

THE DEVELOPMENT OF PROBLEM-BASED LEARNING STUDENT LIVWORKSHEETS ON THREE VARIABLES LINEAR EQUATION SYSTEM

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ABSTRACT

Problem-solving ability is important for students to possess because life is inseparable from problems. However, in reality, students' problem-solving ability, especially in mathematics learning, remains relatively low, including in the Three Variable Linear Equation System (SPLTV) material. This study aims to validate the problem-based learning student worksheet, assisted by liveworksheets, for the SPLTV material as an alternative teaching material to improve students' mathematical problem-solving ability. The research method used a Development Study research design, involving four material experts and two media experts in the validation process. The research instrument used questionnaires for validation and a one-to-one interview instrument with three grade X MA students. Data analysis was carried out using descriptive statistical techniques to calculate the average percentage of the validation results. The validation results showed that the worksheet prototype was categorized as very valid with a score of 86.14%, and the learning media was categorized as very valid with a validity score of 91.67%. The interview results with three students indicated that the worksheet was feasible and practical to use. Based on the research results, the problem-based learning worksheet, assisted by Liveworksheets, met the validity standards; therefore, it is feasible to test after revisions based on the validators' suggestions.

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INTRODUCTION

The ability to solve problems is very important for students. According to Polya (Hendriana et al., 2018), problem-solving ability involves determining a solution to a goal that is not easy to achieve. The ability to solve problems can be developed through mathematics learning, in which students are guided and accustomed to solving problems in mathematical questions. This is reinforced by the National Council of Teachers of Mathematics (Putri et al., 2019), which states that there are five basic mathematical abilities in mathematics learning, namely problem

solving, reasoning, communication, connection, and representation. However, some students consider mathematics a difficult, boring subject, which leads them to lack interest and avoid lessons (Utari et al., 2019). Moreover, at the senior high school level, mathematics is already at an abstract level, and the abstractness of mathematics causes some students to experience difficulties in learning mathematics. In fact, by learning mathematics, students will be able to think critically in facing various situations and conditions (Ainurrohimah et al., 2025).

The three-variable linear equation system (SPLTV) is taught at the senior high school level and relates to everyday events. However, many students still experience difficulties in solving the problems because the process of finding the solution requires a long time and involves lengthy procedures (Benyamin et al., 2021). According to Dewi and Kartini (2021), the difficulties students experience in solving SPLTV problems are that they must apply mathematical concepts to real-life problems, which students find difficult. In addition, several students can understand the problem and work according to the steps, but they do not recheck their work, resulting in an inaccurate outcome (Sriwahyuni & Maryati, 2022). Furthermore, the analysis results from Supartinah and Hidayat, (2021) stated that students were confused in determining the method for solving the problems and experienced errors in the problem-solving process. According to Dallyono et al. (2025) students' skills in solving a problem are influenced by their ability to understand the concepts.

One way to improve students' problem-solving ability is the teacher's effort to create innovative learning (Mardiansyah et al., 2025). Pramudita et al (2023) stated that the problem-based learning model is an innovative learning model that involves students in solving a problem through the stages of the scientific method, so that students can learn knowledge related to the problem and also possess the skills to solve the problem. After that, Sockalingam and Schmidt stated that the characteristics of the problems presented in problem based learning correspond to the learning objectives, encourage students to learn independently, make students think critically, condition students to work in groups, foster interest, follow the appropriate format, are clear, promote elaboration, are relevant, have connections with prior knowledge, and have an appropriate level of difficulty (Zainal, 2022). Furthermore, Simeru et al., (2023) stated that problem-based learning is a series of learning activities that emphasizes the scientific process of solving problems.

In addition, Haqiqi and Syarifa (2021) conducted a study on the effectiveness of problem-based learning assisted by videos and Liveworksheets, and the results of their study showed a significant improvement in problem-solving ability experienced by students in the experimental class. Furthermore, Kusumaningrum et al. (2022) concluded that there was a difference in problem-solving ability between students who learned using online worksheets and those who learned without using online worksheets. According to Purwasi and Fitriyana (2020) worksheets can be used as one of the learning resources teachers use to train students' skills in understanding learning concepts by providing step-by-step problem-solving guidance. Furthermore, Nabilla et al. (2022) stated that a good worksheet is a worksheet that can create an interactive learning atmosphere and can meet the objectives of its development.

In considering this matter, the researcher needs to develop a worksheet on SPLTV material using a problem-based learning model, assisted by Liveworksheets, to provide an alternative teaching material in the form of an e-worksheet to improve students' mathematical problem-solving ability. This study aims to fill a gap in previous studies by integrating problem-based learning, using the Liveworksheets application, to develop a worksheet on SPLTV material. Based on the literature review of previous studies, it was identified that there is a lack of research specifically developing a worksheet on SPLTV material using a problem-based learning model assisted by Liveworksheets, implemented in the Cianjur area.

METHOD

This study is a type of Design Research. According to Gravemeijer (Marande & Adha Diana, 2022) Design Research is a type of research that investigates the development of theories and learning activities. The type used was a Development Study. According to Plomp (Putrawangsa, 2019), design Research is a research process that consists of three development stages: the Preliminary Research stage (preparation and design), the Prototyping Phase (self-evaluation, expert review, one-to-one, small group), and Assessment. In this study, the research was limited to the one-to-one stage, with descriptive techniques and descriptive statistics used for data analysis.

In the Preliminary Research stage, the researcher conducted interviews and document reviews with three mathematics teachers at one of the schools in Cianjur, which served as the research site, to analyze the curriculum and the needs and conditions of grade X students, who served as the research subjects. The researcher also conducted interviews with several grade X students, selected at random, to identify student characteristics. Meanwhile, in the Formative Evaluation stage, the product was validated (Expert Review) by four material experts and two media experts, who completed validation questionnaires to meet the validation standards. The worksheet was also tested on three grade X students (one-to-one), selected at random, with varying ability levels, to determine the product's readability and practicality. They were asked to provide comments and suggestions related to Prototype 1 of the product.

The data collection instruments used in this study included a material expert validation sheet, a learning media validation sheet, interview guidelines, and recordings of student interview results. The data analysis techniques used were analyzing the validation data from the material expert and the media expert validation sheet, as well as analyzing the interview results. The worksheet validation assessed the worksheet's appearance, completeness of content, alignment with the material, appropriateness of the language used, and suitability for the learning model. Worksheet validation was measured using a Likert scale from 1 to 5, with 1 indicating a very poor criterion and 5 indicating a very good criterion. The validation data from the material experts and media experts were tabulated and summed to obtain the average score.

The assessment results from the material and media experts indicated that the problem-based learning worksheet, assisted by Liveworksheets, for the SPLTV material met the validity criteria for feasibility. The worksheet was then revised based on the validators' suggestions and comments, as well as the results of student interviews, to obtain Prototype 2 of the product. The feasibility criteria of the worksheet were adjusted to the worksheet validation criteria, which can be seen in Table 1 as follows:

Table 1. Worksheet Validation Criteria

No	Score Range (%)	Validation Criteria
1	$80 < V \leq 100$	Very valid (can be used without revision)
2	$60 < V \leq 80$	Valid (may be used without revision)
3	$40 < V \leq 60$	Fairly valid (may be used with revision)
4	$20 < V \leq 40$	Less valid (not recommended for use because a major revision is needed)
5	$0 < V \leq 20$	Very invalid (not to be used)

RESULTS AND DISCUSSION

Results

Preliminary Research

In the initial research stage, the researcher collected and analyzed information through observations and interviews in one of the schools in Cianjur. The results of the observations and interviews with the mathematics teacher showed that the teacher's learning process remained conventional. The lesson began with an explanation of the material, and students were then given practice questions to discuss, but many still struggled to participate actively. The students' average scores were relatively low, and many students were not yet able to solve the problems presented, especially in the Three Variable Linear Equation System (SPLTV) material. Based on the interview results, students experienced difficulties solving problems, particularly with the Three Variable Linear Equation System (SPLTV) material. Students had difficulty determining the steps for solving the problems and were confused about alternative solutions. Working on the Three Variable Linear Equation System (SPLTV) was considered too lengthy, which caused students to feel reluctant to complete the questions.

Furthermore, the teacher's presentation led students to feel bored during the learning activities, and the provision of practice questions further exacerbated students' difficulties. Students expected the learning process to be presented engagingly through learning media so that they could learn more enjoyably. Based on the observation of the learning tools, the teacher had not yet developed worksheets for the learning process, and the textbook served as the primary source for the learning activities. Meanwhile, the results of the literature review showed that in the learning process, the use of worksheets greatly assists teachers in improving students' problem-solving skills, providing students with stimulation to study the material and understand the steps for solving problems independently or through discussion. Based on the results of the Preliminary Research stage, the researcher developed four worksheet designs using a problem-based learning model assisted by Liveworksheets for four meetings.

Formative Evaluation

In the Formative Evaluation stage, the researcher conducted a self-evaluation of the worksheet instrument designed, resulting in Prototype 1 of the product. The design of the problem-based learning worksheet, assisted by Liveworksheets on the Three Variable Linear Equation System (SPLTV) material that experts would validate, can be seen in Figure 1 below:

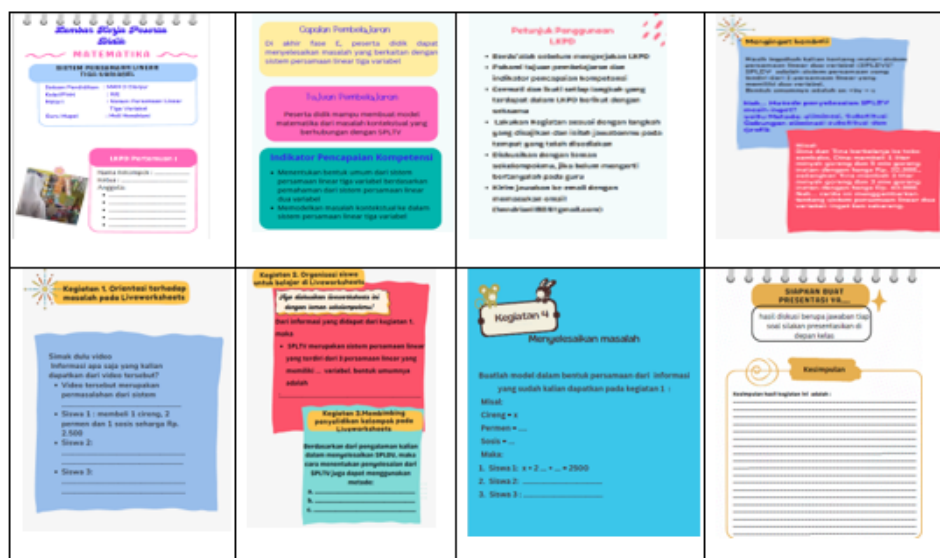


Figure 1. Display of the Problem-Based Learning Worksheet Assisted by Liveworksheets

The design of this worksheet uses the problem-based learning model's syntax by combining bright colors to attract students to study the material presented in the worksheet. The use of colors and font styles makes it easier for students to read the content and provides a sense of enjoyment and comfort in studying the worksheet. The content is linked to everyday events by presenting a simulation video of student activities related to the concept of the Three Variable Linear Equation System, so students do not feel unfamiliar with the problems in the worksheet, thereby motivating them to solve the problems. This worksheet includes learning outcomes, learning objectives, and competency achievement indicators to help students understand the outcomes they should attain after this learning activity, as well as instructions for using the worksheet. In addition, the worksheet provides blank spaces for students' answers, and the material presented guides them in finding solutions to the problems and reporting the results independently. The worksheet design for the subsequent meetings was arranged by presenting story problems from everyday life, accompanied by images relevant to the problems. The concepts and elements of the worksheets for the second, third, and fourth meetings were the same as those in the worksheet for the first meeting, including learning outcomes, learning objectives, competency achievement indicators, and instructions for using the worksheet. The problems presented in the worksheet motivated students to find solutions to the problems.

Expert Review and One-to-One

The design of the worksheet, in the form of Prototype 1, was validated (Expert Review) by four material experts and two media experts to meet product validation standards, using the validation questionnaire. The worksheet was also tested with three students (one-to-one) who have low, medium, and high ability levels to assess its readability and practicality. The validation results from the Expert Review and one-to-one stages were then used to revise Prototype 1, resulting in Prototype 2, which was considered a valid worksheet instrument.

The validators assessed the appearance of the worksheet, the completeness of its content, and its alignment with the material, the appropriateness of the language used, and the suitability of the worksheet with the learning model. The worksheet validity results can be seen in Table 2 as follows:

Table 2. Material Expert Validation Results

Validator	Validation Result
Validator 1	90
Validator 2	85
Validator 3	101
Validator 4	103
Total Score of 4 Validators	379
Total Maximum Score	440
Worksheet Validation Score	86.14%
Criteria	Very valid (can be used without revision)

Based on the material expert validation results in Table 2, the worksheet is very valid, with a score of 86.14%, indicating it can be used without revision. The validation scores from the material experts for each assessed aspect can be seen in Table 3 below:

Table 3. Material Expert Validation Results for Each Aspect

Aspect	Number of Items	Average Score	Validation Criteria
Worksheet appearance	5	72%	Valid
Completeness of worksheet content and alignment with the material	10	89%	Very valid
Language appropriateness	4	91%	Very valid
Suitability with the model	3	92%	Very valid

The validation results for each aspect showed that the worksheet met the criteria for being feasible to use without revision. The researcher received positive suggestions from the validators, namely that the background colors used in the worksheet were too bold and varied, and it was recommended to use borders or frames; thus, the worksheet would appear neater.

Furthermore, the learning media, in the form of the Liveworksheets application, was validated by two media expert practitioners to assess its presentation, the quality and efficiency of its use, and its accessibility and management. The validation results from the two media experts can be seen in Table 4 below:

Table 4. Media Expert Validation Results

Validator	Validation Result
Validator 1	77
Validator 2	88
Total Score of 2 Validators	165
Total Maximum Score	180
Worksheet Validation Score	91.67%
Criteria	Very valid, can be used without revision

Based on the media expert validation results in Table 4, the problem-based learning worksheet assisted by Liveworksheets was very valid with a score of 91.67%, indicating that this worksheet may be used without revision. The validation scores from the media experts for each assessed aspect can be seen in Table 5 below:

Table 5. Media Expert Validation Results for Each Aspect

Aspect	Number of Items	Average Score	Validation Criteria
Media presentation	7	93%	Very valid
Media quality and efficiency	5	92%	Very valid
Accessibility	6	90%	Very valid

The media expert validation results for each assessed aspect indicated that the worksheet met the feasibility criteria without revision. There were several suggestions from the media expert validators, namely that the placement of the learning video should be enlarged, and that the selection of colors and font sizes in Liveworksheets should be improved.

Based on interviews with three students, the worksheet developed was found to be understandable, and the sequence of steps was easy to follow. The presentation of the worksheet was very appealing, although the worksheet display contained too many colors. Completing the worksheet was very easy, but it required a data quota and a stable internet connection. Working on the worksheet became engaging and stimulated students to complete it.

Based on the validity test results from media and material experts, as well as student interviews, it can be concluded that the developed worksheet is feasible for use. The suggestions from the validators were integrated into the worksheet revisions. The results of the revisions that had been made can be seen in Figure 2 below:

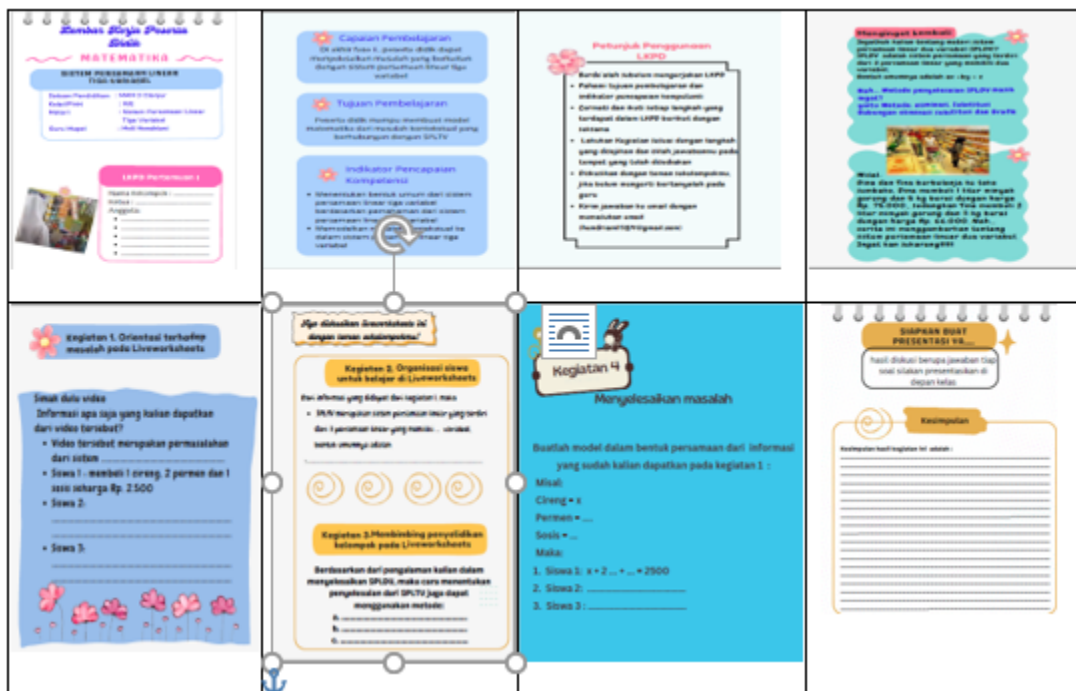


Figure 2. Display of the Worksheet After Revision

Discussions

The study found that conventional learning made students less motivated to be active in the learning process, and observations indicated that the teacher's learning methods did not meet students' needs and characteristics. Based on the constructivist theory proposed by Piaget and Vygotsky (Arafah et al., 2023), effective learning should involve students in an active process of constructing their own knowledge. The situation in which students felt bored and experienced difficulties indicates that the approach applied did not provide a conducive learning environment.

The design of the problem-based worksheet developed in this study aimed to provide an alternative teaching material to address the problems encountered in the field. By integrating everyday life contexts and engaging visual media, this worksheet aimed to change how students interact with the material. Setyaningrum & Sari (2023) stated that the development of problem-based worksheets can assist teachers in creating a learning process in which students are actively involved in the problem-solving process. Furthermore, Umbaryati (Samosir & Simatupang, 2022) stated that worksheets can serve as a means of facilitating the occurrence of effective and interactive teaching and learning activities, thereby increasing students' learning. Then, according to Yetti and Afriyani, (2021), the presence of worksheets that are designed to be as attractive as possible and adjusted to students' needs can stimulate students to be willing

to work on the worksheets, and indirectly increase their interest and address students' problems in learning mathematics.

The validation results from the four material expert validators showed that the problem-based worksheet, assisted by Liveworksheets, was very valid and could be used without revision. This is evident from a total score of 388 out of a maximum of 440, with a validation percentage of 86.14%. Based on the media expert validation results, the total score was 165 out of a maximum of 180, with a validation percentage of 91.67%. This shows that the developed worksheet has met the standards in both material and media. The results of this study are supported by the findings of Effendi et al. (2021), who developed a very valid criterion for the problem-based learning worksheet. Based on the average scores obtained for each aspect, validated by both material and media experts, all aspects met the very valid criteria, indicating that the worksheet developed is feasible to use as an alternative teaching material to improve students' mathematical problem-solving ability.

CONCLUSION

Based on the worksheet validation results, it can be concluded that, in designing a worksheet, it is necessary to pay attention to the elements that align with the learning objectives and to consider students' needs and characteristics, ensuring the worksheet meets validation standards. The input and suggestions from the validators contributed positively to the optimization of the development of the problem-based worksheet, assisted by Liveworksheets. After being validated with a very valid criterion, it is expected that the worksheet can be further developed to determine its practicality so that this worksheet can be used as one of the learning tools for mathematics in the Three Variable Linear Equation System (SPLTV) material and become a guideline for presenting problems that can stimulate students to develop their mathematical problem-solving ability. The recommendation for future research is to examine the practicality of the worksheet during the small-group and field-test stages, ensuring the resulting product is feasible to use as a learning tool.

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REFERENCES

- Ainurrohimah, S., Hulukati, E. P., & Irfah, A. (2025). The Effect of Problem-Based Learning Model on Students' Learning Outcomes: A Case on Central Tendency Measures. *Journal Of Innovative Mathematics Learning*, 8(2), 373–382. <https://doi.org/10.59052/edufisika.v9i2.36926>
- Arafah, A. A., Sukriadi, & Samsuddin, A. F. (2023). Implikasi Teori Belajar Konstruktivisme Pada Pembelajaran Matematika. *Jurnal Pendidikan MIPA*, 13(2), 358–366.
- Benyamin, Qohar, A., & Sulandra, I. M. (2021). Analisis Kemampuan Berpikir Kritis Siswa SMA Kelas X Dalam Memecahkan Masalah SPLTV. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 5(2), 909–922. <https://doi.org/10.31004/cendekia.v5i2.574>
- Dallyono, R., Hidayat, W., Kurniasari, Y., & Fitriani, N. (2025). The Development Of Student Worksheet To Enhance Students ' Mathematical Understanding On Two Variable Linear. *Journal Of Innovative Mathematics Learning*, 8(2), 313–334.

- Dewi, S. P., & Kartini, K. (2021). Analisis Kesalahan Siswa Dalam Menyelesaikan Soal Sistem Persamaan Linear Tiga Variabel Berdasarkan Prosedur Kesalahan Newman. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, 5(1), 632–642. <https://doi.org/10.31004/cendekia.v5i1.508>
- Effendi, R., Herpratiwi, H., & Sutiarso, S. (2021). Pengembangan LKPD Matematika Berbasis Problem Based Learning di Sekolah Dasar. *Jurnal Basicedu*, 5(2), 920–929. <https://doi.org/10.31004/basicedu.v5i2.846>
- Haqiqi, A. K., & Syarif, S. N. (2021). Keefektifan Model Problem Based Learning Berbantuan Video dalam Liveworksheets Terhadap Kemampuan Pemecahan Masalah Matematis Siswa. *Jurnal Pendidikan Matematika (Kudus)*, 4(2), 193. <https://doi.org/10.21043/jmtk.v4i2.12048>
- Hendriana, H., Rohaeti, E. E., & Sumarmo, U. (2018). *Hard Skills dan Soft Skills Matematika Siswa* (2nd ed.). Refika Aditama.
- Kusumaningrum, B., Fauziah, E., & Harini, E. (2022). Efektivitas E-Worksheet Terhadap Kemampuan Pemecahan Masalah Ditinjau Dari Minat Belajar Siswa Pada Materi Perbandingan. *UNION: Jurnal Ilmiah Pendidikan Matematika*, 10(2), 193–204. <https://doi.org/10.30738/union.v10i2.12484>
- Marande, G. M. S., & Adha Diana, H. (2022). Design Research : Pengembangan Lintasan Belajar Dalam Pembelajaran Matematika Realistik Untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis. *FIBONACCI: Jurnal Pendidikan Matematika Dan Matematika*, 8(1), 31. <https://doi.org/10.24853/fbc.8.1.31-46>
- Mardiansyah, D., Hendriana, H., Supriatna, T., & Putra, H. D. (2025). ANALYSIS OF JUNIOR HIGH SCHOOL STUDENTS ' MATHEMATICAL PROBLEM-SOLVING SKILLS IN Solving Social Arithmetic Problems. *Journal Of Innovative Mathematics Learning*, 8(2), 181–192.
- Nabilla, N., Edy, S., & Khikmiyah, F. (2022). Pengembangan E-LKPD Matematika Interaktif Berbasis Literasi Digital. *Jurnal Pembelajaran Matematika Inovatif*, 5(6), 1581–1594. <https://doi.org/10.22460/jpmi.v5i6.1581-1594>
- Pramudita, M. D., Ambarwati, L., & Hidajat, F. A. (2023). Penerapan Model Pembelajaran Problem Based Learning (PBL) untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa Kelas X SMA Kristen Kasih Kemuliaan pada Materi SPLTV. *Journal on Education*, 5(4), 13783–13788. <https://doi.org/10.31004/joe.v5i4.2391>
- Purwasi, L. A., & Fitriyana, N. (2020). PENGEMBANGAN LEMBAR KERJA PESERTA DIDIK (LKPD) BERBASIS HIGHER ORDER THINKING SKILL (HOTS) Pendidikan Matematika STKIP PGRI Lubuklinggau , Indonesia Abstrak PENDAHULUAN Pendidikan matematika di era revolusi industri 4 . 0 diarahkan untuk pengembangan . 9(4), 894–908.
- Putrawangsa, S. (2019). Design Research Sebagai Framework Desain Pembelajaran. In *Sanabil* (Issue November 2019).
- Putri, D. K., Sulianto, J., & Azizah, M. (2019). Kemampuan Penalaran Matematis Ditinjau dari Kemampuan Pemecahan Masalah. *International Journal of Elementary Education*, 3(3), 351. <https://doi.org/10.23887/ijee.v3i3.19497>
- Samosir, K., & Simatupang, N. (2022). Analisis Validitas dan Praktikalitas terhadap Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbasis Masalah Pada Materi Statistik. *Jurnal Fibonacci: Jurnal Pendidikan Matematika*, 3(1), 22.

<https://doi.org/10.24114/jfi.v3i1.35078>

- Setiyaningrum, N., & Sari, C. K. (2023). LKPD BERBASIS PROBLEM BASED LEARNING : UPAYA Mendukung Peningkatan Kemampuan Berpikir Kritis Abstrak PENDAHULUAN Mempelajari matematika secara keseluruhan tak sebatas pada pengetahuan , rumus , dan konsep keseluruhan artinya menjadikan turut terlibat pros. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 12(1), 202–214.
- Simeru, A., Nasution, T., Takdir, M., & Siswati, S. (2023). *Model-Model Pembelajaran*. Penerbit Leikhesha.
- Slamet, F. A. (2022). *Model Penelitian Pengembangan (RnD)*. Institut Agama Islam Sunan Kalijogo.
- Sriwahyuni, K., & Maryati, I. (2022). Kemampuan Pemecahan Masalah Matematis Siswa pada Materi Statistika. *Plusminus: Jurnal Pendidikan Matematika*, 2(2), 335–344. <https://doi.org/10.31980/plusminus.v2i2.1109>
- Supartinah, A., & Hidayat, W. (2021). Identifikasi Kesalahan Siswa dalam Menyelesaikan Materi Sistem Persamaan Linear Tiga Variabel. *Prisma*, 10(1), 54. <https://doi.org/10.35194/jp.v10i1.1266>
- Utari, D. R., Wardana, M. Y. S., & Damayanti, A. T. (2019). Analisis Kesulitan Belajar Matematika Dalam Menyelesaikan Soal. *Jurnal Ilmiah Sekolah Dasar*, 3(4), 534–540.
- Yetti, I., & Afriyani, D. (2021). Validasi Lembar Kerja Peserta Didik (LKPD) Berbasis Pendekatan Metaphorical Thinking untuk Kemampuan Pemahaman Matematis Peserta Didik di kelas VIII SMP. *Edusainstika: Jurnal Pembelajaran MIPA*, 1(1), 33. <https://doi.org/10.31958/je.v2i1.3059>
- Zainal, N. (2022). Problem Based Learnin Pada Pembelajaran Matematika di Sekolah Dasar/Madrasah Ibtidaiyah. *Jurnal Basicedu*, 6(3), 3584–3593.