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Research Article

## Development of *Booklet* Based Science Learning Media for Junior High School

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### ABSTRACT

This research is motivated by the low interest in student learning in science subjects, especially class VII Biology material which assumes that Biology material is identical to a lot of writing in books and contains a lot of memorization, educators have not used school facilities to develop learning media and minimal teaching materials are only in the form of worksheets. Students are not interested in learning science. The school is a pesantrenbased school, where students only get information from the LKS and the material delivered by the teacher. One of the interesting learning media is the *booklet*- based science learning media. This study aims to determine the validity of *booklet* media and student responses to *booklet* media. The type of research used is Research and Development which refers to the 4D development model (Define, Design, Development, and Dissemination) from S. Thiagarajan (1974) which has been modified into 3D. The results showed that the results of the material expert validation obtained a percentage of 92%; media experts obtained a percentage of 97.77%; by science teachers obtained a percentage of 100%. Small-scale trials obtained a percentage of 91.06% and large-scale trials obtained a percentage of 92.72%. This it can be concluded that the *booklet*- based science learning media on the material of the interaction of living things with their environment is valid to be used as a media for learning science biology in class VII MTs / SMP

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### INTRODUCTION

Education cannot be separated from the curriculum which is the basic guideline in the teaching and learning process in the world of education. The success of an education and the success of students in learning is based on the implemented curriculum (Adelina, 2018). Various attempts have been made by the government to improve the curriculum in Indonesia by revising it from the KTSP curriculum to the 2013 curriculum. The 2013 curriculum has a student-centered learning system. In learning, students must be more active than teachers. So that students look for problems and find answers to the problems themselves which are guided

by the teacher as a facilitator. However, in general, personnel in Indonesia are still verbal and the learning process is very teacher-centered ( *teacher centered learning*) (Agustini, 2015).

The objectives of the 2013 curriculum at the SMP education unit level include factual, conceptual and procedural knowledge related to real phenomena and events, so that students are able to interact effectively with the social and natural environment, and act effectively and creatively in abstract and concrete realms. Real phenomena and events, one of which can be shown in the material the interaction of living things with their environment. This material contains phenomena regarding the interaction of living things with their environment, besides that the material is also real or is around the student's environment.

Biology is one of the science materials that students often complain about because the material that has to be studied is very much and many students think that Biology material is identical to many writings in books and contains a lot of memorization. In order for students to easily understand science material, especially biology in class, this requires creative teachers. Creative teachers are able to find something unique and different or new ideas for the advancement of themselves and students. Many factors affect the learning process which does not run effectively, one of these factors is the lack of variety in learning media (Paramita, 2018).

Learning media is a tool to convey teacher messages to students, so that it can stimulate thoughts, feelings, attention, and interests of students to learn (Tafonao, 2018). In the teaching and learning process, the existence of media has an important meaning. Because in these activities the obscurity and complexity of the materials to be delivered to students can be helped and simplified by presenting the media (Syaiful, 2006).

Regarding learning media, the word media comes from Latin "*Medius*" which literally means "middle", "intermediary" or "introduction". In Arabic "*Wasaaila*" or an introduction to a message from the sender to the recipient of the message. So, media is a tool that can convey or deliver teaching messages (Nurrita, 2018). Media is a messenger technology that can be used for learning purposes. There are media that are used by teachers ( *by utilization*) in activities learning, meaning that the media is made by certain parties (media producers) and the teacher just uses it directly in learning activities. besides that, we can also design and make our own media ( *by design*) according to the abilities and needs of students.

According to Yusufhadi Miarso, learning media is anything that is used to transmit messages and can stimulate the students' thoughts, feelings, attention and willingness so that they can encourage a deliberate, purposeful and controlled learning process (Tumbur, 2015). Meanwhile, according to Azhar Arsyad, learning media is anything that is used to convey messages or information in the teaching and learning process so that it can stimulate students' attention and interest in learning (Arsyad, 2004).

Based on the descriptions of these experts, it can be concluded that learning media is a tool that can help the learning process so that the meaning of the message conveyed makes it clearer and learning objectives can be achieved effectively and efficiently.

Basically, the main function of learning media is as a learning resource. Function Other functions are the result of consideration of the general characteristics it has, the language used to convey the message and the impact or effect it has. The general characteristics of the media in question are its ability to record, store, preserve, reconstruct and transport an event or object. Then what is meant by the language used to convey messages is verbal language and non-verbal language (Munadi, 2013).

Heinich et al (Benny, 2017) suggest that there are 6 media classifications used for learning activities, namely print media, audio media, exhibition media, moving image media, multimedia, and based media. *web / internet*.

The availability of learning media will facilitate interaction between teachers and students so that learning activities will be more effective and efficient. Learning media that are made can arouse the curiosity of students. If you only listen to verbal information from the teacher, students will lack in understanding the subject matter well. Learning will be more meaningful if students are involved directly in the use of media. Where is the purpose of using the media during the learning process, namely so that students form their own concepts.

To determine a good learning process, the teacher is required to be able to master various methods and learning techniques. So that they are able to provide a good understanding, hardness, persistence, opportunity and quality and can provide changes in behavior and apply it in their lives. Based on the results of observations and interviews conducted at MTs Annuriyyah Kaliwining Jember, it was found that teachers had not used school facilities to develop learning media because educators only referred to one teaching material, namely in the form of worksheets, many students when learning science, especially biology material in student handbooks, namely In the form of worksheets, many do not understand because the material is quite a lot so that it seems that there are many writings and pictures that are not very clear.

When students open a learning textbook, what they find are pages filled with rows of small letters, sometimes complete with pictures or diagrams. All of it is structured with *layout* rigid in order to maximize the existing space. So that students better understand a concept if learning is presented not only in words but equipped with pictures (Mayer, 2008).

Therefore, practical learning media are needed and according to the needs of students. The results of observations in class VII students at MTs Annuriyah Kaliwining Jember stated that they preferred learning using image media and photographs and students prefer textbooks that are less written. From these observations it can be concluded that the student's learning style tends to be visual. In addition, the school is a pesantren-based school where students only get information from the LKS book and the material submitted by the teacher only.

From the above problems, we need an attractive learning media with concise and clear material that makes it easier for students to learn science. One of the interesting learning media is based learning media *booklet*. *Booklet* can be interpreted as a relatively small book containing practical information and knowledge about a particular subject or field of science (Rahmatih, 2017). *Booklet* is a small (A5) and thin book consisting of 48 pages of back and forth, containing writings and pictures (Hartanti, 2018). Term *booklet* comes from books and *leaflet* means media *booklet* is a blend of *leaflet* and a book with a small format (size) put together. Content structure *booklet* resembles a book (introduction, content, cover), it's just that the way of presenting the content is much shorter than a book. *Booklet* is one type of learning resource *by design*. *Booklet* can be used as a learning medium as long as the presentation is derived from the basic competencies (KD) that must be mastered by students, so that not too much content is designed to contain only one basic competency (Ahmad, 2018).

*Booklet* What is being developed is a printed media containing material that is more concise and structured using communicative language so that it is easily understood by students and is designed to be attractive so that students do not feel bored so that it fosters student reading interest. In addition, students can learn independently because *booklet* can be read anywhere and anytime so that it can help improve student understanding. Material on *booklet* namely the material of the interaction of living things with their environment because the material contains phenomena regarding the interaction of living things with their environment, besides that the material is also real or exists around the environment of students. So that this booklet media can present material on the interaction of living things with their environment in everyday life. Content structure *booklet* almost the same as a book

(introduction, content, cover), it's just that the way of presenting the content is much shorter than a book (Kevin, 2005).

This study aims to determine the validity of the media *booklet* and student responses to the media *booklet*.

## METHOD

This study uses a research and development model *Research and Development (R&D)*. The design of the development model in this study uses the 4D model ( *Define, Design, Development, and Dissemination*) modified to 3D ( *Define, Design, and Development*) developed by Thiagarajan. This research was conducted from 15 April 2020 to 10 June 2020. The types of data in this study are qualitative data and quantitative data This research was conducted at MTs Annuriyah Kaliwining Jember. The subjects of this study were students of class VII. The small scale trial used 12 students of class VII A and VII B. The large scale trial used 27 students of class VII B.

This research step begins with a stage *define* ( definition) which consists of 5 steps, namely front end analysis, student analysis, task analysis, concept analysis and formulation of learning objectives, the second stage *Design* ( design) which consists of 3 steps, namely the selection of media in the form *booklet*, format selection in the form *booklet*, and initial design ( *Draft I*), last stage *Development* ( development) which consists of 3 steps, namely booklet validation by experts, stage 1 revision, small-scale trial, stage revision 2, large-scale trials, stage 3 revisions, and the final product.

Data collection methods in this study using interviews and questionnaires. The interview method was used for initial observation and the questionnaire method was used to test the validity and test students' responses to the media *booklet*. The interview method was given to class VII science teachers, amounting to 1 person, for the questionnaire method was given to students with a small-scale test stage involving 12 students (each representative from class VII A and VII B) and a large-scale test stage involving 27 class students VII B using a scale rating *likert* 1-5. To test the validity of the booklet, it was validated by three experts, namely material experts. The aspects assessed were the aspects of the feasibility of content / material and language / readability; The media expert, the aspect being assessed, is the size aspect *booklet*, cover design *booklet*; content design *booklet* and material expert by

science teacher as for the aspects that were assessed, namely the aspects of the feasibility of content / material, language / readability and content design *booklet*. For data processing techniques at the validation stage, the formula is adapted from Sa'dun Akbar as follows:

$$V - ah = \frac{Tse}{Tsh} 100 \%$$

Information :

V-ah: percentage value

Tse : total empirical score obtained from expert

Tsh : expected total score

The criteria for testing the validity of instructional media can be seen in the table below which was adapted from Akbar (2013).

**Tabel 1.** Kriteria Uji Kelayakan

Percentage (%)	Criteria
81% - 100%	Very valid, or can be used without Valid revisions, or can be used but needs minor revisions
61% - 80%	Less valid, not used because it needs major revisions
41% - 60%	Not valid, or may not be used Very invalid, may
21% - 40%	not be used
0% - 20%	

For data processing techniques at the student response test stage, the formula is adapted from Sa'dun Akbar as follows:

$$V - au = \frac{Tse}{Tsh} 100 \%$$

Information :

V-au: percentage value

Tse : total empirical score obtained from expert

Tsh : expected total score

Untuk kriteria hasil respon siswa terhadap media *booklet* dapat dilihat pada tabel sebagai berikut:

**Tabel 2.** Kriteria Hasil Respon Siswa

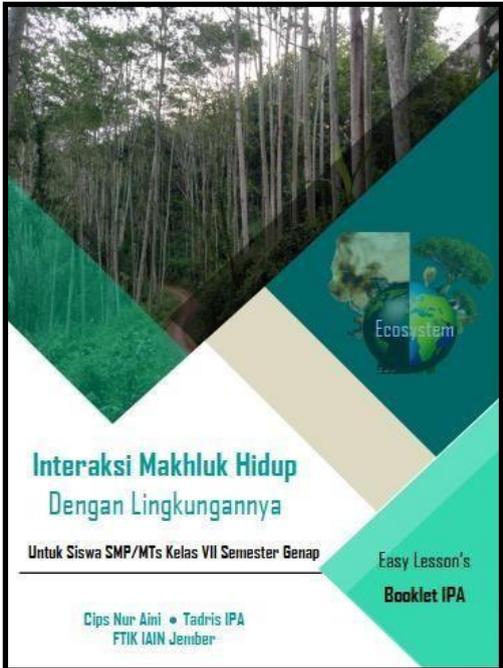
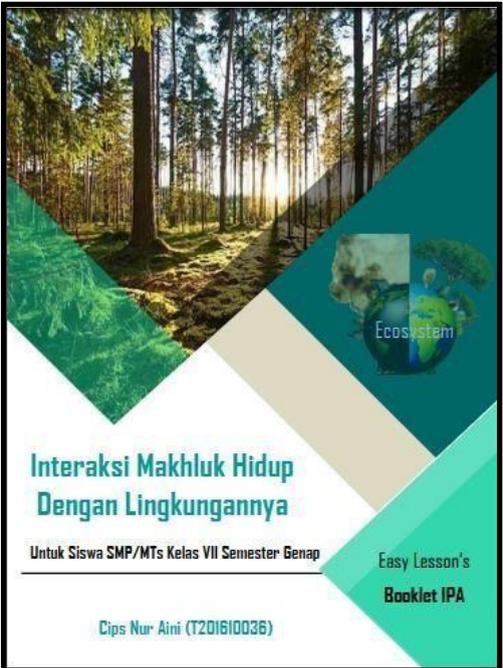
Percentage (%)	Criteria
81% - 100%	Very interesting
61% - 80%	Interesting
41% - 60%	Quite interesting
21% - 40%	Not attractive
0% - 20%	Very Unattractive

(Akbar, 2013)

### RESULTS ANS DISCUSSION

The results of the study with the title "Development of Science-Based Learning Media *Booklet* for SMP ”, has developed and obtained the results of assessment data by experts on the media *booklet*. Result of media development *booklet* ins get advice and comments from experts both from material expert validators, media experts, and material experts by the teacher. The revised results of input from experts are shown in the following figure:

**Table 3.** Revision of Media Booklet Products

Before it was revised	After revision
 <p>The cover image must be personally documented because cover must exist (name, study program, faculty, and institute).</p>	 <p>the personal documented image and the image source identity are not included and the cover identity has been revised.</p>



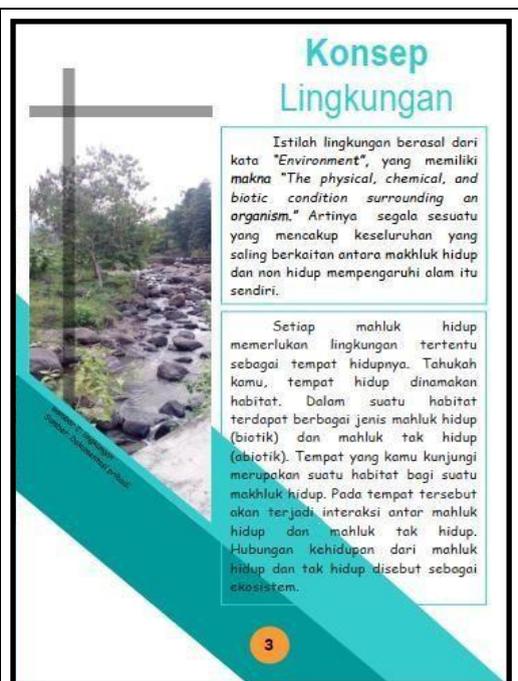
On the back cover page; publisher naming is not included with the name of the school studied. do not include the name of the school *booklet* this can be used other than the school which is researched.



On the back cover page; publisher naming So that *booklet* this can be used other than the school under study. The purpose of this fix is in order *booklet* more that is researched.



The writing or the “environment” change has been replaced with writing of the “environmental concept”.



The writing or the “environment” revised.

### Komponen Ekosistem

**Produsen**  
Mencakup semua makhluk hidup yang mampu membuat makannya sendiri

**Konsumen**  
mencakup semua makhluk hidup yang mendapatkan makanannya dengan cara memakan makhluk hidup lain

**Pengurai**  
Pengurai atau dekomposer adalah organisme atau makhluk hidup yang berfungsi menguraikan sampah atau sisa-sisa makhluk hidup yang mati

**Komponen biotik** adalah komponen ekosistem berupa berbagai makhluk hidup yang ada di dalam suatu ekosistem

7

On the component, the image and description are not representative.

### Hal-hal yang Ditemukan Dalam Suatu Lingkungan

#### Komponen Biotik Pada Ekosistem

**Komponen biotik** adalah komponen ekosistem berupa berbagai makhluk hidup yang ada di dalam suatu ekosistem

**Produsen**  
Mencakup semua makhluk hidup yang mampu membuat makanannya sendiri. Contohnya tumbuhan.

**Konsumen**  
Mencakup semua makhluk hidup yang mendapatkan makanannya dengan cara memakan makhluk hidup lain, contohnya hewan.

**Pengurai**  
Pengurai atau dekomposer adalah organisme atau makhluk hidup yang berfungsi menguraikan sampah atau sisa-sisa makhluk hidup yang mati. Contohnya bakteri, jamur, dll.

4

on the biotic component, the image and description are represent.

### Interaksi Antar Makhluk Hidup dengan Hidup Bersama

**Simbiosis mutualisme**  
Suatu hubungan dua jenis individu yang saling memberikan keuntungan satu sama lain

**Simbiosis parasitisme**  
Hubungan dua jenis individu yang memberikan keuntungan kepada salah satu pihak dan kerugian pada pihak yang lain

**Simbiosis komensalisme**  
Hubungan interaksi dua jenis individu yang memberikan keuntungan kepada salah satu pihak, tetapi pihak yang lain tidak mendapatkan kerugian

**Predasi**  
Hubungan antara mangsa dan pemangsa (predator). Bila mangsa tidak ada, maka pemangsa tidak akan hidup. Sebaliknya bila pemangsa tidak ada, maka populasi mangsa akan meningkat

10

Each example image must have a description and explain the picture.

### Interaksi Antar Makhluk Hidup dengan Hidup Bersama

**Simbiosis Mutualisme**  
Suatu Hubungan dua jenis individu yang saling memberikan keuntungan satu sama lain. Contohnya kerbau dan burung jalak

**Simbiosis Parasitisme**  
Hubungan interaksi dua jenis individu yang memberikan keuntungan kepada salah satu pihak, tetapi pihak yang lain tidak mendapatkan kerugian. Contohnya tumbuhan sirih dengan inangnya.

**Simbiosis Parasitisme**  
Hubungan dua jenis individu yang memberikan keuntungan kepada salah satu pihak dan kerugian pada pihak yang lain. Contohnya nyamuk dan manusia

**Predasi**  
Hubungan antara mangsa dan pemangsa (predator). Bila mangsa tidak ada, maka pemangsa tidak akan hidup. Sebaliknya bila pemangsa tidak ada, maka populasi mangsa akan meningkat. Contohnya singa dan rusa

9

For image has include the reasons why it must be explained why take example that and picture even included a description of the image and the source of the image.

**Evaluasi**

Nama: \_\_\_\_\_  
Kelas: \_\_\_\_\_

- Perhatikan gambar dibawah ini!



Sebutkan yang termasuk komponen biotik dan abiotik pada ekosistem yang ada di gambar tersebut!

- Seandainya jika dalam suatu ekosistem tidak ditemukan adanya produsen. Bagaimana ekosistem tersebut dapat tetap bertahan?
- Bagaimana cara kita menjaga kelestarian ekosistem agar tidak rusak akibat aktivitas manusia sendiri!
- Perhatikan gambar dibawah ini!



Sebutkan aktivitas manusia serta akibatnya yang bisa merusak ekosistem!

**13**

The evaluation questions should be in accordance with the evaluation questions that have represented each learning. If indicator 5 then about the learning indicator. at least 5 to represent each indicator.

**Evaluasi**

Nama: \_\_\_\_\_  
Kelas: \_\_\_\_\_

- Perhatikan gambar dibawah ini!



Jelaskan komponen biotik dan abiotik serta sebutkan yang termasuk komponen biotik dan abiotik pada ekosistem yang ada pada gambar tersebut!

- Seandainya jika dalam suatu ekosistem tidak ditemukan adanya produsen. Bagaimana ekosistem tersebut dapat tetap bertahan?
- Perhatikan gambar rantai makanan pada ekosistem sawah dibawah ini!



Jika para petani melakukan pemberantasan serangga. Apa yang akan terjadi pada populasi padi dan katak? Jelaskan!

- Berilah 1 contoh simbiosis parasitisme dan jelaskan mengapa contoh tersebut termasuk simbiosis parasitisme!
- Berilah 1 contoh aktivitas manusia yang bisa merusak ekosistem, serta jelaskan upaya penanggulangan agar ekosistem tidak rusak akibat ulah manusia!

**12**

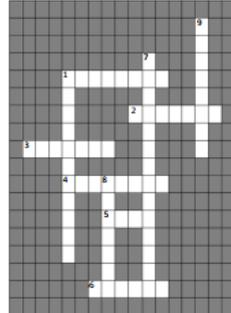
The evaluation questions revised.

**Teka Teki Silang (TTS)**

Nama: \_\_\_\_\_  
Kelas: \_\_\_\_\_

**SOAL:**

**Mendatar :**



- Makhluk hidup yang berfungsi menguraikan sampah/ sisa-sisa makhluk hidup yang sudah mati.
- Tempat hidup suatu makhluk hidup.
- Seluruh ekosistem yang ada di bumi.
- Contoh autotrof.
- Contoh herbivora.
- Komponen ekosistem berupa berbagai makhluk hidup yang ada di dalam suatu ekosistem

**Menurun :**

- Benalu dan pohon merupakan contoh dari simbiosis.
- Komponen abiotik yang terpenting dalam makhluk hidup.
- Contoh makhluk hidup pengurai
- Contoh makhluk hidup pengurai

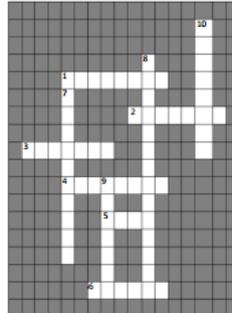
**13**

TTS questions must have horizontal questions and declining questions

**Teka Teki Silang (TTS)**

Nama: \_\_\_\_\_  
Kelas: \_\_\_\_\_

**SOAL:**



- Makhluk hidup yang berfungsi menguraikan sampah/ sisa-sisa makhluk hidup yang sudah mati.
- Tempat hidup suatu makhluk hidup.
- Seluruh ekosistem yang ada di bumi.
- Contoh autotrof.
- Contoh herbivora.
- Komponen ekosistem berupa berbagai makhluk hidup yang ada di dalam suatu ekosistem
- Benalu dan pohon merupakan contoh dari simbiosis.
- Komponen abiotik yang terpenting dalam makhluk hidup.
- Contoh makhluk hidup pengurai
- Kumpulan individu sejenis.

**14**

In the TTS questions there must be horizontal questions and declining questions in order to make it easier for students to do.

### Integrasi Materi

BIOLOGI
FISIKA
KIMIA

- Komponen Biotik
- Tumbuhan merupakan produsen yang sangat penting bagi kelangsungan makhluk hidup

- Komponen Abiotik
- Tumbuhan membutuhkan cahaya matahari untuk berfotosintesis

- Air sebagai komponen abiotik memiliki rumus kimia H<sub>2</sub>O yang sangat penting bagi makhluk hidup
- O<sub>2</sub> digunakan untuk bernafas oleh hewan dan manusia dan mengeluarkan CO<sub>2</sub>. Sedangkan tumbuhan mengambil CO<sub>2</sub> untuk proses fotosintesis yang kemudian menghasilkan O<sub>2</sub> lagi

15

The integration of Physics, Chemistry and Biology materials is not suitable

### Integrasi Materi

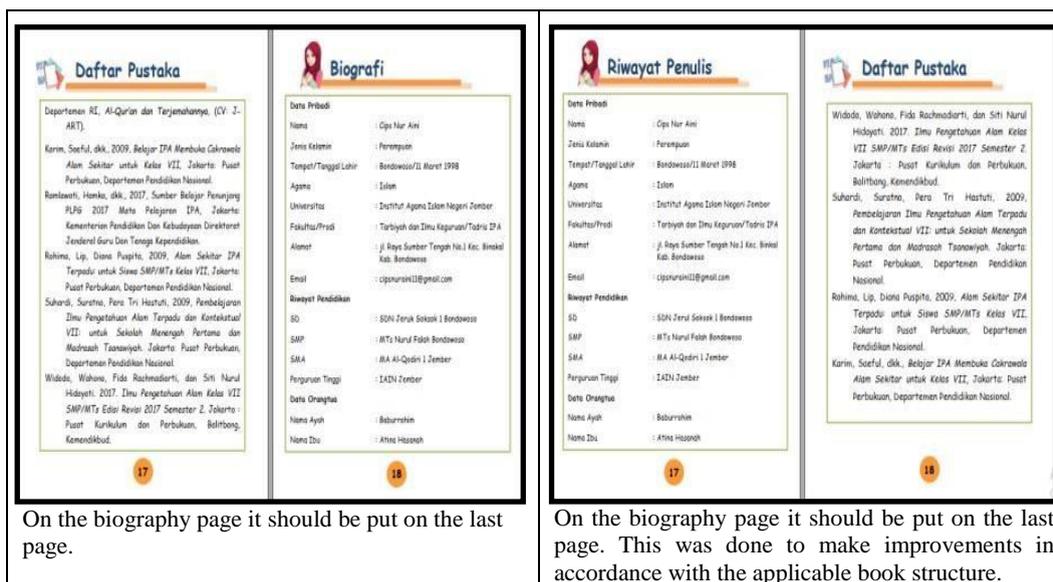
Biologi	Kimia	Fisika
Seluruh komponen biotik	Faktor kimia antara lain kandungan nutrisi tanah, keasaman (pH), kadar oksigen baik yang terdapat di udara maupun yang terdapat dalam air, kadar karbondioksida dan sebagainya	Faktor fisika antara lain suhu, cahaya, angin, gelombang air laut, arus air, tingkat kejernihan perairan, kelembaban udara dan sebagainya
Udara (O <sub>2</sub> ) digunakan untuk bernafas oleh hewan dan manusia dan mengeluarkan Karbon Dioksida (CO <sub>2</sub> ). Sedangkan tumbuhan mengambil CO <sub>2</sub> untuk proses fotosintesis yang kemudian menghasilkan O <sub>2</sub> lagi.	Udara terdiri dari 3 unsur utama, yaitu udara kering, uap air, dan aerosol: kandungan udara kering adalah 78% Nitrogen, 20% Oksigen, 0,93% Argon, 0,03% Karbon Dioksida, 0,003% gas-gas lain (Neon, Helium, Metana, Krypton, Hidrogen, Xenon, Ozon, Radon)	Tekanan udara tidak berpengaruh terhadap kesehatan tubuh jika tekanan dalam keadaan normal konstan (1 atm). Tekanan udara dapat berubah menjadi ekstrem disebabkan oleh tinggi rendahnya tempat.
Tanah sebagai tempat hidup berbagai makhluk hidup dalam suatu ekosistem. Tanah yang mengandung humus akan menjadi gembur, ikatan satu sama lain menjadi longgar dan memiliki daya pengikat air yang cukup besar. Oleh karena itu, humus sangat penting untuk tumbuhan.	Humus pada umumnya terdiri dari asam phenolat, karboksilat, atau beberapa ester dari asam lemak	kandungan humus dalam tanah akan mempengaruhi pH tanah. Tanah yang baik untuk pertanian hanya mengandung 5-15 % bahan organik. Supaya tanah tetap baik maka komposisi bahan organik harus tetap dipertahankan.

14

### Integrasi Materi

Biologi	Kimia	Fisika
Cahaya matahari sebagai sumber energi untuk tumbuhan dalam membantu proses fotosintesis, dan untuk menghasilkan makhluk hidup	Dalam proses fotosintesis, energi cahaya matahari bereaksi dengan enam molekul Karbondioksida (CO <sub>2</sub> ) dan enam molekul air (H <sub>2</sub> O) untuk menghasilkan satu molekul Glukosa (C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> ) dan enam molekul Oksigen (O <sub>2</sub> ). Dengan persamaan: 6CO <sub>2</sub> + 6H <sub>2</sub> O + cahaya = C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> + 6O <sub>2</sub>	Dalam ekosistem, energi sinar matahari sebagai sumber energi yang menopang peristiwa sirkulasi atmosfer dan siklus air dalam ekosistem. Tidak semua energi matahari ini mencapai bumi (insolasi), sebagian dibelokkan oleh atmosfer atau dikembalikan ke alam bebas. Pada dasarnya energi matahari ini tidak dapat dihilangkan walaupun telah diblokkan oleh atmosfer, dan berubah menjadi bentuk-bentuk energi lain seperti energi kimia, energi kinetik atau energi panas. Berkaitan dengan aliran energi, dikenal Hukum Termodinamika
Air sangat penting dalam kelangsungan makhluk hidup. Air juga untuk melarutkan zat-zat dalam tubuh makhluk hidup, dan sebagai suatu habitat makhluk hidup.	Air dapat mempengaruhi lingkungan. Berbagai faktor juga mempengaruhi, yaitu pH, keasaman, keabasaan, kesadahan air, keempat faktor ini sangat erat kaitannya dan dapat mempengaruhi lingkungan, seperti dapat mengalami pencemaran air.	Air memiliki kalor penguapan yang tinggi, hal ini nampak ketika air dipanaskan maka proses penguapannya akan berlangsung lebih lambat dibandingkan dengan cairan-cairan lainnya. Hal ini terjadi sebagai akibat dari kekuatan ikatan hidrogen di antara molekul air yang harus diputuskan agar molekul dapat terlepas. Oleh karena itu air di permukaan bumi berbentuk cairan dan bukan berbentuk gas. Sifat air yang demikian itu dapat menjadikan air sebagai bahan pendingin yang sangat baik, karena dapat menyerap sejumlah besar panas

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1. Product Validation

At the product validation stage on the media *booklet* each done 2 times. The second stage assessment as a determinant or final stage assessment is focused on the completeness of the components both from the total score, percentage, and criteria. The results of the validator's assessment of the media *booklet* as follows:

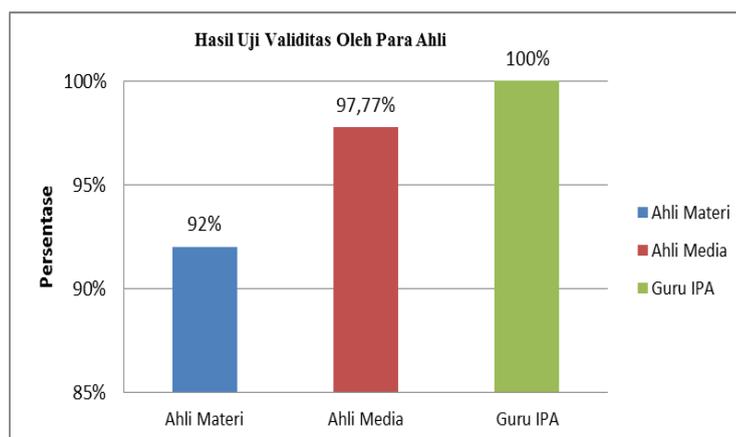


Figure 1. Recapitulation Of Media Assessment Results Data *Booklet*

Based on the recapitulation of the second assessment result data from material experts, it was obtained a percentage of 92% with a very valid category meaning media *booklet* valid to use as a learning medium. The assessment from media experts obtained a percentage of 97.77% with a very valid category, meaning media *booklet* valid to use as a learning medium and the assessment of material experts by science teachers obtained a percentage of 100% with a very valid category meaning media *booklet* valid to use as a learning medium. Media is said to be valid if it is in the range  $\geq 61\%$  (Bintiningtyas, 2018). So it can be concluded that the media developed is in the form of media *booklet* is valid for use.

2. Test Student Response

Student responses are students' responses to the media *booklet* that was developed. The results of the student response test to the media *booklet* as follows:

**Table 4.** Student Response Data towards *Booklet*

No.	Testing	Percentage of Response	Criteria
1	Small scale	91,06%	Very interesting
2	Large scale	92,72 %	Very interesting

The data obtained from the student response questionnaire on small-scale trials and large-scale trials showed the percentage of 91.96% and 92.72%, respectively. From the data, the results of small-scale trials and large-scale trials are in the very interesting category, respectively. This is supported by the research of Wicaksono (2014) which states that the category of student responses that shows more than 50% of the questions with strong or very strong criteria, it can be concluded that the developed learning media gets a positive response from students. The positive response also shows that the learning media *booklet* developed can make students more understanding, able to learn independently, actively, and have, and have a high interest in learning. This is supported by research conducted by Setyaningsih et al. (2019) who concluded that the development of science-based learning media *booklet* worthy of use and media *booklet* can attract students' interest to learn because it gets a positive response from students.

In this study, the application of science-based learning media *booklet* At MTs Annuriyah Kaliwining Jember, Class VII has received a positive response from students towards the booklet media. *Booklet* It is arranged in an attractive design which contains material on the interaction of living things with their environment. *Booklet* This is a small size, namely A5 size, which is equipped with interesting descriptions and pictures *booklet* easy to carry everywhere and the media *booklet* This uses communicative language so that students can easily understand what is conveyed in the media. This is in line with the research of Rahmatih et al. (2017) which states that *booklet* easy to carry anywhere because of its small size, equipped with concise and systematic explanations, and pictures that make it easier for students to understand a concept. Basically presentation *booklet* it uses lots of images and colors to give it an attractive appearance. This is supported by research by Pralisaputri et al. (2016) which states that students tend to prefer interesting reading with few descriptions and lots of pictures / colors.

Content / content in media *booklet* developed, namely structured systematically and clearly in order to make it easier for students to learn. This is in accordance with the statement of Sariyani et al. (2017) in their research which states that media development must be designed systematically, this is so that the role of the media as a learning support tool can be achieved effectively. And this is also supported by the opinion of Istifarida et al. (2017) in their research which states that learning media must contain clear content so that learning material can be conveyed effectively. Also on *booklet* This is accompanied by material integration both in the integration of materials in physics, chemistry, biology and integration in the Qur'an. The goal is that students know that one material has a lot to do with or is related to other sciences. And in this knowledge it has been described or contained in the Qur'an. So this makes students know and believe that the Qur'an has been around for a long time and what is stated in the Qur'an is true

Media *booklet* The material for the interaction of living things with their environment is also accompanied by pictures of personal documentation as well as other real pictures which are expected to foster student awareness of protecting the environment and protecting the ecosystem from being damaged. By presenting material on the interaction of living things with their environment in the media *booklet* students can have an attitude of awareness and care for the environment to improve the quality of education in the learning process which is associated with events that match the reality of the environment to maintain and preserve the existing ecosystem. So that this learning can make learning meaningful to students. learning is said to be meaningful if learning

can be applied in everyday life.

In science learning media products *booklet* which has been developed is equipped with several advantages including:

1. Media *booklet* character *portable* because it is easy to carry anywhere and its shape small and thin. And *booklet* it is printable and can also be *softfile* so that students can study anywhere and anytime. And students can also learn at their own ability and speed.
2. *Booklet* this is systematic, as in textbooks and textbooks *booklet* this is served with communicative language to make it easier for students to learn.
3. *Booklet* This is accompanied by an evaluation in the form of a Cross Puzzle (TTS) aims to *review* material that has been studied. With this TTS, students have more fun working on questions.
4. *Booklet* equipped with material integration both material integration in Physics, Chemistry, Biology and the integration of the Qur'an.
5. Media *booklet* easy to obtain because *booklet* this can take the form *hardfile* with how to print and can also *on line* by means of *download link* media *booklet* which has been provided.
6. Media *booklet* can be used in schools that support *gadget* or not at all.

## CONCLUSION

Based on the results of the research that has been done, it can be concluded that the science-based learning media *booklet* In terms of the interaction between living things and their environment, it is in the very good category. So that *booklet* suitable for use as a learning media for Science Biology in class VII MTs / SMP.

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