validity sheet instrument covers 5 aspects, namely: (1) criteria for format aspects, color, text, font size, and image layout; (2) the content aspect criteria, the suitability of the material with the indicators, the ability of the media to explain the material, the completeness of the material, and the attractiveness of the material to the media; (3) language aspect criteria include language use, language standardization, sentence effectiveness, and word usage; (4) criteria for practical aspects related to media use; and (5) the criteria for effective aspects are also related to the use of media (Monika, 2014).

To analyze the data, the method and data analysis techniques used in this research development are qualitative descriptive statistical analysis techniques and quantitative descriptive statistical analysis. The quantitative descriptive statistical analysis method is used to analyze data in the form of scores obtained through the provision of pop-up book media assessment sheets to experts including lecturers and fifth-grade teacher, test scores calculated on average from each expert, then the average the qualifications are categorized according to the five-scale conversion guidelines. Qualitative descriptive statistical analysis is used to process data in the form of responses, criticisms, and suggestions from the results of the expert review including two lecturers and two fifth grade teachers.

# Result and Discussion

The product in this research development is a pop-up book media that contains the topic of changing objects, Topics for changing objects developed from basic competencies (KD) in Theme 7 about Events in Life, second semester in fifth-grade elementary school. Changes in the form of the object are a discussion of material changes in the composition of an object caused by heat energy which can change from one level to another form (Astawan & et al, 2015). The following pop-up book media produced in this study can be seen in Figure 1. and Figure 2.

|  |  |
| --- | --- |
| Description: E:\TUGAS KULIAH\Tugas Kampus Kelas A Semester 7\Skripsi\Proposal Skipsi Pengembangan\Astungkare Wisuda Agustus\Foto Media\Cover Depan.jpg | Description: C:\Users\TEMP.DESKTOP-V8UQS6V.000.001\AppData\Local\Microsoft\Windows\INetCache\Content.Word\IMG20200531123859.jpg |
| **Figure 1**  Cover Media *Pop-up book* | **Figure 2**  Content of *Pop-up book* Media Material |

A validity test was carried out at the development stage in accordance with the development model used, the ADDIE model. The stages of the development of the ADDIE model were analysis, design, development, implementation, evaluation. The analysis phase carried out including the needs analysis, analysis of student characteristics, and material analysis. After the analysis phase, which was the planning (design) stage, a pop-up book media design was carried out on the topic of changing objects in the fifth of the elementary school in the form of a draft of the material that would be outlined in the media, after the draft material developed was followed by the development stage. At the development stage, a pop-up book media made to be adjusted to the material that consulted. Pop-up book media that has been completed would be carried out by an expert test to review the developed media. The expert test was carried out by giving an assessment sheet of pop-up book media to the experts including two lecturers and two teachers of fifth-grade teachers. At the implementation and evaluation stages were not carried out because of limited time, energy, resources, and finance.

The results of the validity of the pop-up book media firstly calculated the average assessment given by the expert, two lecturers, and two fifth grade teachers. After that, the average score converted using five-scale conversion guidelines to determine the validity of each component of the pop-up book media and the overall pop-up book media developed. The results of the validity of the pop-up book media from the four experts can be seen in Figure 3.

**Figure 3**

Result Validity of Pop-up Book

The average results of the pop-up book media assessment given by experts in this study get an average score were 4.87. If converted, the average score was 4.87 included in the gap score was 4.01 <4.87 <5.01, and the pop-up book media that have been made get a "very good" classification/predicate.

Based on the analysis of the validity of the pop-up book media, it gets 4.87 which in "very good" qualifications. So, the pop-up book media on changing objects topic get a very good level of validity, so the pop-up book media is very feasible to be developed, and able to be implemented during learning.

Then based on comments and suggestions after carrying out product tests to assess the validity of the pop-up book media by experts. Comments and suggestions relating to the validity of pop-up book media can be considered and used to improve and enhance the media. The following comments and suggestions given by experts can be seen in Table 1.

**Table 1.** Comments and Suggestions from Experts

|  |  |
| --- | --- |
| **No** | **Comments and Suggestions** |
| 1 | Pay attention again to the selection of matching background and writing colors in the contents section. |
| 2 | The suitability of the layout/layout of the pop-up book media needs more attention. |
| 3 | Pop-up book media that are made are already interesting, but the font size needs to be adjusted to make it harmonious and easy for students to read. |
| 4 | Pop-up book media is good, but there is something that needs more attention, namely the sentence structure used to make it easier for students to understand. |

Pop-up book media is feasible to be developed, there are still many teachers and students at the elementary school level who do not know the pop-up book media. Pop-up book media is a teaching aid that can stimulate a child's imagination which is three-dimensional and can increase children's knowledge so that it can facilitate the child in knowing the depiction of the shape of an object (Nurhikmah & et al, 2018). Pop-up books have a visual dimension in the form of images that can arise, so when the page is opened a three-dimension image will appear on each page (Masturah & et al, 2018). Pop-up book media is similar to origami, where both of these arts’ present visualization with shapes according to the real situation, pop-up book media is suitable when used in learning natural science because pop-up book media can visualize the state of nature (Anggraini & et al, 2019). This makes the pop-up book media very suitable for changing the form of the objects in fifth-grade elementary school.

This research produces pop-up book media on the topic of changes in the shape of objects. The media developed in this study is different from other pop-up book media because no one has developed similar media on the topic of changing the form of objects in the fifth-grade elementary school. In addition, this media was developed using thick glossy paper and using attractive images. The use of pop-up book media during the learning process is in line with the theory of constructivism that focuses on the direct experience gained by students who can build or provide more meaningful knowledge (Santosa & et al, 2017). This said to be appropriate because students can immediately see and read the material in a pop-up book, so students will get a new learning experience and students will be longer to understand the material directly.

Pop-up book media on the topic of changes in the form of objects developed can be utilized by the teacher to facilitate students who have a visual learning style and kinesthetic, visual learning styles owned by students. They will learn by observing and seeing the pop-up book media so that the material more easily understood by students. While the kinesthetic learning style possessed by students, they will learn by physical activity by touching and opening pages of pop-up book media. (Bire & et al, 2014). Pop-up book media can be used to facilitate students who have a visual and kinesthetic learning style to support students to understand the material provided during learning.

The pop-up book is a book that has three-dimensional elements, there are several advantages of pop-up book media: (1) this media is practically used by teachers and is easy to carry, (2) this media is different from books in general because it has dimensions when the book it was opened to increase student enthusiasm for learning activities, (3) this media can make students active in their use, students can use it independently or in groups and learning activities will be more fun (Masturah & et al, 2018). The appearance of the pop-up book media is one of the advantages because it looks unique and different from the other two-dimensional learning media. This pop-up book has image dimensions (Masturah & et al, 2018). Unlike books in general, pop-up books have a visual advantage that is the number of images that look more realistic (Mustofa & Shafi'ah, 2018).

Pop-up book media is very suitable to be used to create a varied learning atmosphere (Ningtiyas & et al, 2019). In addition, the visual display of pop-up book media that displays three-dimension images on each page and some can move, the reader not feel bored to read it, so students will be more active in learning activities (Sholikhah & et al, 2017). The use of pop-up book media encourages the creation of student-centered learning so that it can shift the paradigm of teacher-centered learning activities. It hoped that this paradigm shift will be the first step to improve the quality of learning.

This is also supported by several previous studies which prove that pop-up book media is feasible to be developed, such as (1) Research conducted by Handaruni Dewanti, Anselm JE Toenlioe, and Yerry Soepriyanto (2018), the results of the study stated that the results of overall validation 95.20% with "Very Valid" criteria, then this media is very feasible to be used in Thematic learning in My Living Environment theme. (2) Research conducted by Meilia Safri, Sri Adelila Sari, and Marlina (2017), the results of the study stated that the average results of the validation questionnaire obtained from 5 validators were 92.67% (very feasible). (3) Research conducted by Elisa Diah Masturah, Luh Putu Putrini Mahadewi (2018), the results of the study stated that the results of the pop-up book media validity were valid from the reviews of experts and users with the percentage level of achievement of the results of expert review of subject contents 95, 8% (very good), 88% of learning design expert review results (good), learning media expert review results from 98.5% (very good). (4) Research conducted by Refita Mustofa and Rohmatus Syafi'ah (2018), the results of the study stated that the results of the validity of the pop-up book media were declared feasible with the acquisition of an average score of 4.44 from material experts and an average score of 4, 80 from media experts, and an average score of 4.72 from user experts, so the average score is in the Very Good category. (5) Research conducted by Desy Ayu Nurhikhmah, Mudzanatun and Ibnu Fatkhu Royana (2018), the results of the study stated that the results of the validity of the pop-up book media by the acquisition of teachers in several schools in UPP Watukumpul District were 96.25% with "Very feasible" criteria while the response of Rejosari 03 Semarang Elementary School teacher by 100% with "very decent" criteria.

from the four relevant studies, it is felt very necessary to develop a pop-up book media, especially on changing objects topics. Pop-up book media is one of the learning media that is expected to facilitate the learning process. Learning media is a component of learning resources or physical vehicles that contain instructional material that can stimulate students or students to learn (Safri & Dkk, 2017). Through the development of pop-up book media that have been produced and get excellent validity results, it can affect the learning process.

# Conclusion

Pop-up book media is a teaching aid that can stimulate a child's three-dimensional imagination which has a visual dimension in the form of images that can arise, then when a book's page is opened, three-dimensional images will appear on each page and can increase children's knowledge and are suitable for use in learning Natural Sciences. The resulting pop-up book media contains the topic of changing objects, Topics for changing objects developed from basic competencies (KD) that appear on Theme 7 Events in Life, the second semester in class V of elementary school. Suggestions to be conveyed in this study such as (1) teachers should be able to provide facilities for students in the use of media, teachers who want to develop similar media can be adapted to other material, can make this research as a reference, (2) to the principal should facilitate the development of media development skills in accordance with the characteristics of students conducted by the teacher, (3) to other researchers can use this development research as a reference regarding learning problems, especially in media development and this research can be continued at the implementation stage by conducting experimental research.

**References**

Anggraini, W., & Dkk. 2019. Development of Pop-Up Book Integrated with Quranic Verses Learning Media on Temperature and Changes in Matter. *Journal of Physics*, (hlm.1-9).

Arda, & Dkk. 2015. Pengembangan Media Pembelajaran Interaktif Berbasis Komputer untuk Siswa SMP Kelas VIII. *Jurnal Mitra Sains*, Volume 3, Nomor 1, (hlm.69–77).

Arsyad, A. 2016. *Media Pembelajaran Edisi Revisi*. Jakarta: Rajawali Pers.

Astawan, I. G., & Dkk. 2015. *Konsep Dasar IPA II Bermuatan Perubahan Konseptual*. Singaraja: Universitas Pendidikan Ganesha.

Bire, A. L., & Dkk. 2014. Pengaruh Gaya Belajar Visual, Auditorial, dan Kinestetik terhadap Prestasi Belajar Siswa. *Jurnal Kependidikan*, Volume 44, Nomor 2, (hlm.168–174).

Dewanti, H., & Dkk. 2018. Pengembangan Media Pop-Up Book untuk Pembelajaran Lingkungan Tempat Tinggalku Kelas IV SDN 1 Pakunden Kabupaten Ponogoro. *Jurnal Kajian Teknologi Pendidikan*, Volume 1, Nomor 3, (hlm.221–228).

Fadillah, R. N., & Lestari, I. 2016. Buku Pop-Up untuk Pembelajaran Bercerita Siswa Sekolah Dasar. *Jurnal Pendidikan Guru Sekolah Dasar, Universitas Negeri Jakarta*, Volume 30, Nomor 1, (hlm.21-26).

Hutauruk, P., & Simbolon, R. 2018. Meningkatkan Hasil Belajar Siswa Dengan Alat Peraga Pada Mata Pelajaran IPA Kelas IV SDN Nomor 14 Simbolon Purba. *School Education Journal*, Volume 8, Nomor 2, (hlm.212–129).

Ilhami, R. S., & Dino, R. 2017. Penilaian Kinerja Karyawan dengan Metode AHP dan Rating Scale. *Jurnal Optimasi Sistem Industri*, Volume 16, Nomor 2, (hlm.150–157).

Masturah, E. D., & Dkk. 2018. Pengembangan Media Pembelajaran Pop-Up Book pada Mata Pelajaran IPA Kelas III Sekolah Dasar. *Jurnal EDUTECH Universitas Pendidikan Ganesha*, Volume 6, Nomor 2, (hlm.212-221).

Monika, I. 2014. Uji Aktivitas Ekstrak Kencur terhadap Pengendalian Pertumbuhan Fusarium Oxysporum dan Implementasinya dalam Pembuatan Flipbook. *Jurnal Pendidikan Dan Pembelajaran Khatulistiwa*, Volume 3, Nomor 2, (hlm.1-14).

Mustofa, R., & Syafi’ah, R. 2018. Pengembangan Media Pembelajaran Pop-Up Book Materi Kenampakan Permukaan Bumi Mata Pelajaran IPA Kelas III SD. *ELSE (Elementary School Education Journal)*, Volume 2, Nomor 2, (hlm.30-41).

Najahah, I., & Oemar, E. A. B. 2016. Perancangan Buku Pop-Up sebagai Media Pembelajaran Tentang Rumah dan Pakaian Adat Nusantara di Jawa. *Jurnal Pendidikan Seni Rupa*, Volume 04, Nomor 03, (hlm.494-501).

Ningtiyas, T. W., & Dkk. 2019. Pengembangan Media Pop-Up Book untuk Mata Pelajaran IPA Bab Siklus Air dan Peristiwa Alam Sebagai Penguatan Kognitif Siswa. *JKTP Jurnal Kajian Teknologi Pendidikan*, Volume 2, Nomor 2, (hlm.115-120).

Nurhikmah, D. A., & Dkk. 2018. *Pengembangan Media Pop-Up Book Materi Kenampakan Permukaan Bumi untuk Kelas III Sekolah Dasar Negeri Rejosari 03 Semarang*. Volume 3, Nomor 1, (hlm.79-83).

Panjaitan, S. 2017. Meningkatkan Hasil Belajar IPA Melalui Media Gambar Pada Siswa Kelas IIA SDN 78 Pekanbaru. *Jurnal Primary Program Studi Pendidikan Guru Sekolah Dasar Fakultas Keguruan Dan Ilmu Pendidikan Universitas Riau*, Volume 6, Nomor 1, (hlm.252–266).

Safri, M., & Dkk. 2017. Pengembangan Media Belajar Pop-Up Book pada Materi Minyak Bumi. *Jurnal Pendidikan Sains Indnesia*, Volume 05, Nomor 01, (hlm.107–113).

Sanjaya, W. 2006. *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Bandung: Kencana Prenadamedia Group.

Santosa, A. S. E., & Dkk. 2017. Pengembangan E-Modul Berbasis Model Pembelajaran Problem Based Learning pada Mata Pelajaran Administrasi Jaringan Kelas XII Teknik Komputer dan Jaringan di SMK TI Bali Global Singaraja. *Kumpulan Artikel Mahasiswa Pendidikan Teknik Informatika (KARMAPATI)*, Volume 6, Nomor 1, (hlm.62–72).

Saputri, F. E., & Dkk. 2018. Pengembangan Media Pembelajaran IPA Menggunakan Augmented Reality (AR) Berbasis Android Pada Siswa Kelas III SDN 015 Tarakan. *Widyagogik*, Volume 6, Nomor 1, (hlm.57–72).

Sholikhah, A., & Dkk. 2017. Pengembangan Media Pop-Up Book untuk Meningkatkan Kemampuan Menulis Kreatif pada Mata Pelajaran Bahasa Indonesia Tahun Ajaran 2019/2020. *Jurnal Universitas Nusantara PGRI Kediri*, Volume 01, Nomor 08, (hlm.2-8).

Tegeh, I. M., & Jampel, I. N. 2017. *Metode Penelitian Pengembangan*. Singaraja: Undiksha Singaraja.