23 (3), 2022, 1252-1261

Jurnal Pendidikan MIPA

e-ISSN: 2550-1313 | p-ISSN: 2087-9849

http://jurnal.fkip.unila.ac.id/index.php/jpmipa/

Implementation of Students' Worksheet with Discovery Learning Model Based on the Local Potentials of Mangrove Forest

Ismail Djafar, Frida Maryati Yusuf*, & Dewi Wahyuni Kyai Baderan

Department of Biology Education, Gorontalo State University, Indonesia

Abstract: This study aims to reveal the implementation of students' worksheet that is based on the local potentials of mangrove forest with discovery learning. The subject of this study was students in grade X Science 3 in SMA Negeri 1 Marisa. This is a quantitative research with a pre-experimental design particularly one group pre- and post-test design. The research result revealed that the practicality test for the result of observing students' activities obtained an average score 87.5% (excellent) for meeting I and 93.8% (excellent) for meeting II. The analysis of learning feasibility was 100% (excellent). The analysis of students' responses was 96.8% (excellent). The analysis of effectiveness perceived from students' learning result obtained N-Gain score 61.5 which was categorized medium. It can be concluded that students' worksheet that is based on the local potentials of mangrove forest with discovery learning can be used for learning to improve students' learning result on biodiversity material.

Keywords: students' worksheet, mangrove forest, discovery learning.

Abstrak: *Penelitian ini bertujuan untuk mengetahui implementasi lembar kerja peserta didik berbasis potensi lokal hutan mangrove dengan model discovery learning. Subjek penelitian adalah siswa kelas X IPA 3 di SMA Negeri 1 Marisa. Jenis penelitian kuantitatif dengan pre-experimental design khususnya one group pretest-posttest design. Hasil penelitian menemukan bahwa uji kepraktisan untuk hasil pengamatan aktivitas peserta didik memperoleh skor rata-rata pada pertemuan I adalah 87,5% (sangat baik) dan pertemuan II sebesar 93,8% (sangat baik). Analisis keterlaksanaan pembelajaran sebesar 100% (sangat baik). Analisis respon peserta didik sebesar 96,8% (sangat layak). Analisis keefektifan yang dilihat pada hasil belajar peserta didik memperoleh N-Gain score 61,5 dengan kategori sedang. Kesimpulannya bahwa lembar kerja peserta didik Berbasis Potensi Lokal Hutan Mangrove dengan Model Discovery learning dapat digunakan dalam pembelajaran untuk meningkatkan hasil belajar peserta didik pada materi keanekaragaman hayati.*

Kata kunci: *lembar kerja peserta didik, hutan mangrove, pembelajaran discovery.*

▪ INTRODUCTION

Biology teaching and learning is generally known as a science that appears and develops through observational steps and problem formulation, hypotheses formulation, hypotheses test through experiment, conclusion drawing, and discovering theories and concepts (Jajarni, 2019). Further, Natalia and Sukraini (2021) stated that education must go on along with every phase in life that continually changes one of which is educational system that also changes to a better direction to fulfil human needs in facing the challenges of era that always shift from time to time.

One of biodiversity that can be used as an object of biology teaching and learning is the area of mangrove forests that are massively exist in all areas in Indonesia. The mangrove ecosystem is one example of an ecosystem that has a significant ecological role. Mangrove ecosystems are located between land and sea where continuous changes

Frida Maryati Yusuf
*Email: fridamaryati@ung.ac.id

DOI: http://dx.doi.org/10.23960/jpmipa/v23i3.pp1252-1261
Received: 12 August 2022
Accepted: 25 September 2022
Published: 29 September 2022

allow various species of biota to have the ability to continuously adapt to their unique environment (Baderan et al., 2019).

Gorontalo Province as one of provinces located in the coastal beach which also has a potential of mangrove forest is Pohuwatu Regency. Mangrove forest in this area has strong points in terms of biodiversity and uniqueness where the ecosystem inside the forest are mostly different with the mainstream ecosystem of zonation pattern (Rahim & Baderan, 2017). The potential of Mangrove forest in Pohuwatu Regency can be used as the source of materials for Biology teaching and learning particularly related to biodiversity topic at high schools located in Gorontalo Province, particularly Pohuwatu Regency. The students can be instructed to observe the mangrove forest and strengthen the concept of biodiversity level covering the genetic, species and ecosystem level. The students can have a closer look on how the utilization and preservation of mangrove forest as one of diversity in Indonesia. The learning activities can be more well-understood by the students if it is supported with a learning model which can help them in the learning process (Wiranata, 2021). One of the learning models which can be implemented is discovery learning and the appropriate learning materials is students' worksheet or also known as learning participants' worksheet (Marsila et al., 2019).

Discovery Learning learning model is a learning model that provides opportunities for students to build their own understanding (Rizki et al., 2021). Students' worksheets contain a collection of main activities that must be carried out by students to maximize understanding in an effort to form basic abilities according to achievement indicators (Ceriasari et al., 2019). Development of students' worksheet Based on local potential of mangrove forests has been developed in previous studies, such as that conducted by Rahma (2015) who developed students' worksheet Biology Based on Local Potential of Mangrove Forests with the Discovery learning model on Biodiversity Main Material for Class X. Results of students' worksheet validation conducted by validators The material expert in the study showed a percentage of 81.4% so it was categorized as very good, while the results of the students' worksheet validation carried out by the educational expert validator showed a percentage of 87.5% so it was categorized as very good. The results of the students' worksheet assessment conducted by the biology teacher showed a percentage of 98.75% so it was categorized as very good, while the student's response to the students' worksheet showed a percentage of 91% so it was categorized as very good. The design of biological worksheets based on local potential of mangrove forests with the resulting discovery learning model has very good quality so that it is suitable for use in learning activities.

Research by Rezeki (2022) on tenth grade students at SMA Negeri 2 Gowa, which got the results that the learning outcomes of animalia material biology in the experimental class taught using Discovery Learning-Based E-students' worksheet were higher on average, namely 83.60 than the control class taught using students' worksheet which not based on Discovery Learning, namely 77.85. The results of hypothesis testing using Independent t-test statistics show a significant value of 0.001 which is less than 0.05 so that it can be concluded that the hypothesis is accepted and shows that there is an influence of Discovery Learning-Based E-students' worksheet on the biology learning outcomes of students in animalia material for class X science in high school. State 2 Gowa.

An observation conducted by the researcher in State Senior High School 1 Marisa obtained information related to the learning result of students in Grade X majoring in science on Biology subject particularly on the topic of diversity which gained low average score and some students had not reached the passing grade. However, during the learning process, teacher tended to be more dominant than the students. Several problems that occurred are such as the students who were less active in the learning process and only 40% of them who were really paying attention to the materials being taught. This was caused by the students who have low interest in the main materials of biodiversity given by the teacher. The Biology teacher of State Senior High School 1 Marisa stated that they had implemented students' worksheet yet it was considered general and had not yet used an students' worksheet for Biology subject which is based on the local potentials of mangrove forest with discovery learning related to diversity topic. Thus, this research aims to figure out the practicality and effectiveness of students' worksheet which was based on the local potentials of mangrove forest with discovery learning.

▪ METHOD

This is a quantitative research that employed a pre-experimental design particularly one group pre- and post-test design since random assignment was not conducted for the recent research subject. The object of the research was the implementation of Learning Participants' Worksheet for Biology subject which is based on the local potentials of mangrove forest with discovery learning which discussed about biodiversity as the learning topic for grade X. The subjects were 25 students of class X IPA 3 SMA Negeri 1 Marisa.

The research analysis in this study implemented a practicality analysis that covers students' activities, responses, and the feasibility of the learning process as well as its effectiveness. The scoring of students' activities were in the form of an observation sheet where the scoring was based on the Likert scale ranging from 1 to 4 with several criteria as follow: 1: poor, 2: fair, 3: good, 4: excellent. The calculation result in the form of the percentage of students' activities can be categorized in the following criteria: Excellent:81-100%, Very Good: 61-80%, Good:41-60%, Fairly Good: 21-40% and Poor: 0-20% (Permatasari, 2018).

The calculation for learning feasibility was conducted by using an observation sheet by giving a Guttman scale score. If it is "Yes" the score given is 1 and if "Not" the score given is 0. The calculation result in the form of percentage from the response questionnaire for the students was interpreted through several categories as described in the following: Excellent:P>90%, Very Good: 80%<P<90%%, Good:70%<P<80%, Fairly Good: 60%<P<70% and Poor: P<60% (Yazid, 2016). Students' response analysis was conducted to calculate the percentage of each response given by the student. The percentage of calculation result from student response towards the questionnaire in interpreted to several categories as described in the following: Very Appropriate: 86-100%, Appropriate: 71-85%, Fairly Appropriate: 56-70% and Less Appropriate: <40% (Yazid, 2016).

Analysis of the effectiveness of the student worksheets was carried out with pretest and posttest test sheets given at the beginning and end of learning. The effectiveness analysis uses the N-Gain formula. The results of the calculation of the percentage of learning implementation are categorized based on the high score category:

High: 0.70 < N-Gain, Medium: 0.30 < N-Gain < 0.70 and Low: N-Gain < 80%. Based on the interpretative category, it can be categorized based on the following criteria: Ineffective: <40%, Less effective: 40-55%, Fairly effective: 56-75% and Effective: >76% (A. M. Yusuf, 2017).

▪ RESULT AND DISSCUSSION

Practicality Analysis

Analysis on Students' Activitiess

Students' activeness was measured by using observation sheet when the teaching and learning process was running. The observation result on students' active participation during two meetings obtained an average score as big as 87.5% which was categorized excellent. According to the second meeting, the average score was levelled up to 93.8% which was categorized excellent. This was affected by the use of students' worksheet which had been arranged relevant based on the materials and curriculum. The concept of the students' worksheet had also been relevant as mentioned by the experts and possessed a conceptual relation with daily life. Besides, the content of the students' worksheet had been made suitable with student's psychology thus it can increase their knowledge, help them in understanding the materials, and suit the tools and materials used in the activities of students' worksheet.

The design made for students' worksheet attracted students' interest so that they were motivated to do the exercises in the students' worksheet. Besides, the students' worksheet used a certain interesting fonts for the writing so that it is not monotonous. This caused the students engaged actively in completing the tasks and discuss with their peers in a group. This is in line with a theory by Hosnan in Yunis (2019) who stated that active learning is a teaching and learning activities in which the learners were intellectually and emotionally engaged so that they can really take part and actively participated in the activities. Students' worksheet can increase students' learning activities since a learner-centered approach is being implemented. It basically aims to strengthen and smooth students' stimulus and responses during the learning process so that it becomes a fun learning activity. The use of students' worksheet in the learning process aims to help the teachers during the teaching and learning process in classroom and ease the students in understanding the concepts and materials in a better way. The use of students' worksheet the students to be more active in engaging in classroom activities.

Widyaningrum & Prihastari (2020) explained that most of the lesson plans made by teachers equipped with student worksheets only contained simple student activities, sometimes used in groups not individually. Students' worksheet only consists of indicators, activity steps, and assessments. It is hoped that there will be colored student worksheets, equipped with materials for development and made interesting with pictures and can be linked to local wisdom.s

Analysis on Learning Feasibility

The test result on learning feasibility by the Biology teachers gained score100% in the first and second meetings which were categorized excellent. The evaluation on the learning feasibility of the students were perceived important as it is directly related to the achieved learning process that is considered good in a classroom. The excellent

feasibility of the learning process implied that the teaching activities conducted by the teacher using the students' worksheet that is based on the local potentials of mangrove forest with discovery learning could be used appropriately during the teaching and learning activities particularly on biodiversity topic. This can be seen through the observation result where the all parameters of learning feasibility were thoroughly and appropriately conducted by the teachers. All activities during the teaching and learning process had been conducted excellently. Basically, this revealed that the components in the lesson plan such as materials, learning model, media, source, and steps can be the reference for the teachers in managing the learning activities in a good way. Besides, the learning feasibility is also affected by teachers' skill sin managing the whole learning process.

This was in line with a theory by Sudjana (2012) which stated that the skills that are urged to be mastered to support the teaching and learning process is teacher's activeness in creating and growing the learning activities which are suitable with the lesson plan that had been arranged. According to Widodo (2017), to achieve the goal of the students' worksheet and make it relevant to the learning goals, the teacher have to master the flow of the learning properly. The teacher must be creative in managing the class and sensitive towards the learning situation and condition since during the learning process, there are phases when the students are encouraged to do something, or in contrast, bored to take part in the activities and feel tired to complete the assignments. Learning by using Discovery Learning can change the learning atmosphere which is dominated by teachers (teacher center learning) by using discussion methods that should be student-centered learning (Student centered learning) so as to increase students' thinking skills (Kurniawati et al., 2017).

Analysis on Students' Response

The students' worksheet that is based on the local potentials of mangrove forest with discovery learning is considered very appropriate to be used as a learning media to teach biodiversity. This can be obtained from the response analysis collected from 25 students that showed the overall score as big as 968 and if it is presented in a percentage, it gained 96.8%. Students' worksheet that was used in the research acquired responses from the students. 100% agreed that students' worksheet is easy to use, interactive and attractive, and able to be used for independent learning. 92% of the students stated that the pictures and materials are harmoniously designed in the worksheet. 84% of the students exposed that the materials provided in the students' worksheet were clear and understandable, the fonts are readable, and thus it increase students' motivation. 80% of the students agreed that the language use is understandable. Similar percentage also represents students' voice that the assignments as well as the exercises in each activity in the students' worksheet can help them understand the materials. The appealing pictures and understandable narration are also helpful for 68% of the students in mastering the discussion topic. Student worksheets are part of learning tools developed in accordance with existing guidelines, which will affect the quality of learning in the classroom (Hapsari & Suryadarma, 2017). Students who are taught with discovery learning learning models with student worksheets can improve metacognition and better learning outcomes (Junina et al., 2020).

Effectiveness Analysis

Effectiveness analysis was conducted to figure out whether the use of students' worksheet that is based on the local potentials of mangrove forest with discovery learning in the teaching practice can be claimed effective. The effectiveness of the students' worksheet investigated in this research was evaluated by comparing the students' learning result before (pre-test) and after (post-test) the learning process. Further, N-Gain analysis was conducted. The results obtained in this research was explained in the following points.

Students' Learning Result before Treatment

Students' pre-test result on the main materials of biodiversity before students' worksheet that is based on the local potentials of mangrove forest with discovery learning was implemented in the classroom revealed that there were only 2 students (8.0%) from 25 students who passed while the remaining students (92.00%) did not pass. The lowest pre-test score was 47 and the highest one was 79. The passing grade decided by State Senior High School 1 Marisa on the topic of biodiversity was 78.

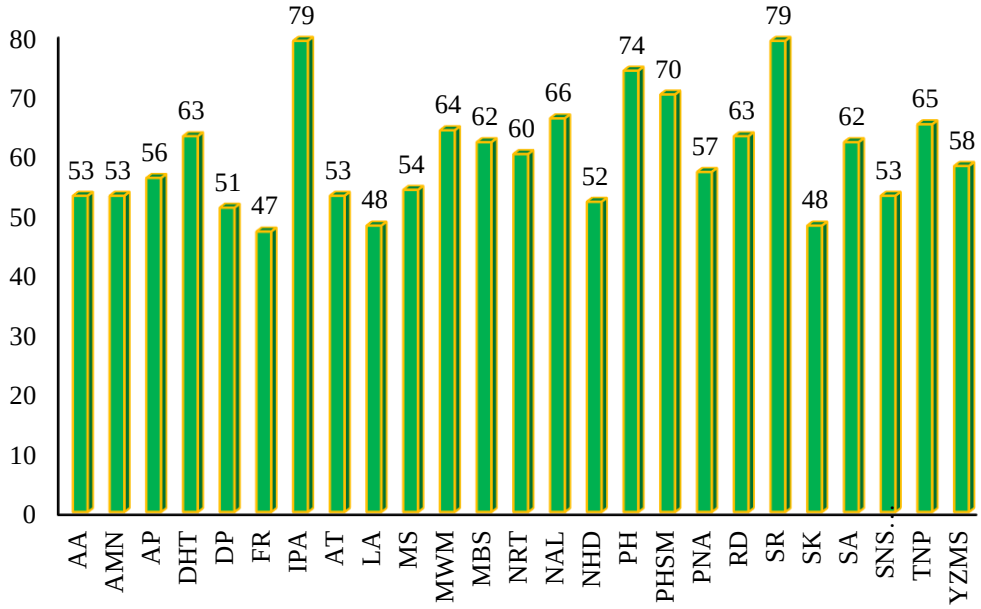

Figure 1. Graphic of students' pre-test result

Students' Learning Result after Treatment

Based on students' post-test result on biology subject particularly on the topic of biodiversity after being taught by using students' worksheet that is based on the local potentials of mangrove forest with discovery learning, the result was increased on the total number of students who passed that reached 24 students (96.0%) while 1 student (4%) had not passed. Nevertheless, all students experienced an increase on their score after the teacher implemented students' worksheet in the learning activities and the lowest score was 77 while the highest score was 95.

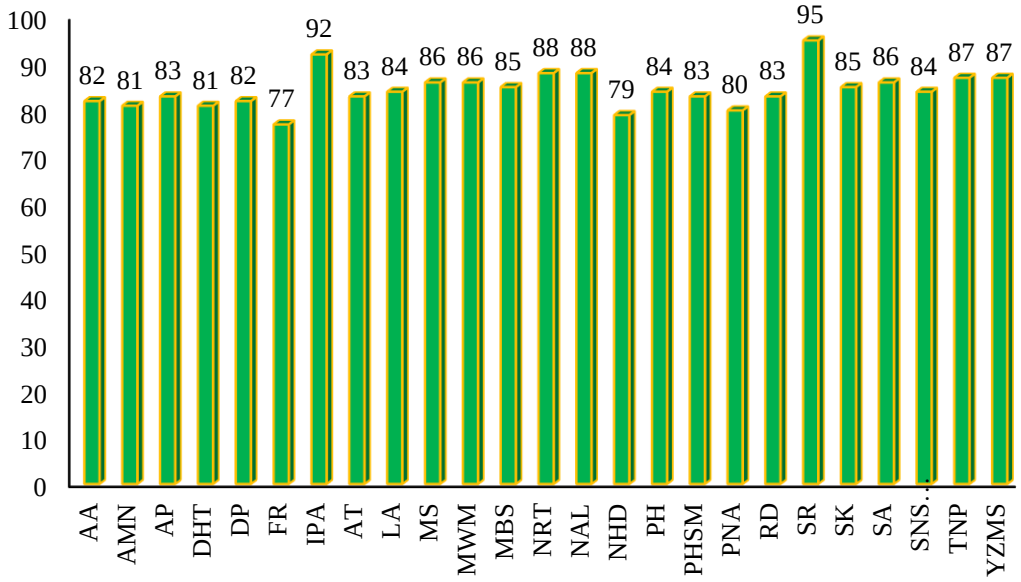

Figure 2. Graphic of students' pre-test result

N-Gain Analysis

Before students' worksheet that is based on the local potentials of mangrove forest with discovery learning was implemented in class, the result of pre-test and post-test of 25 students respectively reached 59.60 and 84.44. After that, the N-Gain score reached 0.615. This score is obtained from the pre- and post-test. The calculation result of N-Gain score was interpreted by using N-Gain criteria. Low gain learning is represented with $g < 0.3$; medium gain learning is represented with $0.3 \leq g \leq 0.7$; high gain learning is represented with $g > 0.7$ (Yusuf et al., 2019). Thus it can be stated that students' worksheet that is based on the local potentials of mangrove forest with discovery learning has a medium level of effectiveness.

This result implied that there has been an increase on students' academic result particularly on biodiversity as the main material for grade X in the students' worksheet that is based on the local potentials of mangrove forest with discovery learning. According to the researcher, through a discovery learning, students are encouraged to cast their questions and draw conclusion based on the real experience of the students in the field. This would likely increase students' skill in solving problems, train them to be more independent and active, let them think and use their very own skill to figure out the expected final result. The use of students' worksheet becomes a supplementary materials what is appropriate to be used for independent learning and understanding the concept which had been discussed through some tasks that had been provided in the students' worksheet. By using students' worksheet, Students can be more active in the teaching and learning process, help them to enrich the information concerning the learning concept systematically, and activate as well as develop their learning concept. This is in line with a theory proposed by Jerome Bruner that discovery is a process or a way in approaching a problem not a product or a certain knowledge item. Fundamentally, discovery learning is close to inquiry learning. However, in discovery learning, the problems exposed to the students are made by the teachers so that students

do not have to exploit their thoughts and skills to gain findings in the problems through a research steps (Ministry of Education and Culture of the ReState of Indonesia, 2013).

Discovery learning is a learning model where students are actively involved in the learning process. In this learning model students are implanted with concepts such as learning, observing, explaining, measuring, clarifying and making conclusions. Students who use the discovery model in learning have a higher level of positive domain in learning (Marian & Suparman, 2019). According to Trianto (2016), students' worksheet is such a guide for the students which can be used to develop their cognitive aspects as well as a guide to develop all learning skills in the form of activity guide in investigating and solving problems arranged based on the learning goals that must be achieved. Wulandari (2013) also stated that the role of students' worksheet is immense in the learning process as it can improve students' activities in learning and its use in leaning can help the teachers to lead the students in finding the concepts through their activities. Besides, students' worksheet can also develop proves development, improve students' activities, and optimize the learning result.

The use of student worksheets equipped with activities to understand coastal ecosystems and have knowledge, attitudes, and moral feelings. In the worksheets, students present the wealth of natural resources and the values of local wisdom in coastal areas that students can emulate as the next generation. Thus, students are expected to be able to recognize and take a closer look at the natural resources in their area and be able to realize the impacts that will occur if coastal natural resources are damaged (Nusantari et al., 2020).

The result of this research is also relevant to a research by Rezeki (2022) on Tenth Graders in State Senior High School 2 Gowa. It was revealed that the learning result of the students in experimental group on Biology subject on Animalia as the learning topic taught by using E-students' worksheet that is based on Discovery learning gained higher average score that was 83.60 than control class taught by using students' worksheet which was not based on Discovery Learning that was 77.85. The hypothesis testing by using Independent statistic t-test generated a significant score that was 0.001 which was less than 0.05 thus it can be concluded that the hypotheses was accepted. Besides, it also showed that there is a significant effect of the use of E- students' worksheet that is based on Discovery Learning particularly on Animalia as the learning topic in grade X majoring in natural science in State Senior High School 2 Gowa.

▪ CONCLUSION

Based on the research result on practicality and effectiveness on the use of students' worksheet that is based on the local potentials of mangrove forest with discovery learning model, it can be concluded that the use of the students' worksheet can be used for learning particularly on biodiversity as the learning topic based on the evaluation of students' activities, responses, and learning feasibility as well as improve student learning outcomes on biodiversity material according to the results of the analysis of pretest and posttest scores. The results of this study may be considered in determining policies in the use of student worksheets in learning materials on biodiversity, which can improve student learning outcomes. This study has limitations where it is only conducted on students of class X IPA 3. In the future, it is hoped that further research can be carried out on a wider subject.

▪ REFERENCES

Baderan, D. W. K., Hamidun, M. S., Utina, R., Rahim, S., & Dali, R. (2019). The Abundance and Diversity of Mollusks in Mangrove Ecosystem at Coastal Area of North Sulawesi, Indonesia. Biodiversitas, 20(4), 987–993.

Ceriasari, B., Sunyono, & Rudibyani, R. B. (2019). Implementation of Discovery Learning Based Worksheet To Improve Students' Concept Mastery of Science. JPMIPA2, 20(1), 7–11.

Hapsari, L. A., & Suryadarma, I. G. P. (2017). Development of Student Learning Model Based on Local Wisdom with Discovery Learning Model. 5th ICRIEMS Proceedings, 39–48.

Jajarni, T. (2019). Penerapan Lembar Kerja Peserta Didik (LKPD) Berbasis Keterampilan Proses Sains (KPS) pada Materi Pencemaran Lingkungan Terhadap Hasil Belajar dan Respon Siswa Kelas VII di MTsS Darul Hikmah [Application of Student Worksheets (LKPD) Based on Science Process Skills (KPS) on Environmental Pollution Materials on Learning Outcomes and Responses of Class VII Students at MTsS Darul Hikmah]. Universitas Islam Negeri Ar-Raniry Darussalam Banda Aceh.

Junina, I., Halim, A., & Mahidin. (2020). The effect of discovery learning-based worksheet on students' metacognition skill and learning outcomes. Journal of Physics: Conference Series, 1460(1).

Kemendikbud RI. (2013). Implementasi Kurikulum 2013. Kementerian Pendidikan dan Kebudayaan.

Kurniawati, E. C., Jalmo, T., & Lengkana, D. (2017). Teachers ' Perceptions in the Development of Student Worksheets (LKPD) Based On Discovery Learning To Improve System Thinking Ability. 2016, 1979–1985.

Marian, F., & Suparman. (2019). Design of Student Worksheet Based on Discovery Learning to Improve the Ability of Mathematics Reasoning Students of Class VII Junior High School. Journal of Physics: Conference Series, 1306(1).

Marsila, W., Connie, C., & Swistoro, E. (2019). Upaya Peningkatan Motivasi Belajar Dan Hasil Belajar Fisika Melalui Penggunaan Model Discovery Learning Berbantuan Lembar Kerja Peserta Didik [Efforts to Increase Learning Motivation and Physics Learning Outcomes through the Use of the Discovery Learning Model Assisted with Student Worksheets]. Jurnal Kumparan Fisika, 2(1), 1–8.

Nusantari, E., Utina, R., Katili, A. S., & Tamu, Y. (2020). Science learning to understand the value of conservation character in students in the coastal region. Jurnal Bioedukatika, 8(1), 48.

Permatasari, E. A. (2018). Pengembangan E-Modul Berbasis Adobe Flash pada Pokok Bahasan Sistem Reproduksi untuk Pembelajaran Biologi di SMA [Development of Adobe Flash-Based E-Modules on the Subject of Reproductive Systems for Biology Learning in High Schools]. Universitas Jember.

Rahim, S., & Baderan, D. W. K. (2017). Hutan Mangrove dan Pemanfaatannya (M. S. Hamidun (ed.)). Penerbit Deepublish.

Rahma. (2015). Pengembangan Lembar Kerja Peserta Didik (LKPD) Biologi Berbasis Potensi Lokal Hutan Mangrove dengan Strategi Discovery Learning pada Materi Pokok Keanekaragaman Hayati untuk Kelas X di SMA Negeri 1 Popayato [Development of Biology Student Worksheets (LKPD) Based on Local Potential

of Mangrove Forests with Discovery Learning Strategies on Biodiversity Main Materials for Class X at SMA Negeri 1 Popayato]. Universitas Negeri Gorontalo.

Rezeki, S. (2022). Pengaruh E-LKPD Berbasis Discovery Learning terhadap Hasil Belajar Peserta Didik pada Konsep Animalia Kelas X di SMA Negeri 2 Gowa [The Effect of Discovery Learning-Based E-LKPD on Student Learning Outcomes on the Concept of Animalia Class X at SMA Negeri 2 Gowa]. Universitas Muhammadiyah Makassar.

Rizki, A., Khaldun, I., & Pada, A. U. T. (2021). Development of Discovery Learning Student Worksheets to Improve Students' Critical Thinking Skills in Chemical Balance Materials. Jurnal Penelitian Pendidikan IPA, 7(4), 707–711.

Sudjana, N. (2012). Definisi dan Tinjauan Tentang Pemahaman. Penilaian Hasil Proses Belajar Mengajar, 24(4), 11–18.

Trianto. (2016). Model Pembelajaran Terpadu: Konsep Strategi dan Implementasinya dalam Kurikulum Tingkat Satuan Pendidikan (KTSP). Bumi Aksara.

Widodo, S. (2017). Pengembangan Lembar Kegiatan Peserta Didik (LKPD) berbasis Pendekatan Saintifik untuk Meningkatkan Keterampilan Penyelesaian Masalah Lingkungan Sekitar Peserta Didik di Sekolah Dasar [Development of Student Activity Sheets (LKPD) based on Scientific Approach to Improve Environmental Problem Solving Skills for Students in Elementary Schools]. Jurnal Pendidikan Ilmu Sosial, 26(2), 189.

Widyaningrum, R., & Prihastari, E. B. (2020). Student worksheet based on Surakarta's local wisdom in primary school: A preliminary research. International Journal of Science and Applied Science: Conference Series, 4(1), 56.

Wiranata, I. M. R. A. (2021). Pengembangan Lembar Kerja Peserta Didik Berbasis Pemecahan Masalah Konstektual Materi Masalah Sosial Kelas IV SD No. 1 Sempidi Tahun Ajaran 2020/2021 [Development of Student Worksheets Based on Contextual Problem Solving Materials for Class IV Elementary School Social Problems. 1 Sempidi Academic Year 2020/2021]. Universitas Pendidikan Ganesha Denpasar.

Wulandari. (2013). Pengembangan Lembar Kerja Siswa Berbasis Cerita Bergambar pada Materi Sistem Pencernaan di SMP [Development of Picture Story-Based Student Worksheets on Digestive System Materials in Junior High School]. Universitas Negeri Semarang.

Yazid, K. (2016). Validitas Buku Saku Materi Ekologi untuk Siswa Kelas X Berbasis Kurikulum 2013. CV. Budi Utama.

Yunis, H. (2019). Peningkatan Aktivitas Belajar Peserta Didik pada Pembelajaran IPA Menggunakan LKPD Secara Daring di SMPN 248 Jakarta [Improving Student Learning Activities in Science Learning Using LKPD Online at SMPN 248 Jakarta]. ACTION: Jurnal Inovasi Penelitian Tindakan Kelas Dan Sekolah, 1(2), 178–183.

Yusuf, A. M. (2017). Metode Penelitian Kuantitatif, Kualitatif & Penelitian Gabungan. Kencana.

Yusuf, F. M., Baderan, D. W. K., & Amu, A. S. (2019). Pengembangan Rencana Pembelajaran Untuk Menanamkan Karakter Peduli Lingkungan [Development of Learning Plans to Instill Environmental Care Character]. Prosiding Conference on Research and Community Services, 1(1), 241–248.