

Development of Biological Illustration Book for Class VIII Semester II as a Means of Developing Student Science Literacy

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Abstract: *An illustrated book is a book that displays the results of a visualization of an article that aims to clarify a presentation of the material. Biology illustrated books can be used as a means of developing scientific literacy skills, in this case the context, competence and, knowledge of science. The purpose of this study was to 1) design a Biology illustration book, as a supplement to Biology textbooks for class VIII junior high school (SMP) semester II, which is about the process of respiration and excretion. 2) describes the quality of the books in terms of content validity, language, presentation, and graphics. The illustration book design uses the ADDIE design model. The validity test of the books produced was carried out by validators, consisting of material experts, linguists, and media experts. Data analysis was carried out qualitatively by describing the illustrated books, and quantitatively by calculating the percentage of scores obtained from the validator. The scores obtained for each aspect are then converted to validity criteria. The results showed that the illustrated book produced met the validity criteria in all aspects, namely in the aspects of material, language, presentation, and graphics, with the criteria of each aspect is very valid.*

Keywords: excretion, illustration book, respiration, validity, visual media

1. Introduction

Scientific literacy is one of the skills needed in the 21st century among the 16 skills identified by the World Economic Forum (Konopko 2015). Referring to the Program for International Student Assessment (PISA), aspects of scientific literacy consist of aspects of context, aspects of scientific competence, aspects of knowledge, and aspects of attitude (Jufrida et al., 2019). These competencies will be achieved if students are provided with supportive conditions in learning, both in the form of learning resources and learning models. As stated by Jufrida et al. (2019), that low scientific literacy skills can be overcome by applying constructive science learning models, strategies, or methods, as well as learning resources, and learning programs that support students to achieve these skills. The scientific literacy abilities of junior high school (SMP) students in Indonesia are generally still low, and they are not empowered in the learning process at school. This statement is supported by research from Angraini (2014) which states that the cause of students' low scientific literacy is the tendency that the learning process does not support students in developing these ability. The results of research by Nofiana & Julianto (2017) on SMP in Purwokerto, also reported that students' scientific literacy in the content, process and context dimensions was low, as well as SMP students in Pati Regency (Naturasari et al., 2016).

Biology is a branch of science. According to Kelana (2018), that the main goal of learning science is to make students literate in science (scientific literacy). Biology is the study of living things including animals, plants, humans, microorganisms, and the interactions between living things and the environment. Field of study of biology in class VIII SMP in semester II, including the excretory system and

respiratory system. Both of these topics discuss processes that occur in living things, both animals and humans, but both cannot be observed directly, so the concept becomes abstract. The material discussed in the excretion and respiration system includes a discussion of the organs involved in the process of excretion and respiration, organ systems, and the mechanisms by which respiration and excretion occur. Materials like that are material that students find difficult (Syamsurizal & Ardianti, 2021).

The results of observations on the textbooks used in class VIII SMP semester II, it is known that these books already contain pictures about processes that occur in the body such as excretion, respiration, and other processes, but are not supported by pictures or adequate illustrations. The pictures presented in the textbook are less detailed and complete, less clear, and less interesting. Therefore it is necessary to have an illustrated book as a supplement to the text book used. This illustrated book contains pictures and explanations about the processes that occur in the body in detail, especially the processes of respiration and excretion, as well as pictures of the organs involved in these processes. Thus it will make it easier for students to understand the concepts they are studying. In addition, the interesting pictures presented in this illustrated book will increase students' motivation in learning it. The results of Emosda's research (2017), reported that there was an effect of using picture story books on student learning motivation.

Referring to Jufrida et al. (2019) that the aspect of scientific literacy consists of aspects of context, aspects of scientific competence, aspects of knowledge, and aspects of attitude, so to achieve good scientific literacy it must begin with improving students' scientific competence and knowledge. One of the efforts to improve this is to provide adequate

science books, in this case the Biology illustrated books as a supplement to the inadequate textbooks. As a supplement book, of course this illustrated book is adapted to the textbook, in terms of the competencies to be achieved, the objectives, and the material. The difference is, in textbooks it contains more verbal explanations, while in this illustration book it emphasizes pictures accompanied by explanations, as illustrations of the material being discussed. By studying the pictures accompanied by explanations, students will more easily understand the material.

According to Baught (Susilah et al., 2019), approximately 90% of a person's learning outcomes are obtained through sight, 5% from the sense of hearing, and 5% from others. Meanwhile, according to Dale (Susilah et al., 2019), states that the acquisition of learning outcomes through the senses of sight is around 75%, through the senses of hearing is around 13%, and through other senses is around 12%. Based on the two statements above, it can be concluded that the acquisition of the most dominant learning outcomes is through the sense of sight. This statement is reinforced by research results which report that the use of visual media can improve student learning outcomes (Haslena, n.d.).

2. Literature Survey

One effort to overcome students' difficulties in learning Biology is to use learning media as a learning resource. One of the learning media is an illustrated book which is a visual medium, containing pictures and their explanations. With these pictures students will more easily understand the concepts they are learning. As stated by Maulana et al. (2022) that learning media are tools, approaches, and resources that can be used to carry out learning or teaching activities and help students to conceptualize abstract topics. Nofitasari et al. (2021) reported, the students stated that in Biology learning if the teacher used visual media the teaching and learning process could be more effective. Another study conducted by Sekarlita et al., (2021) reported that students responded very well to learning science using media.

Illustrated book is one of the many types of books. Ifandi et al. (Firdhiana & Anggapuspa, 2021), defines an illustration book as a book that presents the visualization results of an article using drawing, painting, photography or other art techniques that emphasize the relationship between the subject and the writing in question. Illustrated books will play an important role in making reading that was previously heavy become lighter, clearer, and more interesting (Pratama & Yasa, 2020). Illustrated books have the ability to explain things easily.

The function of illustration in a book, among other things, is to have a descriptive function is as substitute for a description of something verbally and narratively by using long sentences. The expressive function is that by means of illustrations it can show and express an abstract idea, intention, feeling, situation or concept to become real in a precise and striking manner. Analytical / Structural function means that illustrations can show details part by part of an object, system or process in detail. Lastly is the Qualitative function, where illustrations usually use lists, tables,

graphics, cartoons, photographs, drawings, sketches, schemes and symbols. The use of illustrated books can make it easier for readers to understand what they read. As stated by Noviadji & Hendrawan (2021), it is hoped that designing a design literature book with an illustrative approach can help and make it easier for readers to understand the material, so that information is conveyed more quickly.

According to Kusrianto (Pratama & Yasa, 2020), the purpose of using illustrations is: a) Illustrations are used to clarify the message or information conveyed. b) Illustrations are intended to provide variety to teaching materials so that they become more interesting, motivating, communicative, and make it easier for the reader to understand the message. c) The illustration makes it easier for the reader to remember the concept or idea conveyed. Furthermore Pratama & Yasa (2020), states that designing a book complete with illustrations will motivate readers to be more careful in understanding the entire content in the book.

Illustrated books as a visual medium with attractive designs and colors are an important learning resource in achieving student learning success. Research by Susilah et al. (2019), reported that the use of picture cards as a visual medium can improve visual memory in mentally retarded children. Besides Susilah, Nastion et al. (2019) also reported that there was a significant effect between color and short term memory. Color can affect short term memory, which can affect the concentration of respondents thereby increasing memory. Based on the results of the studies above, the use of illustrated books as visual media in learning, which are designed with attractive designs and colors will also have a good effect like other visual media.

In order to produce a book that is good and meets eligibility, before the book is used it is necessary to test the validity by an expert. As stated by Hidayati (2016), that validation is tested in an expert review activity (expert test) to obtain input, suggestions, comments. The results of the expert validation are used as the basis for improving the designed books so that the textbooks produced meet the eligibility standards. To meet the eligibility standards for illustrated books, the eligibility standards for textbooks set by the National Education Standards Agency (BSNP) are used. BSNP has determined 4 feasibility components of a book, namely content feasibility, presentation, language, and graphics.

Problem Definition

Based on the background and literature survey described above, the problem is formulated as follow:

- 1) How to design a quality biology illustration book, as a supplement to textbooks for class VIII semester II junior high school on the topic of excretion and respiration system ?
- 2) How is the quality of the illustrated book produced. The quality of the book is seen from the value of the validity of the content/material, language, presentation, and graphics?

3. Methods

This research is a type of Research and Development (R&D) adapted from the ADDIE model, which consists of five steps, namely Analyze, Design, Develop, Implement, Evaluate. However, this research only reached the develop stage. In detail, the research procedure for the ADDIE model is described as follow:

- 1) Analysis Stage, includes:
 - a) curriculum analysis, to find out the applicable curriculum in SMP grade VIII semester II.
 - b) Material analysis, to determine the scope and depth of biological material SMP grade VIII semester II.
 - c) Student analysis, to determine the level of cognitive development of students, class VIII SMP.

These analyzes are important for adjusting the book to be designed in terms of curriculum, design, language, and presentation.

- 2) Design Stage, at this stage the researcher designed a Biology illustration book, for class VIII semester II on the topic of excretion and respiration systems, using the help of the BioRender website. The researcher also developed a validation instrument that would be used by the validator to assess the validity of the illustrated books that had been made. Validation is carried out to assess the feasibility of the content/material, language, presentation, and graphics. The validators consist of material, language, and media experts.
- 3) Develop stage, in this stage the researcher begins to realize the product. The product in the form of an illustrated book is then validated by a team of experts consisting of material, language and media experts. The validation score for each aspect is the lowest score of 1 and the highest score of 5. The development of this illustration book is carried out until expert validation (develop stage).

The data analysis technique is performed by calculating the percentage of the score obtained from the validation results with the formula as follow:

$$\text{Validity} = \frac{\text{total score acquisition}}{\text{maximum score}} \times 100\%$$

The calculation results from the formula are converted to the following criteria according to Akbar(Aini & Habibi, 2020), as follow:

Table 1: Criteria for validity

No	Validity (%)	Category
1	81-100	Very valid (can be used), does not need revision
2	61- 80	Valid (can be used), but needs minor revision
3	41- 60	Less valid (cannot be used), need major revision
4	21 -40	Invalid (unusable), needs major revision
5	0- 20	Can not be used

4. Results and Discussion

Illustration book design

The outline of the contents of the illustrated book contains pictures accompanied by explanations regarding the material of the respiratory system and excretory system in humans,

includes the organs, organ systems, as well as the mechanisms by which the processes of respiration and excretion occur. The presentation of this material is adjusted to the results of the curriculum analysis that applies in class VIII semester II. The first part of this book contains instructions for using the book consisting of instructions for students and instructions for teachers. Entering the core material begins with an introduction consisting of basic competencies, achievement indicators, concept maps, and materials. At the end of each chapter is equipped with an evaluation.

The illustrated book cover contains the book title, author's name, class, and semester. The illustration book cover design can be seen in Figure 1. Examples of illustrations contained in the book can be seen in the picture. Figure 2 is an illustration of the human respiratory system. To further clarify, an illustration of the function of each organ that plays a role in the respiratory process is presented (Figures 3 and 4).



Figure 1: Illustrated Book Cover design

Analisis
 Apa sajakah organ penyusun sistem pernapasan manusia? Yuk, amati ilustrasi-ilustrasi di bawah ini dan temukan jawabannya!



Figure 2: Organ systems in human respiration

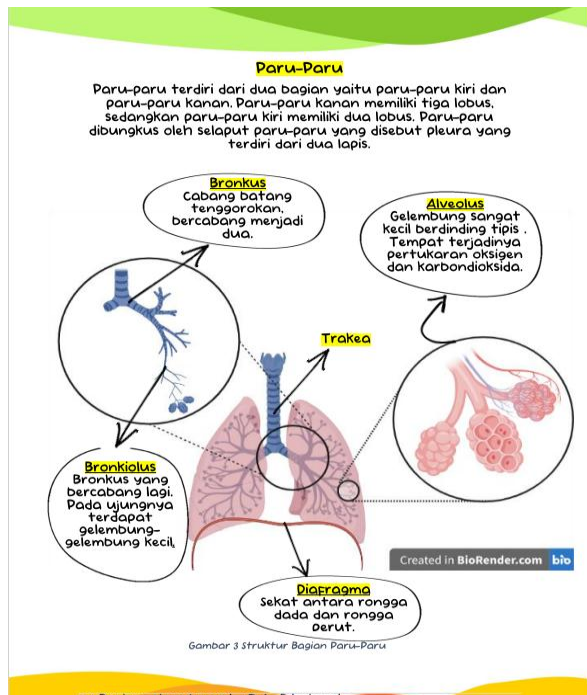


Figure 3: The parts of the lungs and their function

Interpretasi
Setelah mengamati kedua ilustrasi struktur organ, dapatkah kamu deskripsikan struktur masing-masing organ tersebut?

Analisis
Apa saja fungsi masing-masing organ pernapasan? Temukan jawabannya pada ilustrasi-ilustrasi berikut!

Rongga Hidung

- Penyaringan debu dan kotoran oleh rambut hidung
- Penyesuaian suhu dan kelembapan oleh kapiler darah
- Pemerangkapan benda asing oleh selaput lender (mukosa)

Faring

- Menyalurkan aliran udara dari hidung dan mulut menuju trakea

Laring

- Melindungi saluran pernapasan dari benda asing
- Disebut juga kotak suara karena menghasilkan suara melalui pita suara

Trakea

- Dindingnya memiliki selaput lender yang tersusun atas sel berambut getar. Berfungsi menolak debu yang masuk bersama udara.

Figure 4: The parts of the respiratory system and their functions

The cover design of the illustrated book is quite attractive with matching colors (Figure 1). This design is very suitable for Grade VIII students with an average age of them being in the transition from childhood to adolescence, who still like attractive pictures and colors. Likewise with the substance of the material, the illustrations are made with attractive colors accompanied by explanations for each part (Figures 2,3, and 4). Interesting illustrations presented in the book are expected to motivate students so that students become more interested in reading it and help students to understand the material easier. Firdhiana & Anggapuspa (2021), states that students have a high interest in everything related to pictures, graphs, organizational graphics (nets, concept

maps, and map ideas), plots, and other visual) illustrations. The results of Titis' research also stated that students who were taught using visual strategies such as pictures, symbols, and symbols had a better understanding than students who only studied material through text (Aswan, 2019). With the pictures presented in this illustration book, it will help students conceptualize abstract concepts or processes (Maulana et al., 2022).

Illustrated books can act as learning media, to help clarify things that are unclear and to help simplify the complexity of the material to be conveyed to students. As stated by (Suswina, 2011) that the presentation of a topic and a subject requires an example and illustration that can make it easier for students to understand the material. (Paramita et al., 2018) also reported that booklets are small books equipped with attractive pictures and illustrations that can be used as effective and efficient media, to increase student understanding. (Panjaitan et al. (2021) reported that students responded positively to using booklets as learning media. Like a booklet, this illustrated book also contains interesting colorful pictures and is accompanied by explanations, so that it will help students understand the material they are studying, especially on the topic of respiration and excretion. The results of the study (Syamsurizal & Ardianti, 2021), reported that 86.1% of students liked reading accompanied by pictures. Hidayat et al., (2021), also reported that accounting students more easily understood lessons using visual methods.

5. Validation Results

The results of the validation test from experts, for each aspect of the illustrated book can be seen in table 4. From table 4, it can be seen that the material aspect or book content, obtained a validity score of 82.00 with very valid criteria. The selection of material from this illustration book is adjusted to the curriculum for class VIII of SMP Semester II. From the results of validation by the validator the suitability of the material with KD is appropriate and obtains a score of 4 out of a maximum score of 5, as well as the updating of the material, which includes developing students' scientific literacy, namely the ability to explain phenomena scientifically, and make conclusions.

Table 2: Illustration Book Validation Results

Aspect	Validity (%)	Criteria
Presentation	81,66	Very valid (can be used) does not need revision
Material	82,00	Very valid (can be used) does not need revision
Language	83,04	Very valid (can be used) does not need revision
Graphics	81,20	Very valid (can be used) does not need revision

One component of the material aspect is encouraging curiosity, with the highest score compared to the other components. This component is very important because curiosity will motivate students to continue reading and seeking information. Curiosity is one of the 16 21st century skills that fall into the character quality category (Yuningsih,

2019) ; (Rahayu, 2017), which needs to be developed in students.

The language aspect got a score of 83.04 with very valid criteria. The language used is in accordance with good and correct language rules, in accordance with the development of students, straightforward, communicative, and interactive, thus this illustration book is more easily understood by students. (Pramana & Dewi, 2014), states that the language used is communicative and does not cause different interpretations by students to help understand the material being studied.

In the presentation aspect, it includes conceptual coherence, systematic consistency, interrelationships between materials, obtaining a validity score of 81.66 with very valid criteria and this book can be used without revision. This criterion shows that the illustrated book produced meets good criteria in terms of presentation. The existence of coherent concepts and interrelationships between materials indicates that this book has linear and complete discussions, this will make it easier for students to learn the material. According to Gultom, that a textbook must have a linear discussion, and is a unified whole or systematic (Puspaningtyas & Rachmadiarti, 2018). Of course, this requirement does not only apply to textbooks, but also to other books, because basically all types of books are sources of reading that must be understood by their readers.

The graphical aspect obtained a score of 81.20 with very valid criteria. The components included in the graphical aspect are book size, cover design, and book content design, all of these components score between 4.00 and 4.18 from a maximum score of 5. The graphic component with the highest score is the cover design. Cover design and attractive presentation design can foster students' interest in reading, thus the design of a book is an important thing to pay attention to. The results of (Cendekia et al., 2021), it is known that design aspects affect interest in reading Indonesian Islamic comics.

6. Conclusion

Illustrated book about the processes of respiration and excretion in humans, designed using the ADDIE development design. In general, the illustrated books produced meet good book standards in terms of content, language, graphics, and presentation, and can be used by students. The results of the validation test by experts obtained a content/ material validity value of 82.00; language validity 83.04; presentation validity 81.66; and graphical validity 81.20 with validity criteria in all aspects is very valid, and can be used without revisi.

7. Future Scope

As a continuation of this research, it is necessary to conduct research to determine the effect of using illustrated books that have been produced on students' understanding of concepts, especially on the topic of respiration and excretion. besides that, the design of this illustration book

needs to be continued on other topics, both in the material for grade 8 junior high school and other classes.

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Author Profile



Ainun Mirza Nurhaniefa, S.Pd. was born in Tuban on July 25 1999, is a student at PGRI Ronggolawe Tuban, Indonesia who has just completed her education in the Biology Education study program. During college, actively participated in various activities, such as conducting research, seminars, training and other activities, such as research, seminars, trainings and other activities. Some of the research results are “Pengembangan E-Modul Berbasis Science Technology Engineering Mathematics (STEM) untuk Melatih Literasi Bahasa dan Numerasi Calon Guru Sekolah Dasar “This research was funded by the 2021 Scientific Research Program of the Direktorat Jendral Pendidikan Tinggi. Research published in international seminar proceedings is “The Content Effectiveness in Redginger Variety (Zingiber Officinale Rosc.) to increase Immunity”. The research results published in the National journal is “The Influence of Green Ergonomic Factors on Physical Environmental Conditions and Fish Smoking Processing efficiency”. Besides research he has also participated in a poster design competition organized by the Forum Study Ilmu Biologi and

won 1st place. During college, he participated in international credit transfer activities in August – September 2021, at the Functional English Department of Christ College Irinjalakuda, India, organized by Kemendikbudristek. Have also participated in seminar activities as a Participants in the Two-Day Virtual International Conference in English Webinar on 29-30 September 2021 organized by The Departments of English, Bhopal School of Social Sciences (BSSS), MP and Christ College (Autonomous) Irinjalakuda, Kerala India). In addition to the activities already mentioned, there are still many activities such as training and committees from various activities that have been attended while still a student. The author's address is at Jl. Wakhid Hasyim No.06 Rt/Rw 01/01 Kec. Tuban Kabupaten Tuban Jawa Timur Indonesia, with e-mail address aimirzanurhaniefa@gmail.com.



Dr. Dede Nuraida, M.Si. was born in Garut Regency, West Java Province, Indonesia on August 17, 1966. Undergraduate education was taken at IKIP Bandung, majoring in Biology Education, graduating in 1990. Masters education was taken at ITB, majoring in Biology and graduating in 1997. Doctoral education was taken at UM Malang in the Department of Biology Education and graduated in 2012. Worked as a lecturer at PGRI Ronggolawe University Tuban Indonesia starting in 1990. During his time as a lecturer, he was active in carrying out seminar activities and publishing articles in national and international journals. In the following, I write down the publications of several research papers in the last 6 years. 2 Publication in international journals, namely in the International Journal of Plant Biology, 2017 Volume 8 No.1, with the article title : “Genetic Variation Analysis of Superior Cotton Varieties of *Gossypium hirsutum* Through Microsatellite Markers”. Another article published in an international journal, namely in the MIER Journal of Educational Studies Trends & Practices, Year 2018 Volume 8 No.2, the title of the article: “Evaluation of Aspects Which Supports the Practice of Teaching for Students”. Currently the author is also submitting to the Journal International Equijostjournal and is in the revision stage. The latest writing from the author was published in the journal National Biology and Learning (JB&P) Year 2022 volume 9 No.2. The title “Analisis Vegetasi Tumbuhan Herba di Kawasan Hutan Krawak”. The articles published in the 2022 National Seminar Proceedings, namely “Pengembangan Media Pembelajaran Berbasis Aplikasi Android Berbantu Smart APPS Creator (SAC) Pada Materi Plantae”. In 2021, the following will be published in the Proceedings of National and International Seminars: “Pengembangan Media Pembelajaran Berbasis Games Based Learning untuk Meningkatkan Kemampuan Berpikir Kritis Siswa SMA Kelas X Pada Materi Keanekaragaman Hayati”. “Pengembangan Modul Biologi Berbasis Aplikasi Edmodo Sebagai Sumber Belajar di Masa Pandemi Covid 19. “Analysis of Teacher’s Abilities Innovation and Creativity to Make Biological Learning Devices Based On Local Potential During The Covid Pandemic”. “The Ability of Students In Biology Education Program University Of PGRI Ronggolawe In Implementing The Teaching Practice”. “Validitas Lembar Kerja Siswa (LKS) Berbasis Grup Investigation (GI) Pada Materi Pencemaran Lingkungan”. “Validitas Lembar Kerja Siswa (LKS) IPA Berbasis Problem Based Learning Pada Materi Pencemaran Lingkungan Untuk Siswa Kelas VII SMP”. Validitas Handout Biologi Kelas VII Berbasis Inkuiri Terbimbing Untuk Meningkatkan Kemampuan Berpikir Kritis Pada Materi Fotosintesis”. “Validitas Modul Biologi Kelas VII Berbasis Problem Solving Pada Materi Pencemaran Lingkungan”. “Analisis Aspek-aspek Berpikir Kritis Mahasiswa Sebagai Langkah Awal Untuk Meningkatkan Kemampuan Berpikir Kritis Mereka”. In 2021 publication in the journal Teladan: Jurnal Ilmu Pendidikan dan Pembelajaran, writing title “Peran Guru dalam Mengembangkan Keterampilan Berpikir Kritis Siswa Dalam Proses Pembelajaran”. The results of the research published in 2018, at the National Seminar were “Penerapan Model Pembelajaran Kooperatif Script Untuk Meningkatkan Hasil Belajar Siswa Pada

Pembelajaran IPA Biologi". "Penerapan Model Pembelajaran Kooperatif Script yang dipadu Dengan Think Pair Share Untuk Meningkatkan Hasil Belajar Siswa Pada Pembelajaran IPA Biologi". "Penerapan Model Pembelajaran Kooperatif Script Dipadu Dengan Nuber Head Together Untuk Meningkatkan Hasil Belajar Siswa Pada Pembelajaran IPA Biologi". Research results published in 2017, at the National Seminar, namely "Pengembangan Ensiklopedia, Morfologi, Anatomi, dan Fisiologi Tumbuhan Berkarakter Khusus". "Pengaruh Model Pembelajaran Reciprocal Taeching (Pengajaran Terbalik) Terhadap Hasil Belajar Siswa Pada Pokok Bahasan Pencemaran Lingkungan". "Pengaruh Model Pembelajaran Brain Based Learning Dipadu Mind Mapping Terhadap Terhadap Penguasaan Konsep Siswa". The research results published in 2016, at the International Seminar, namely "Critical Thinking Skill and Its Correlation With Student Achievement Index Cumulative". Besides conducting research, the author also made several books, student activity sheets (LKS), and modules in the Biology Field, namely books with the title "Memahami Keanekaragaman Hayati Melalui Pendekatan Molekuler". "Modul IPA: Interaksi Antara Mahluk Hidup Dengan Lingkungan Berbasis Outdoor Learning". "Modul Biologi Berbasis Aplikasi Edmodo". "Lembar Kerja SISwa (LKS) Berbasis Grup Investigasi (GI) Pada materi Pencemaran Lingkungan". Lembar Kerja Siswa Berbasis Problem Based Learning Pada Materi Pencemaran Lingkungan Kelas VII SMP". "Modul Biologi Kelas VII Berbasis Problem Solving Pada Materi Pencemaran Lingkungan". Besides the research, the author also has 1 patent which is at the patent publication stage with publication number 2021/PID/04856, with the title invention "Metode Elisitasi Kalus *Gossypium hirsutum* cv. Tamcot Sp-37 Menggunakan Elisitor Biotik *Rhizoctonia solani* Kuhn Untuk Meningkatkan Produksi Metabolit Sekunder Gosipol". The author's address is as follows: Jl. Bambu Raya No.8 Perum Tasikmadu Tuban, Jawa Timur, Indonesia.



Dr. Heny Sulistyningrum, M.Pd., was born in Blora, Central Java on March 24, 1965. Her father was named Suadi Wijaya Hadipramono and her mother was named Moerniningsih. She is the fourth of seven children. She went from kindergarten to high school in Blora. Received a bachelor's degree in the Department of Physics education at the Institute of Teacher Training and Education Semarang (now Semarang State University) in 1989, a master's degree in Science education at Surabaya State University in 1999, and a doctorate in the Postgraduate Learning Technology study program at Malang State University in 2012. She worked as a lecturer at university of PGRI Ronggolawe Tuban from 1989 until now. In 2000-2003 she was chairman of Mathematics Education Laboratory of Teaching and Education Institute of PGRI Tuban, in 2003-2015 she was the head of the Mathematics Education study program, Faculty of Teacher Training and Education, PGRI Ronggolawe University Tuban, and 2016-now she is the head of the PGRI Ronggolawe Tuban University Research Institute. During her time as a lecturer, she received research grants in the form of Young Lecturers, Women's Studies, PIPS, A-1 PHK Program grants, dissertation grants, DipaUnirow Tuban grants and three times received community service grants from the Directorate General of Higher Education. The teaching material that has been written is Panduan Seminar Matematika, Buku Pembelajaran Mikro (PPL I) dengan Pendekatan Experiential Learning Berbasis Model dan Kelompok (2017), Silabus Pembelajaran Mikro (PPL I) dengan Pendekatan Experiential Learning Berbasis Model dan Kelompok (2017), RPPP embelajaran Mikro (PPLI) dengan Pendekatan Experiential Learning Berbas is Model dan Kelompok (2017), Panduan Penulisan Skripsi (2019), Konsep IPA (2020). Articles published in journals within the last five years include is Pengaruh Model Pembelajaran Missouri Mathematic Project dan Motivasi Berprestasi terhadap Hasil Belajar Matematika Siswa SMP (Jurnal Dikpematika, 2016), Learning Model Development Microteaching Based on Experiential Learning to Improve Teaching

Skill (Proceeding The 3rd ACISSA, 2017), Improving Teaching Skills Through Learning Model Development Microteaching Based on Experimental Learning (International Journal of Basic & Applied Sciences IJBAS-IJENS, 2017), Effectiveness of Problem Solving of Solso and Locus of Control Against Mathematics Learning Achievements of High School Students (Jurnal Teladan, 2018),

Penerapan Pembelajaran Problem Solving dengan Pendekatan Konstek tual untuk Meningkatkan Kemampuan Pemecahan Masalah Matematika (Jurnal Penelitian Pendidikan Matematika, 2019), Penerapan Model Pembelajaran Osborndengan Media Pohon Matematika untuk Meningkatkan Hasil Belajar Matematika Siswa SMP (2019), "Analisis Kemampuan Awal 21st Century Skills Mahasiswa Calon Guru SD" (Jurnal Pendidikan Dasar Nusantara, 2019), "Peningkatan Kemampuan Berpikir Kritis Mahasiswa Menggunakan Pembelajaran Berbasis Android Pada Mata Kuliah Konsep IPA" (EduStream: Jurnal Pendidikan Dasar, 2019), Pengembangan Komik Matematika BTVH untuk Siswa Kelas VII SMP (Jurnal Teladan, 2019), (Meningkatkan Keterampilan Mengajar melalui Pengembangan Pembelajaran Microteaching Berbasis Experiential Learning melalui Peran Model dan Kelompok (Jurnal Pendidikan ekonomi, Manajemen dan Keuangan, 2019), Penerapan Model Pembelajaran Berbasis Proyek dengan Media Kartu Matematika untuk Meningkatkan Hasil Belajar Matematika Siswa (Jurnal Silogisme, 2019), Analisis Keterlaksanaan Pembelajaran Berbasis Android Konsep IPA di SD pada Calon Guru Sekolah Dasar (Jurnal JTIEE, 2020), Upaya Peningkatan Kemampuan Berpikir Kreatif Mahasiswadengan Pembelajaran Kooperatif Berbasis Android (JPDN, 2020), assessing the effectiveness of using digital mathematics technology on student mathematics learning (Journal of Physics: Conference Series 1776 (2021)). To date, there are 25 works that have received intellectual property rights certificates. Experience of being a resource for Selection of Achieving Teachers, Selection of Professional Teachers, Training on Making and Using Mathematics Teaching Aids, Training on Innovative Learning Models, Training in Compiling Competition Grant Proposals, Training on Writing Scientific Articles, Workshop on Preparation of BKD and LKD, Workshop on Preparation of SKP for Lecturers. Address: Karang, Gg. Nakulo 8 No.4, RT 007 /RW005, Ds. Karang, Kec. Semanding, Kab. Tuban. Email: henysulistyningrum.65@gmail.com.