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Development of Mollusca Diversity E-Booklet at Bondo Beach Jepara to Improve Student Learning Outcomes

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Article Info	Abstract
	Observation results obtained by the availability of learning resources used are still less diverse and do not support the learning objectives achieved. The learning resources used are still limited to book packages, Student Worksheets (LKS) and Power Points (PPt). The biodiversity in Jepara Bondo Beach is very high which has not been used as a source of learning biology at SMA Islam Nusantara and SMA PGRI Jepara. The environment around the school has not been used as a learning resource because it has not represented biological wealth. Therefore, Jepara Bondo Beach is a representative place to be used as a source of learning that is close to schools. This study aims to develop an e-booklet on the diversity of Mollusca at Bondo Beach, Jepara in a factual, systematically arranged according to the material, valid, effective in increasing learning outcomes in the cognitive and psychomotor domains in practicing oral communication skills in the sub-material classification of living things. This research uses the development method (R&D) with the ADDIE model *(*Analysis, Design, Development, Implementation, and Evaluation). The research data were analyzed for its characteristics, validity and effectiveness. The results of the study can be concluded that the e-booklet characteristics of Mollusca paintings on Bondo Beach Jepara are factual which are arranged systematically so that they can reach TP 10.1 to 10.3, the e-booklet is very valid and feasible to use based on expert judgment, and is effective in increasing cognitive and psychomotor learning outcomes in practicing oral communication skills.

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INTRODUCTION

Learning resources are anything that can help to learn (Karwono & Mularsih, 2018). According to Daryanto (2016) learning resources are everything around the learning environment, both designed and directly utilized and used to optimize learning processes and outcomes. Based on the results of observations made at SMA Islam Nusantara and SMA PGRI Jepara in 2022 it shows that the average cognitive and psychomotor learning outcomes of students in the animal kingdom material, especially in the Mollusca material sub-chapter for the 2020/2021 academic year, are still below the minimum completeness criteria. This is because the availability of learning resources used is still not diverse and supports the basic competencies achieved. Even though Jepara has many good beaches to be used as learning resources, these natural resources have not been utilized optimally.

The results of the interviews also strengthen this statement, because teachers and students indicate that currently they are only using teaching materials in the form of Power Point (PPt), student handbooks, and student worksheets (LKS). The teaching materials used at this time are not contextual in nature, which is unique in utilizing local potential. Besides that, the incompleteness is also because students have difficulty mastering Mollusca materials. The results of the needs analysis, on average, students said that Mollusca material is one of the materials that is classified as difficult because the study of Mollusca material is very broad. The use of teaching materials is still limited to worksheets and textbooks. In addition, the learning of Mollusca material has not been carried out with field observations so that it is not yet contextual touching the realm of meaning and the nature of science itself. This is due to time constraints and it is feared that it will cause students to become distracted when studying outside the classroom.

The nature of science in biology learning places more emphasis on process skills. So that learning does not assess only the final results, but the process of learning activities (Suryawati, Evi., et al, 2017). Therefore, determining the use of media and teaching materials in their application influences the thought process and learning that is happening so that it can create contextual learning (King et al.,

2001). Preparation of quality teaching materials is needed to support the contextual learning process which will be able to improve cognitive learning outcomes and can shape students' psychomotor abilities.

One way to create contextual learning is through the development of learning resources by utilizing the environment. The environment can assist students in associating the material being studied as a learning tool, because it easily relates it to real situations. Students are motivated to make connections between the knowledge they get and are able to apply in life (Adam et al., 2014; Ahmadi et al., 2012). Students will get a meaningful experience when the teacher is able to present the surrounding environment when learning science (Kasrina et al., 2012; Winaryati, 2017).

Utilization of the real object environment as an effort to be used as a source of learning biology has not been done much. It can be seen from the teaching materials used by students and teachers after observations have not presented concrete examples that are closely related to the student's environment. The environmental aspect that can be used as a learning resource is the diversity of Mollusca. The existence of Mollusca is very easy to find in coastal areas such as Jepara. The ease of finding Mollusca around the students' environment has the potential to be used as a source of learning biology by utilizing local wisdom. This is because biology is an explanation of concepts or theories based on events in nature (Harefa & Sarumaha, 2020). The process of learning biology activities cannot be separated from objects in nature.

Natural resources in Jepara Regency have the potential to be used as a source of student learning. Jepara Regency is a coastal area that has several beaches, one of which is Bondo Jepara Beach. On Bondo Beach there are also many types of clams (*palecypoda*) and snails (*gastropoda*) from the Mollusca phylum. The diversity of Mollusca in Jepara Bondo Beach can be used as a source of teaching materials. Teaching materials that can present an environment without students having to make direct observations in that environment, one of which can be packaged in the form of an *e-booklet*. The research results, which are packaged in the form of an e-booklet, can be used to achieve the learning outcomes of phase E on biodiversity materials, especially the sub-chapter of classification of living

things. The results of the research are also expected so that students are able to recognize the biodiversity around them so that students can relate it to biodiversity material, especially in the classification of living things sub-chapter.

Through the e-booklet on the diversity of Mollusca, students will gain broader knowledge without having to make field observations because that is represented by the description of the Mollusca in the e-booklet. Besides that, students can also provide examples of the diversity and classification of a greater variety of living things. The advantages of e-booklets include containing concise information accompanied by pictures and illustrations, making it more interesting to study and can be studied at any time even independently, easier to understand because the content is concise, and the price is relatively cheap when printed because it is thin. The e-booklet is expected to be able to develop skills in expressing opinions, discipline, learning motivation, conscientiousness, creativity, and helping complete learning outcomes. This reason is the background to the need for research on Mollusca diversity materials which will then be packaged in the form of an e-booklet as a biology class X learning resource on biodiversity materials, especially in the sub-chapter of living things classification.

METHODS

This research is research and development (R&D), which was designed using the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). This type of research is used to produce a product. This research will make modifications to the initial step, namely the analysis of potentials and problems. An analysis of the potential and problems was carried out at Bondo Jepara Beach and 2 high schools in Jepara, namely SMA Islam Nusantara and SMA PGRI Jepara. The results of the research are in the form of e-booklet product development and its feasibility is tested with the planned steps.

Sources of data in this study are divided into primary data and secondary data. Primary data is the main research data based on field observations. Primary data comes from the results of preliminary research and the results of development activities. In the preliminary research, the data included the diversity of Mollusca obtained based on the identification of Mollusca at Bondo Jepara Beach.

Other primary data were also obtained from the teacher in the form of an analysis of the needs of students and schools, learning outcomes, lesson plans, teaching materials used and student learning outcomes. In development activities, data in the form of the validity of the e-booklet, the characteristics of the e-booklet, the effectiveness of the e-booklet, were obtained based on the results of questionnaires, tests and interviews. Other data, which is in the form of secondary data, comes from previous research from articles, theses, journals, theses and textbooks on Mollusca diversity at Bondo Beach, Jepara.

The subjects in this study were Mollusca at Bondo Beach Jepara as well as teachers and students of class X high school at SMA Islam Nusantara and SMA PGRI in Jepara district. Teachers and students who were the research subjects were determined by purposive sampling based on certain criteria. After carrying out analysis, design and development research activities, the implementation process continues. In the implementation stage, product trials were carried out to students through the learning process. In the learning process, the Problem Based Learning method is applied by applying e-booklet products through interactive lecture methods, discussions, then the results are presented. This trial aims to determine the effectiveness of the product being developed. After the necessary data has been collected, then the product evaluation process continues. Data from material and media validators were analyzed using a Likert scale to assess the effectiveness of e-booklets (pretest and posttest results), analyzed using the N-Gain test. The evaluation stage is needed to find out whether or not follow-up revisions to the e-booklet are needed. It is known from the results of an analysis of the effectiveness of applying e-booklets in improving cognitive and psychomotor learning outcomes, especially in oral communication skills.

RESULTS AND DISCUSSION

Characteristics the e-booklet on Mollusca Diversity at Bondo Beach Jepara which was developed contains specific information on biodiversity material, especially the sub-chapter on the classification of living things. The e-booklet contains various examples of Mollusca diversity found on Jepara's Bondo Beach. The Mollusca diversity is also equipped with pictures,

classifications and morphological explanations. The images presented in the e-booklet are the results of research based on field research. Because of this, this learning resource product is more interesting to study. When compared to the worksheets used before, the pictures were less clear and only discussed in general terms. Thus, students can easily identify the diversity of living things and be able to classify living things.

The e-booklet developed describes the diversity of Mollusca on Bondo Beach Jepara, which is related to biodiversity material, especially the sub-chapter on the classification of living things. More specifically, the material associated includes taxon levels, scientific nomenclature systems, general characteristics of Mollusca and identification of living things. The results of the Mollusca photos presented factually can present a real picture according to what is found on Jepara Bondo Beach. Based on these characteristics, it is hoped that the e-booklet developed will be achieved in accordance with the ATP and TP.

Analysis of students' needs in general revealed that the material on biodiversity, especially the sub-material on the classification of living things, did not yet have uniqueness and take advantage of local potential. The learning resources used by students have not discussed the material about Mollusca diversity and its classification. Biodiversity material, especially the sub-chapter on the classification of living things based on the utilization of local potential, especially in Jepara Bondo Beach, needs to be developed in the form of an e-booklet.

The learning resources used are not contextual based. The material is still theoretical and does not describe biodiversity in the students' environment. So far, students have used learning resources that are limited to textbooks and worksheets, which only provide unclear pictures. This causes students to find it difficult to understand the material on biodiversity, especially the sub-chapter on the classification of living things. In addition, students want learning resources that students want to contain materials, pictures and practice questions. According to Hanifah et al, (2020) the e-booklet learning resources that students expect are that they contain discussion of material supplemented with colorful pictures and examples.

The e-booklet is a learning resource that can be used to provide additional material on biodiversity, especially the sub-chapter on the classification of living things displaying the diversity of Mollusca in Jepara Bondo Beach. Data on the results of sampling Mollusca that live on Bondo Beach, Jepara can be seen in Table 1.

Table 1. List of Mollusca found on Bondo Beach Jepara

No.	Species Found	Class	No.	Species Found	Class
1.	*Tellina jubar*	Bivalvia	14.	*Morula margariticola*	Gastropoda
2.	*Strigilla mirabilis*	Bivalvia	15.	*Euchelus canaliculatus*	Gastropoda
3.	*Pteris hirundo*	Bivalvia	16.	*Columbella pardalina*	Gastropoda
4.	*Anadara maculate*	Bivalvia	17.	*Throcus maculatus*	Gastropoda
5.	*Venerupis pullastra*	Bivalvia	18.	*Lunella cinerea*	Gastropoda
6.	*Paphia textile*	Bivalvia	19.	*Cypraea caurica*	Gastropoda
7.	*Donax fossor*	Bivalvia	20.	*Umbonium vestiarium*	Gastropoda
8.	*Mactra carollina*	Bivalvia	21.	*Littorina picta*	Gastropoda
9.	*Macoma nasuta*	Gastropoda	22.	*Polinices immaculata*	Gastropoda
10.	*Patella saccharina*	Gastropoda	23.	*Nerita tessellate*	Gastropoda
11.	*Turbo bruneus*	Gastropoda	24.	*Cominella Lagenaria*	Gastropoda
12.	*Cantharus elegans*	Gastropoda	25.	*Columbella aspersa*	Gastropoda
13.	*Clypeomorus petrosa*	Gastropoda	26.	*Telecospium telecospium*	Gastropoda

The e-booklet is designed according to the needs of students starting from the cover, preface, instructions for using the e-booklet, table of contents, learning outcomes, material content, and a cover regarding Bondo Jepara Beach. Products are designed using Canva and Ms Word. The final results are then converted into pdf format and processed through an electronic book creation application using fliphtml5. The Mollusca diversity e-booklet at Bondo Beach is a learning resource

designed to support the learning process of biodiversity material, especially the classification of living things sub-chapter. E-booklet learning resources have advantages in terms of design and content.

Figure 1. Display of E-booklet Products

Content/content is contextual, because it is developed from local potential that exists in the environment around students. Setiawan et al. (2017) and Dwianto et al. (2017) revealed that contextual learning of the surrounding environment can increase activity, student scientific literacy learning outcomes, process skills and scientific attitudes. Research by Sunarsih et al. (2020) revealed that biodiversity learning resources based on local potential are effective in the learning process.

Learning resources developed based on local potential around can increase students' curiosity. This was revealed by Istialina (2016). Learning resources that utilize the environment around students make learning activities more interesting and meaningful. Local utilization can be used as a source of new knowledge (Mungmachon, 2013). Students can associate materials with everyday life. Similar research was revealed by Ilma & Wijarini (2017), that the use of local potential-based books can help students learn learning materials.

The content of the e-booklet contains specific biodiversity explanations on Jepara's Bondo Beach. Such information can provide knowledge for students that have not been studied before. The diversity of Mollusca at Bondo Beach Jepara is packaged according to ATP in the sub-material of classification of living things according to the needs of students. This helps students to make it easier to understand the material on biodiversity, especially the sub-chapter on the classification of living things.

The preparation of the e-booklet is designed based on technological and technical principles. This can be seen in the final product. The e-booklet looks interesting by displaying pictures based on examples of Mollusca diversity in Jepara's Bondo Beach. E-booklet learning resources are designed using an electronic system so that students are more flexible and practical. This is in line with the research by Fitriati et al. (2023) that the use of e-booklets that utilize technology is not constrained by time and place. The same opinion was expressed by Cahyani et al. (2023) that e-booklets are practically used via smartphones and make it easier for students to study in class or independently because they can be taken anywhere.

The eligibility validity of the Mollusca Diversity E-booklet at Bondo Beach Jepara was assessed by two expert lecturers who aimed to examine the feasibility of the product and obtain suggestions or input on the product being developed. Data can be seen in Table 2.

Table 2. Assessment Results by Material/Content and Media Experts

Validator	Aspects assessed	Assessment Results (%)	Criteria
Material	Feasibility of content / material	92.50	Very Valid
	language eligibility	90.00	Very Valid
Average		91.25	Very Valid
Material	Appearance	97.90	Very Valid
	Benefit	91.70	Very Valid
Average		95.00	Very Valid

The e-booklet product of Mollusca diversity at Bondo Beach Jepara, according to material and media experts as a whole, meets the criteria of "Very Valid". So that the product developed can be used in the learning process. According to material experts and media experts, the e-booklet learning resources are in accordance with the Learning Outcomes (CP) and Learning Objectives (TP) in phase E (10.1 to 10.3). In addition, it is appropriate based on the accuracy of the material with the material being studied, communicative, correct Indonesian, coherent ideas and interesting media quality.

The average evaluation of the validity of the Mollusca diversity e-booklet learning resources at Jepara Bondo Beach received the criteria of "Very Valid". The language used in the e-booklet is specific to the indicator of spelling accuracy, which is still not quite right according to spelling and typing, so it needs to be improved. Paramita et al. (2018)argue that the language used in learning media is clearly structured, so that students can understand it well. The same thing was expressed by Rezeqi & Handayani (2018) regarding the use of language in compiling media so that students are not bored.

The Mollusca diversity e-booklet at Bondo Beach Jepara has an appeal, namely the graphic component, which includes the cover design to the contents. The cover section shows the diversity of molluscs on Bondo Beach, Jepara. This makes the cover represent the contents of the developed e-booklet. The content section is designed as attractive as possible using Canva. The combination of colors, layout, animated images and examples of Mollusca highlight the material content of each page. Rahmatih et al. (2017) explained that learning materials are easy for students to understand if they contain interesting images in the learning resources.

Another attraction is the Mollusca diversity e-booklet at Bondo Beach, Jepara, which has many interesting features. Some of the features in question are interactive features, learning videos, audio and flip features. The flip feature is a feature that allows electronic books to be flipped automatically by clicking or sliding like a real book. Munthe et al. (2019) explained that if the developed teaching materials have many interesting features, they will increase students' motivation for learning. Imtihana et al. (2014) said that teaching materials students liked when the designs were neatly arranged and attractive. E-booklets get the highest percentage in the display section, because they are sequential and easy to access at any time. In line with Habiba et al., (2023 said that in developing learning media, what needs to be considered is practical and flexible. After testing the validity of the material and media, the suggestions given will be input for improvement.

Students' cognitive learning outcomes can be determined by using a multiple-choice instrument. The number of questions used is 46 multiple choice questions which have been tested and validated. The pre-test and post-test score data obtained in class X SMA Islam Nusantara and SMA PGRI Jepara were converted first into scores based on individual completeness determined by the school. Data can be seen in Table 3.

Table 3. N-Gain Test Results with Pre-test and Post-test

Class	Pre-test	Post-test	N-Gain	Classical Mastery (%)	N-Gain Interpretation
X	54.67	88.48	0.76	95.65	Tinggi

Analysis of students' cognitive learning outcomes showed an increase in learning outcomes before learning by using the e-booklet learning resource for Mollusca diversity at Bondo Beach, Jepara. With an average post test score of 88.48, which has achieved minimum completeness

(KKM). Classical completeness was obtained by 95.65% of students who scored above the KKM. If the classical completeness is above ≥85%, then the product developed is "Very Effective". The N-gain value in class X SMA Islam Nusantara and SMA PGRI Jepara showed an increase in the "High" category. The learning resource e-booklet for Mollusca diversity at Bondo Jepara Beach was able to improve students' cognitive learning outcomes because it fulfilled the classical completeness of learning outcomes.

Learning resources are arranged according to the needs of students and Learning Outcomes in the classification of living things sub-chapter, especially in ATP 10.11, 10.12, and 10.13. The e-booklet contains information about the diversity of Mollusca which is accompanied by pictures and is linked to material for classification of living things. In the basics of classification sub-material, an animated picture of the shell shape of a Mollusca is given as a reference to grouping living things. Placement of this animated image aims to stimulate students' interest in learning. In addition, the binomial nomenclature rules section contains pictures of Anadara maculosa taken directly from Bondo Beach, Jepara. With a picture of Anadara maculosa, the e-booklet can provide an explanation to students about the rules for binomial nomenclature names based on real examples that can be found around the student's environment.

Students can classify the types of living things and are especially able to distinguish the Mollusca group simply by filling out the Student Worksheet (LKPD). LKPD contains pictures of several examples of types of living things and students are able to analyze the key to their determination, identify similarities and differences in the characteristics of each living species. In learning activities, students made observations of the Mollusca diversity e-booklet at Bondo Jepara Beach and conducted group discussions. During the discussion, there was a question and answer process. Questions and answers are carried out directly by students to teachers or to fellow peers. The ongoing communicative question and answer process will create a non-monotonous learning atmosphere.Harabire et al (2017 stated that students who are active when learning takes place will increase feelings of pleasure so that they are easy to learn.

Supplemental learning resources that utilize the local potential of Jepara's Bondo Beach can present learning without having to explore nature directly. Students' motivation and interest in learning are strongly influenced by the learning methods used. This is because the learning method used is not limited to giving assignments but also attempts to explore learning resources. Another reason is because of time constraints and fears that it will cause students to become distracted when studying outside the classroom.

Student psychomotor learning outcomes can be known using observation instruments in student presentation activities. The amount of 46 students were observed to determine psychomotor scores, especially in oral communication skills. The results of observations of students' psychomotor scores are briefly presented in Table 4.

Table 4. Student Study Results on Psychomotor Aspects of Oral Communication Skills

Rated aspect	Psychomotor Learning Outcomes	Criteria
Presentation	84.24	Very Skilled
Language Use	77.17	Skilled
Accuracy of intonation and clarity of articulation	76.09	Skilled
Ability to defend and respond to questions or objections	78.26	Skilled
Average	78.94	Skilled
Classical Mastery (%)	93.48	Complete

Classical mastery of psychomotor learning outcomes exceeds ≥75% with skilled criteria. All aspects assessed have obtained the criteria for being skilled, and only one aspect received a percentage of 84.24% in the "Very Skilled" category. The psychomotor learning outcomes of all students have achieved minimum completeness, with classical completeness of 93.48% in the complete category.

The application of learning using the Mollusca diversity e-booklet at Bondo Beach, Jepara involves students in group discussions. Students are asked to observe living things around them. The Mollusca diversity e-booklet at Bondo Beach Jepara was used as a discussion guide to answer the LKPD address that was distributed. After observing the e-booklet, the results of the discussion were presented in front of the class. Having group presentations trains students' psychomotor skills, especially oral communication skills.

CONCLUSION

Based on the research carried out, it can be concluded that the e-booklet characteristics of Mollusca diversity on Bondo Jepara Beach are factual in accordance with the conditions of Mollusca diversity on Bondo Jepara Beach, attractive design, matching picture and color combinations, have many features, and are arranged systematically so that they are in accordance with Set CP, ATP and TP. The results of the development of this e-booklet are very valid and appropriate to use based on the assessment of material experts and media experts, and are effectively used in learning. Effectiveness can be seen from the results of the analysis in terms of cognitive and psychomotor domains in training students' oral communication skills. There were differences in the results of the pretest and posttest from the analysis before and after using the Mollusca diversity e-booklet at Bondo Beach, Jepara, which had increased. The results of the observation data of students' oral communication skills in presenting are in the skilled category.

REFERENCES

Adam, M. B., Dillmann, M., Chen, M. K., Mbugua, S., Ndung'u, J., Mumbi, P., Waweru, E., & Meissner, P. (2014). Improving maternal and newborn health: Effectiveness of a community health worker program in rural Kenya. *PLoS ONE*, *9*(8).

Ahmadi, I. K., Amri, S., & Elisah, T. (2012). *Mengembangkan Pendidikan Berbasis Keunggulan Lokal Dalam KTSP*. Jakarta: Prestasi Pustaka.

Cahyani, V. R., & Jati, S. S. P. (2023). Development of Teaching Materials E-booklet based on Flip PDF Professional on Technological Development in The Period of Perundagian in Indonesia for Students Class X SMK. *Santhet: Jurnal Sejarah, Pendidikan, dan Humaniora*, *7*(2), 215-225.

Daryanto D. (2016). *Media Pembelajaran Peranannya Sangat Penting dalam Mencapai Tujuan Pembelajaran*. Yogyakarta: Gava Media.

Dwianto, A., Wilujeng, I., Prasetyo, Z. K., & Suryadarma, I. G. (2017). The development of science domain based learning tool which is integrated with local wisdom to improve science process skill and scientific attitude. *Jurnal Pendidikan IPA Indonesia*, *6*(1).23-31.

Fitriati, R., Yuniastuti, A., & Dewi, N. K. (2023). Development of an Interactive E-booklet on Fish Diversity at TPI Tambaklorok to Improve Science Process Skills of High School.

Habiba, R., Ngabekti, S., & Indriyanti, D. (2023). Pengembangan Ensiklopedia Keanekaragaman Hayati Di Kabupaten Jepara Sebagai Suplemen Bahan Ajar Untuk Meningkatkan Hasil Belajar Dan Sikap Konservasi Lingkungan. *Journal on Education*, *6*(1), 620-635.

Hanifah, H., Afrikani, T., & Yani, I. (2020). Pengembangan Media Ajar E-Booklet Materi Plantae Untuk Meningkatkan Hasil Belajar Biologi Siswa. *Journal Of Biology Education Research (JBER)*, *1*(1), 10-16.

Harefa, D., & Sarumaha, M. (2020). *Teori Pengenalan Ilmu Pengetahuan Alam Sejak Dini*. 162.

Hendrianti, S. D., Hidayat, S., & Suherman, S. (2021). Pengembangan Media E-Booklet Pembelajaran Berbasis Flipbook Maker pada Materi Identifikasi Karir Siswa. *Jurnal Teknologi Pendidikan : Jurnal Penelitian dan Pengembangan Pembelajaran*, *6*(2), 178.

Herebire, M. O., Retniningsih, A., & Ridlo, S. (2017). Pemahaman Konsep-Konsep pada Materi Tumbuhan Akibat Pembelajaran Metode Inkuiri Terbimbing Berbantuan Multimedia. *Journal of Innovative Science Education*, *6*(2), 265-272.

Imtihana, M., Putut Martin, F., & Priyono, B. (2014). Pengembangan Buklet Berbasis Penelitian Sebagai Sumber Belajar Materi

Pencemaran Lingkungan di SMA. *Unnes Journal of Biology Education*, *3*(2), 186–192.

Ilma S. & Wujarini. (2017). Developing Of Environmental Education Textbook Based On Local Potencies. *Jurnal Pendidikan Biologi Indonesia*. Vol. 3(3), 194-201

Karwono. Heni Mularsih. 2018. Belajar dan Pembelajaran Serta Pemanfaatan Sumber Belajar. Depok: Rajagrafindo Persada.

Kasrina, Irawati, S., & Jayanti, W.. (2012). Ragam Jenis Mikroalga Di Air Rawa Kelurahan Bentiring Permai Kota Bengkulu Sebagai Alternatif Sumber Belajar Biologi SMA. *Jurnal Exacta*, *10*(1), 36–44.

King, F. B. (The U. of C., Young, M. F., Drivere-Richmond, K., & Schrader, P. G. (2001). Defining Distance Learning and Distance Education. *Educational Technology Review*, *9*(1), 1–14.

Mungmachon, R. (2013). Knowledge and Local Wisdom Community Treasure. *International Journal of Humanities and Social Science*. 2(13): 174-181.

Munthe, E. A., Silaban, S., & Muchtar, Z. (2019). *Discovery learning based e-module on protein material development.* Proceedings of the 4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019).

Paramita R., Panjaitan R.G.P & Ariyanti E. (2018). Penggembangan Booklet Hasil Inventarisasi Tumbuhan Obat Sebagai Media Pembelajaran Pada Materi Manfaat Keanekaragaman Hayati. *Jurnal IPA dan Pembelajaran IPA, 2(2),*83-88.

Rahmatih, A. N., Yuniastuti, A., & Susanti, R. (2018). Pengembangan booklet berdasarkan kajian potensi dan masalah lokal sebagai suplemen bahan ajar SMK Pertanian. *Journal Of Innovative Science*. 6(2), 163-169.

Rezeqi, S., & Handayani, D. (2018). Pengembangan media pembelajaran pteridophyta berbasis herbarium. *Jurnal Pelita Pendidikan*, *6*(1), 36-41.

Setiawan, B., Innatesari, D. K., Sabtiawan, W. B., & Sudarmin, S. (2017). The development of local wisdom-based natural science module to improve science literation of students. *Jurnal Pendidikan IPA Indonesia*, *6*(1), 49-54.

Sunarsih S., Rahayuningsih M, Setiat N. (2020). The Development of Biodiversity Module Using Discovery Learning Based on Local Potential of Wonosobo. *Journal of Innovative Science Education.* 9 (1) 2020; 1 -11.

Suryawati, E. (2017). Pengembangan lembar kerja siswa biologi SMA berbasis pendekatan ilmiah untuk meningkatkan keterampilan berfikir siswa. *Jurnal Pendidikan Biologi*, *6*(2), 91-99.

Winaryati, E. (2017). Model Pembelajaran "Wisata Lokal" Pada Mata Pelajaran Sains: Suatu Pendekatan R&D. *Seminar Nasional IX Pendidikan Biologi FKIP UNS*, 339–346.