



Development of Scaffolding-Based Student Worksheets (LKPD) on Biodiversity Material in Grade VII of SMPN 23 Ambon

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Abstract: The study aimed to develop scaffolding-based student worksheets (LKPD) for Biodiversity material at SMP Negeri 23 Ambon as a teaching resource for 7th-grade students. It also sought to determine the quality of this LKPD and assess the responses of both teachers and students to its development. This research adopted a research and development (R&D) approach, utilizing Thiagarajan's 4-D development model: define, design, develop, and disseminate. The study took place at SMP Negeri 23 Ambon, with the trial subjects comprising 23 7th-grade students. Data was collected through LKPD validation questionnaires, observation sheets for learning implementation, student response questionnaires, and learning outcome tests. The findings indicate that the LKPD was deemed valid by material experts (84% for material aspects), very valid for media aspects (92%), and very valid for language aspects (94%). Practicality testing showed an 89% score, categorizing it as very practical. Student responses to the LKPD and learning activities were overwhelmingly positive, with a total average of 99%. Post-test results reached 91%, interpreted as effective. Based on these results, it can be concluded that the developed LKPD is suitable for trial implementation in the learning process at SMP Negeri 23 Ambon. It also contributes positively to the learning process and can serve as a valuable reference for future development of other instructional media.

Keywords: Biodiversity; Development; Scaffolding; Student worksheets

Introduction

The development of science and technology in the current millennial era is quite rapid. As an indicator of a nation's progress, education is crucial in responding to these developments. Education plays a crucial role in creating superior and competitive human resources, as stipulated in the Regulation of the Minister of Education, Culture, Research, and Technology No. 22 of 2022 concerning the Independent Curriculum (Ulfa et al., 2018). This independent curriculum prioritizes a scientific approach, focusing on developing student competencies through relevant knowledge and skills while emphasizing more flexible learning based on the potential and needs of each student (Kemendikbudristek, 2022; Nurdianah, 2024; Septi et al., 2018; Ramadhani et al., 2022).

This scientific approach is designed to enable students to construct concepts and principles through

observation, problem formulation, hypothesis development, data collection using various analysis techniques, drawing conclusions, and communicating discovered concepts. Learning through a scientific approach directs students toward higher-order critical thinking skills. Scientific learning involving experiments, observations, and investigations requires students to think critically. This approach not only focuses on understanding scientific concepts but also develops students' abilities to identify problems, analyze evidence, and draw logical conclusions based on available information (Marzano, 2007; Muslimah, 2020; Belland et al., 2008; Suyono & Haryianto, 2012).

One of the determining factors for successful classroom learning is the use of instructional media. The importance of learning media lies in helping educators deliver messages and learning materials effectively and efficiently. Media help concretize concepts or ideas and motivate students to actively engage in learning. For

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students, media can serve as a bridge for thinking, understanding concepts, and taking action (Arsyad, 2017). Therefore, selecting learning media that align with students' needs is necessary to achieve learning objectives.

Educators can provide learning media that help students think critically through the use of Student Worksheets (LKPD). These LKPDs guide students in solving biology-related problems through systematic problem-solving steps (Campbell & Reece, 2008). Through problem-solving activities, students can develop science process skills and critical thinking abilities. According to Supardi (2013), LKPD is defined as a learning medium in the form of worksheets containing learning materials and instructions for completing tasks designed to assist students in the learning process.

The combination of scaffolding-based LKPD represents an innovative learning approach designed to help students gradually construct conceptual understanding through structured assistance provided by teachers and the learning environment (Narti & Asnendri, 2022). The scaffolding approach is rooted in the theory of the Zone of Proximal Development (ZPD) proposed by Lev Vygotsky, which explains that students can achieve higher levels of understanding when they receive appropriate support during learning activities (Vygotsky, 1978). In practice, scaffolding-based LKPD not only contain exercises or assignments but also include step-by-step guidance, guiding questions, examples, and thinking prompts that assist students in solving problems independently and systematically (Wood et al., 1976). Furthermore, scaffolding-based learning can improve students' conceptual understanding, critical thinking skills, and learning independence because assistance is gradually reduced as students become more competent and confident in completing tasks (van de Pol et al., 2010; Suryaningsih et al., 2021; Adinda et al., 2024).

The scaffolding approach is rooted in Lev Vygotsky's theory of the Zone of Proximal Development (ZPD), which explains that students can achieve higher levels of understanding when they receive appropriate support during the learning process. In its implementation, scaffolding-based LKPDs do not merely contain exercises or assignments, but also include step-by-step guidance, guiding questions, worked examples, and thinking prompts that assist students in solving problems independently and systematically (Vygotsky, 1978; Ashari et al., 2016).

The use of combined scaffolding-based LKPDs is considered effective because it integrates independent learning activities with adaptive guidance tailored to students' abilities. At the initial stage, students are provided with intensive support through instructions,

illustrations, and example solutions. As their understanding improves, the assistance is gradually reduced, enabling students to develop independent learning skills and critical thinking abilities. Previous studies indicate that scaffolding-based LKPDs can improve conceptual understanding, science process skills, and numeracy literacy because the learning process becomes more structured and contextualized (Pratama & Saregar, 2019; Ningrum et al., 2021; Nari & Mardhiyah, 2024; Buyung & Dwijanto, 2017).

Furthermore, the integration of scaffolding within LKPDs also supports active and collaborative learning (Gandasoebrata, 2021). Students are not only passive recipients of information, but are encouraged to explore problems, engage in discussions, connect concepts, and discover solutions progressively. Teachers act as facilitators who provide support according to students' needs, making the learning process more meaningful. Therefore, scaffolding-based LKPDs can serve as innovative instructional materials capable of enhancing student engagement, building self-confidence, and developing problem-solving skills required in 21st-century learning (Hosnan, 2014).

Method

This study employed a research and development (R&D) method, utilizing Thiagarajan's 4-D development model: define, design, develop, and disseminate (Thiagarajan, 1974), which aims to produce a specific product and test its effectiveness. The product developed in this study is a scaffolding-based student worksheet (LKPD) on biodiversity material for seventh grade students (Artanti, 2020; Aryanti, 2023; Rahmatiah et al., 2016).

This scaffolding-based LKPD was validated by 3 validators who are experts in their respective fields with their educational backgrounds such as lecturers in literature, media, and materials. Prof. Dr. Muhammad Rijal, M.Pd as a material expert validator, Rahmiati Darmis, M.Pd as a media expert validator and Nanik Handayani, M.Hum as a language expert validator.

This development research only distributed the LKPD to the schools studied, because this development test was conducted on a limited basis. Data was collected through LKPD validation questionnaires, observation sheets for learning implementation, student response questionnaires, and learning outcome tests.

Result and Discussion

Results of Steps for Developing LKPD At the definition stage (define)

This stage is where the author gathers the information needed to select the teaching materials to be

developed. The results of the define stage are explained as follows:

Early-late analysis

Based on the initial-final analysis, the problem found by the author is that teachers at SMP Negeri 23 Ambon are still using textbooks that have not been adapted to the character and needs of students in the learning process, and there is no Scaffolding-based LKPD, especially on biodiversity material.

Analysis of student and teacher needs

The analysis of students' and teachers' needs was carried out by the author by distributing student needs questionnaires and teacher needs questionnaires regarding biodiversity LKPD, namely to 23 students of grade VII and science subject teachers in grade VII, namely Mr. La Amudin, S.Pd., M.Pd. From the results of the distributed questionnaires, it was shown that teachers and students did not yet have LKPD as a source of independent learning and teaching materials in science subjects, namely biodiversity material. In general, students found it difficult to learn biodiversity material only from teacher explanations, so students needed other teaching materials to support their learning process.

Concept/material analysis

The material analyzed is the topic of Biodiversity included in Chapter 1 in the Natural Sciences subject for grade 7 of junior high school, odd semester in the Independent Curriculum.

Concept analysis

This stage is carried out by analyzing the learning outcomes of the curriculum used, namely the independent curriculum, the author conducts a concept analysis by identifying the main concepts of biodiversity which are the material to be taught in the developed LKPD. This stage is based on learning outcomes so that the preparation of teaching materials is in accordance with the biodiversity material (Putra, 2021; Rosalia et al., 2021). The learning outcomes in the biodiversity material are: "At the end of phase D, students have the ability to create solutions to problems based on local or global issues from their understanding of the diversity of living things and their roles, viruses and their roles, the application of biotechnology, ecosystem components and interactions between components and environmental changes (Hogan & Pressley, 1997). The learning objectives that will be achieved after students study this LKPD are Students can explain biodiversity at the gene, species and ecosystem levels correctly, Students can identify which is included in biodiversity

at the gene, species and ecosystem levels correctly and Students can review biodiversity in Indonesia correctly.

Discussion

The development of LKPD begins with analyzing the needs of students and teachers so that solutions can be found in selecting teaching materials that are appropriate to the needs of students and teachers (Yuliani, 2018). Based on the results of the teacher needs analysis, it is known that the teacher is still using textbooks in teaching biodiversity material that has not been adapted to the character and needs of students. Meanwhile, from the results of the student needs analysis, it was found that students do not have a study guide or other guide to study biodiversity material, most students have difficulty in understanding biodiversity material so that other teaching materials are needed in studying biodiversity. Therefore, the author chose to develop a scaffolding-based LKPD on biodiversity material. This scaffolding learning strategy focuses on providing temporary support to students to help them achieve learning objectives (Vygotsky, 1978; Sihasale, 2013).

Jerome Bruner stated that scaffolding is an important component in learning because it can help students understand the material gradually, by reducing assistance slowly until students are able to be independent. The same thing was also stated by Wood et al. (1976) they are the originators of the term scaffolding according to them scaffolding is support provided by teachers or more expert people to help students in completing tasks that were initially beyond their capabilities. The validation results along with input and suggestions from the validators were used as a reference in revising the developed Student Worksheets. Based on the development results, the developed LKPD is worthy of being tested in the learning process. This is supported by three criteria aspects, namely (1) validity, (2) practicality and (3) effectiveness (Nieveen, 1999). The three aspects are described as follows:

Validity of Scaffolding-Based Student Worksheets

The validation stage used by the author in developing this LKPD aims to measure the level of accuracy, precision, and clarity of the LKPD. The validation process was carried out by 3 experts who are experts in their respective fields. Each validator provided an assessment of various aspects of the LKPD, such as material content, media, and language (Sinclair et al., 1978). The average validation score shows that the LKPD developed has the criteria of "very valid" with an average percentage of 90%. This can be seen in all aspects of the assessment that are in the criteria of very valid by making various revisions so that the developed teaching materials can be used in science learning but

need to be improved. Things that need to be improved are: 1) Improving the Cover of the LKPD to be more creative and interesting. 2) Correcting writings that are still wrong. 3) Making separate boxes between material and answers that will later be filled in by students. 4) The model used in the LKPD must be stated. 5) Include references so that students can find reliable learning resources.

A student worksheet can be considered valid if it meets eligibility standards. As Nieveen (1999) explains, validity is one of the main criteria in developing learning tools. Validation is conducted by experts to ensure that the tool meets eligibility standards and can be used effectively in the learning process. This validity includes accuracy of content, appropriateness to learning objectives, and clarity of presentation.

Implementation of Learning

The practicality of LKPD is measured based on the observation sheet of learning implementation filled out by the seventh grade science teacher, Mr. La Amudin, S.Pd, M.Pd. The observed indicators include Introduction (Orientation & Initial Context), Core (Scaffolding Syntax), and Closing (Reflection & Evaluation). The observation results show that all indicators of learning implementation reached a percentage of 94% with the criteria of being implemented very well. The percentage of implementation shows that all observed aspects were implemented very well (Mamin, 2008).

This demonstrates that scaffolding-based student worksheets (LKPD) have been successfully implemented in the learning process. This success demonstrates that students can actively participate in learning, from asking questions and collaborating in group discussions to drawing conclusions. These results demonstrate that the use of LKPD can increase student activity and engagement in learning. As explained by Sardiman (2011), with high engagement, students are more motivated to learn and more easily understand the material being taught. This shows that educators can use LKPD as a tool or teaching material to encourage students to think critically and creatively.

Student Response Results

The effectiveness of the Student Worksheet (LKPD) was measured using two data sets: student responses to the scaffolding-based LKPD during learning activities and student learning outcomes through a post-test (Ayu, 2023). The pre-test results showed that most students were in the "not meeting" category of completion criteria, while the post-test results showed a significant improvement. Of the 23 students, 17 students (91%) successfully achieved the minimum completion criteria after using the LKPD. This improvement in learning

outcomes indicates that the scaffolding-based LKPD is not only valid and practical, but also effective in improving learning outcomes for students.

These results indicate that students who previously struggled to understand biodiversity material improved their understanding after using the Student Worksheet (LKPD). This is similar to what Arsyad Azhar, an expert in the field of learning media, points out. In his book, "Media Belajar," Arsyad explains that the effectiveness of learning media is greatly influenced by its suitability to student characteristics and learning objectives (Arsyad, 2017). This improvement in learning outcomes underscores the importance of using learning media appropriate to student characteristics. Scaffolding-based student worksheets (LKPD) can be an effective alternative learning resource for improving students' understanding of complex material. This also demonstrates that developing effective LKPD can contribute to improving the quality of education in schools (Husamah & In'am, 2024).

Conclusion

The quality of the LKPD developed through the validation test was declared very valid with an average percentage of 90%. consisting of 84% of the material, 92% of the media aspect and 94% of the language aspect. The results of the learning implementation test with implemented criteria, and the effectiveness test based on student responses to LKPD and learning activities obtained positive response criteria with an average percentage of 94% with very well implemented criteria and learning outcomes obtained a percentage of 91% with complete criteria. This provides a positive contribution to the learning process and can be a reference for the development of other learning media in the future. In addition, it is important to continue to evaluate and improve LKPD based on feedback from students and teachers to improve the quality of learning.

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Author Contributions

Conceptualization, I.L. and C.P.; methodology, I.L. and S.A.D.P.; formal analysis, I.L. and D.I.; investigation, I.L., S.A.D.P., and C.P.; resources, I.L. and D.I.; writing—preparation of original draft, I.L.; writing—reviewing and editing, I.L., D.I., and C.P.; visualization, J.R. and S.A.D.P.; supervision, I.L.; project administration, I.L. All authors have read and approved the published version of the manuscript.

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Conflicts of Interest

No conflict interest.

References

- Adinda, Mulia, S., Irfan, & Gusmanel. (2024). Penerapan Strategi Pembelajaran Scaffolding Dalam Membentuk Kemandirian Peserta Didik. *Jurnal Bima: Pusat Publikasi Ilmu Pendidikan Bahasa Dan Sastra*, 2(2), 34–41. <https://doi.org/10.61132/bima.v2i2.763>
- Arsyad, A. (2020). *Media Pembelajaran*. Raja Grafindo Persada.
- Aryanti, H. D. (2023). *Development of Discovery Learning-Based Biodiversity Student Worksheets in Giriklopomulyo Village as Teaching Material for Grade X Students at SMAN 2 Sekampung [IAIN Metro]*. Retrieved from <https://repository.metrouniv.ac.id/cgi/oai2>
- Ashari, N. W., Salwah, & Fitriani, W. (2016). Implementasi Strategi Pembelajaran Scaffolding Melalui Lesson Study Pada Mata Kuliah Analisis Real. *M A T H L I N E: Jurnal Matematika Dan Pendidikan Matematika*, 1(1), 23–36. <https://doi.org/10.31943/mathline.v1i1.10>
- Ayu, R. (2023). Efektivitas Lembar Kerja Peserta Didik Berbasis Model Pembelajaran Project Based Learning (PjBL) Terintegrasi TPACK Terhadap Hasil Belajar Siswa SMA. *Jurnal Biogenerasi*, 8(1), 385–388. <https://doi.org/10.30605/biogenerasi.v8i1.2254>
- Belland, B. R., Glazewski, K. D., & Richardson, J. C. (2008). A scaffolding framework to support the construction of evidence-based arguments among middle school students. *Educational Technology Research and Development*, 56(4), 401–422. <https://doi.org/10.1007/s11423-007-9074-1>
- Buyung, & Dwijanto. (2017). Analysis of Mathematical Literacy Skills Through Inquiry-Based Learning with Scaffolding Strategies. *Jurnal of Mathematics Education Research*, 6(1). Retrieved from <https://journal.unnes.ac.id/sju/index.php/ujmer>
- Campbell, N. A., & Reece, J. B. (2008). *Biology* (8th ed.). Pearson Benjamin Cummings.
- Hogan, K., & Pressley, M. (1997). *Scaffolding Student Learning: Instructional Approaches and Issues*. Brookline.
- Hosnan, M. (2014). *Pendekatan Saintifik dan Kontekstual dalam Pembelajaran Abad 21*. Ghalia Indonesia.
- Husamah, H., & In'am, A. (2024). *Inovasi Pembelajaran dan Pendidikan Teknologi untuk Peningkatan Kualitas Pendidikan*. Retrieved from <https://www.researchgate.net/publication/380376378>
- Kemendikbudristek. (2022). *Peraturan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Nomor 22 Tahun 2022 tentang Standar Proses Pendidikan pada Kurikulum Merdeka*. Ministry of Education, Culture, Research, and Technology of Indonesia.
- Mamin, R. (2008). Implementation of the Scaffolding Learning Method on the Topic of the Periodic Table of Elements. *Jurnal Chemica*, 10(2). <https://doi.org/10.35580/chemica.v9i2.420>
- Marzano, R. J. (2023). The art and science of teaching: A comprehensive framework for effective instruction. *Educational Leadership*, 80(5), 23–37. <https://doi.org/10.1080/00346543.2023.11012288>
- Muslimah. (2020). The Importance of Student Worksheets in the Scientific Approach to Mathematics Learning. *Social, Humanities, and Educational Studies (SHES): Conference Series*, 3(3). <https://doi.org/10.20961/shes.v3i3.56958>
- Nanti, S., & Asmendri, A. (2022). Desain Pembelajaran Biologi Berbasis Jelajah Alam Sekitar Dalam Menumbuhkan Budaya Peduli Lingkungan. *Pendekar: Jurnal Pendidikan Berkarakter*, 5(2), 155. <https://doi.org/10.31764/pendekar.v5i2.8776>
- Nari, N., & Mardhiyah, A. (2024). Pengembangan LKPD Berbasis Scaffolding Untuk Meningkatkan Kemampuan Literasi Numerasi Peserta didik Pada Materi Bangun Datar. *Journal of Education Research*, 5(4), 6893–6904. <https://doi.org/10.37985/jer.v5i4.1767>
- Nieveen, N. (1999). Prototyping to Reach Product Quality. In *Design Approaches and Tools in Education and Training* (pp. 125–135). Springer Netherlands. https://doi.org/10.1007/978-94-011-4255-7_10
- Ningrum, D. P., Budiyo, M., & Susiyawati, E. (2021). Implementation of the Guided Inquiry Learning Model with Scaffolding-Based Student Worksheets to Foster Students' Science Process Skills. *PENSA E-Jurnal: Pendidikan Sains*, 9(3), 399–406. <https://doi.org/10.26740/pensa.v9i3.41078>
- Nurdianah, L. (2024). Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbasis Multiple Intelligences dalam Pembelajaran Kurikulum Merdeka. *Dirasah: Jurnal Studi Ilmu Dan Manajemen Pendidikan Islam*, 7(2), 560–571. <https://doi.org/10.58401/dirasah.v7i2.1281>
- Pratama, R. A., & Saregar, A. (2019). Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbasis Scaffolding Untuk Melatih Pemahaman Konsep. *Indonesian Journal of Science and Mathematics Education*, 2(1), 84–97. <https://doi.org/10.24042/ijms.v2i1.3975>
- Putra, S. H. J. (2021). Pendekatan Jelajah Alam Sekitar (JAS): Dampaknya terhadap Aktivitas dan Hasil Belajar Kognitif Siswa SMP. *Journal of Natural Science and Integration*, 4(2), 204. <https://doi.org/10.24014/jnsi.v4i2.10030>

- Rahmatiah, R., Koes H., S., & Kusairi, S. (2017). Pengaruh Scaffolding Konseptual dalam Pembelajaran Group Investigation Terhadap Prestasi Belajar Fisika Siswa SMA dengan Pengetahuan Awal Berbeda. *Jurnal Pendidikan Fisika Dan Teknologi*, 2(2), 45–54. <https://doi.org/10.29303/jpft.v2i2.288>
- Ramadhani, N., Yarmi, G., & Hadi, W. (2022). Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbasis Keterampilan 4c Dalam Pembelajaran Iklan Kelas V SD. *Jurnal Handayani*, 13(1), 37. <https://doi.org/10.24114/jh.v13i1.35927>
- Rosalia, R. D., Adinugraha, F., & Silalahi, M. (2021). Hasil Belajar Kognitif Dan Keterampilan Proses Sains Siswa Dengan Penerapan Pendekatan Jelajah Alam Sekitar (JAS) Pada Materi Pencemaran Lingkungan Di SMA Budi Mulia Kota Bogor. *Bioed: Jurnal Pendidikan Biologi*, 9(2), 10. <https://doi.org/10.25157/jpb.v9i2.6282>
- Sardiman, A. M. (2016). *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: PT Raja Grafindo Persada.
- Septi, M. U., Rachmad, M., & Azhar. (2018). The Effectiveness of Using PBL-Based Student Worksheets Incorporating Comprehensive Intelligence in Physics Instruction. *Jurnal Online Mahasiswa (JOM) Bidang Keguruan Dan Ilmu Pendidikan*, 5(1), 3. Retrieved from <https://jom.unri.ac.id/index.php/JOMFKIP/article/view/1951>.
- Sihasale, D. A. (2013). Keanekaragaman Hayati Di Kawasan Pantai Kota Ambon Dan Konsekuensi Untuk Pengembangan Pariwisata Pesisir. *Journal of Indonesian Tourism and Development Studies*, 1(1), 20–27. <https://doi.org/10.21776/ub.jitode.2013.001.01.04>
- Sinclair, A., Jarfelle, R., & Levelt, W. (1978). *The Child's Conception of Language* (A. Sinclair, R. J. Jarvella, & W. J. M. Levelt (eds.); Vol. 2). Springer Berlin Heidelberg. <https://doi.org/10.1007/978-3-642-67155-5>
- Suryaningsih, H., Medriati, R., & Purwanto, A. (2021). Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbasis Scaffolding Berorientasi Berpikir Kritis Pada Materi Hukum Newton Di Sma Negeri Kota Bengkulu. *Amplitudo: Jurnal Ilmu Dan Pembelajaran Fisika*, 1(1), 44–52. <https://doi.org/10.33369/ajipf.1.1.44-52>
- Suyono, & Haryianto. (2012). *Belajar dan Pembelajaran Teori dan Konsep Dasar*. PT. Remaja Rosdakarya.
- Thiagarajan, S. (1974). *The 4-D Instructional Development Model*. Indiana University.
- Ulfa, S. M., Rachmad, M., & Azhar. (2018). The Effectiveness of Using PBL-Based Student Worksheets Incorporating Comprehensive Intelligence in Physics Instruction. *Jurnal Online Mahasiswa FKIP*, 5(1), 1–10. Retrieved from <https://jom.unri.ac.id/index.php/JOMFKIP>
- van de Pol, J., Volman, M., & Beishuizen, J. (2010). Scaffolding in Teacher–Student Interaction: A Decade of Research. *Educational Psychology Review*, 22(3), 271–296. <https://doi.org/10.1007/s10648-010-9127-6>
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. New York: Harvard University Press.
- Wood, D., Bruner, J. S., & Ross, G. (1976). The Role Of Tutoring In Problem Solving. *Journal of Child Psychology and Psychiatry*, 17(2), 89–100. <https://doi.org/10.1111/j.1469-7610.1976.tb00381.x>
- Yuliani, T. (2018). *Pengembangan LKPD Berbasis Penemuan Terbimbing untuk Meningkatkan Kemampuan Berpikir Kreatif Matematis dan Self Efficacy Peserta Didik*. Universitas Lampung.