

TEACHERS' PERCEPTIONS: THE NEED FOR STUDENT WORKSHEETS TO IMPROVE PROBLEM SOLVING SKILLS IN BANYUASIN

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Abstract :

This study aims to identify teachers' perceptions of LKPD currently used, analyze their alignment with the problem-solving framework, and determine the need for developing problem solving by LKPD. A quantitative descriptive approach with a survey design was employed involving 42 junior high school science teachers in Banyuasin Regency selected through purposive sampling. Data were collected using a structured questionnaire based on the problem-solving stages proposed by Heller and Heller and analyzed descriptively using percentages and frequency distributions. The novelty of this study lies in identifying the gap between current LKPD practices and the need for problem-solving-based LKPD development in junior high school science learning in Banyuasin Regency. The results show that the highest performance occurs at the problem-focusing stage (63.25% positive responses), while the lowest performance is found at the planning stage (46.7% positive responses). This indicates that students are relatively better in identifying and understanding initial problems but still experience significant difficulties in developing structured solution plans. In addition, 83% of teachers reported uncertainty regarding the alignment between current LKPD and the problem solving framework, while all respondents (100%) expressed the need for problem solving based LKPD development. These findings highlight a clear gap between existing instructional materials and the demands of systematic problem solving skills, providing an empirical basis for developing more structured LKPD to better support students' physics problem solving abilities.

Keywords: Problem Solving Skills; Student Worksheets; Physics Learning

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INTRODUCTION

The era of globalization in the 21st century requires students to understand and address real-world problems encountered in everyday life. Therefore, students must possess problem-solving skills as one of the higher-order thinking skills (Bariyyah, 2021). Problem-solving skills are understood as the ability to identify problems, analyze relevant information, formulate various alternative solutions, and systematically evaluate the decisions made (Pólya & Behnke, 1949). In science learning, particularly in

physics, problem-solving skills are an essential competence because students are required not only to understand concepts but also to apply them in real-life situations (Susilawati et al., 2024).

This situation is clearly reflected in Indonesia's performance in international assessments. According to the PISA 2022 Results (Volume I) (2023) Indonesian students ranked 69th out of 81 countries, with a science score of 383, highlighting their difficulty in applying scientific knowledge to real-world problems. Such a performance underscores the urgent need for learning tools that can guide students through a systematic and structured problem-solving process. This presents a real challenge for teachers, who must design learning experiences that consistently and effectively develop students' problem-solving skills. As Heller & Heller (2010) emphasize, problem-solving in science goes beyond merely finding the correct answer. It involves several stages, including understanding the problem, identifying relevant concepts, planning a solution strategy, executing the plan, and evaluating the results. Therefore, well-designed learning materials are essential to support and scaffold this structured thinking process.

One of the learning tools that plays a strategic role in supporting physics education is the Student Worksheet (LKPD). According to Pernanda et al. (2023), LKPD not only serves as a practice tool but also functions as a learning guide, helping students understand concepts, connect them to real-world problems, and follow problem-solving steps in a gradual and structured way. Saputri et al. (2025) further emphasizes that well-designed LKPDs, oriented toward problem-solving skills, can guide students to think systematically through contextual problems while also fostering active engagement in the learning process. In addition, Imamah et al. (2024) highlight that properly designed LKPD can support students in constructing knowledge independently, encouraging them to actively explore concepts and develop new ideas. Meanwhile, Abdur Rahman Hakim et al., (2025) stress that problem-solving-based LKPD can specifically train students to identify problems, devise solution strategies, and evaluate the results of their actions. Other studies also underline the importance of LKPD in enhancing students' overall thinking skills (Aulia & Rukmana, 2023). Therefore, developing LKPD that aligns with the characteristics of physics learning and meets students' needs is a crucial step to effectively improve their problem-solving skills.

Although various studies have examined students' problem-solving skills, most have focused primarily on learning outcomes (Ermawan & Fauziah, 2023). Research that explores the need for developing problem-solving-based Student Worksheets (LKPD) from teachers' perspectives who are directly responsible for implementing learning in the classroom remains relatively limited. In fact, teachers play a crucial role in assessing students' actual abilities and adjusting instructional materials accordingly (Suharyat et al., 2022). To date, no study has specifically investigated how junior high school teachers in Banyuasin Regency perceive the need for problem-solving-based LKPD. Unlike previous studies that mainly focused on students' learning outcomes, this study addresses the empirical gap in teachers' perspectives on LKPD needs and aligns it with a structured problem-solving framework. This constitutes the novelty of the present study and provides a stronger foundation for the development of more relevant instructional materials.

Based on this gap, the objectives of this study are to: (1) Identify teachers' perceptions of current LKPD in supporting students structured problem-solving skills; (2) Analyze the gap between current LKPD practices and the problem-solving framework; (3) Determine teachers' needs regarding the development of problem-solving-based LKPD tailored to science learning in junior high schools. By addressing these objectives, this study not only provides a clear picture of the current state of LKPD and students' problem-solving abilities, but also offers a foundation for designing more effective and relevant learning materials that meet the needs of both teachers and students.

RESEARCH METHOD

This study aimed to explore the perceptions of junior high school science teachers in Banyuasin Regency regarding the need to develop Student Worksheets (LKPD) designed to enhance students' problem-solving skills. The focus was on how teachers assess their students' current abilities in solving problems in the classroom. Data were collected quantitatively using a closed-ended questionnaire. The following sections provide a detailed explanation of the research design, participants, procedures, instruments, as well as data collection and analysis techniques.

Research Design

This study employed a descriptive quantitative approach using a survey method. This approach was chosen to provide a systematic picture of junior high school science teachers' perceptions and to map the need for problem-solving-based Student Worksheets (LKPD). The survey was conducted in Banyuasin Regency, with data collected online through Google Forms.

Research Target/Subject

The target population of this study was junior high school science teachers in Banyuasin Regency. Based on the Banyuasin Regency Education Profile, the total number of junior high school teachers is 2,078. However, official data specifically on science teachers were not available. Therefore, this study involved 42 science teachers selected through purposive sampling according to predetermined criteria. The participants were teachers who (1) were actively teaching science subjects, (2) had experience in using or developing Student Worksheets (LKPD), and (3) were willing to complete the questionnaire.

Research Procedure

The study was carried out through the following systematic steps:

1. Uploading the validated and reliable questionnaire to Google Forms.
2. Distributing the questionnaire online to the respondents via Google Forms.
3. Collecting the completed responses from the teachers.
4. Analyzing the data using descriptive quantitative analysis through percentage calculations.
5. Interpreting the results to map teachers' perceptions and identify the need for developing problem-solving-based LKPD.

Instruments and Data Collection Techniques

The research instrument was a closed-ended questionnaire designed to explore teachers' perceptions regarding students' problem-solving abilities and the need for developing problem-solving-based LKPD. The questionnaire indicators were developed based on the five stages of problem solving proposed by Heller & Heller (2010), namely: (1) focusing on the problem, (2) describing physics, (3) planning the solution, (4) executing the plan, and (5) evaluating the answer. Before being used in the study, the questionnaire underwent content validity testing by five experts, consisting of two university lecturers and three science teachers, to ensure that each item was relevant, clear, and appropriate for measuring the intended perceptions. The reliability test yielded a Cronbach's alpha coefficient of 0.92, indicating that the instrument was highly reliable and internally consistent.

Data Analysis Technique

The data analysis technique in this study was conducted using a descriptive quantitative approach through percentage calculations for each indicator. This analysis aimed to provide a clear description of teachers' perceptions regarding students' problem-solving abilities and the need for developing problem-solving-based LKPD. The data analysis was carried out through the following steps:

1. Calculating Percentages
Percentages were used to show the distribution of teachers' responses across each response category, namely Strongly Agree, Agree, Fairly Agree, Disagree, and Strongly Disagree. This calculation was intended to identify the most dominant response category for each indicator.
2. Grouping Positive and Negative Responses
In line with the Likert scale response categorization adapted from Sugiono (2013) the responses Strongly Agree, Agree and Moderately Agree were grouped as positive responses, while Disagree and Strongly Disagree were grouped as negative responses. The Fairly Agree category was used to indicate a moderate or neutral perception.
3. Interpreting the Results
4. A high percentage of positive responses indicates that teachers perceive a particular aspect as already well developed or highly needed. Conversely, a high percentage of negative responses indicates the existence of gaps or aspects that still require improvement.

Using this approach, the study was able to clearly map the needs for developing problem-solving-based LKPD and identify the strengths and weaknesses of students' problem-solving abilities based on teachers' perceptions.

RESULTS AND DISCUSSION

Respondents' Characteristics

The research results begin with a description of the characteristics of junior high school science teacher respondents in Banyuasin Regency based on gender and teaching experience. Of the 42 respondents, 71% were female teachers and 29% were male teachers. This distribution indicates that the profession of science teachers in the research area is dominated by women (*Siaran Pers Komnas Perempuan Memperingati Hari Guru Sedunia 2025, 2025*).

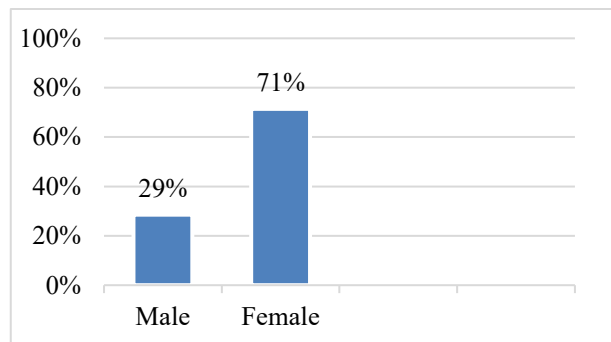


Figure 1. Respondents' Gender

Furthermore, based on teaching experience as shown in Figure 2, the majority of respondents have 6–10 years of experience (40%) and more than 10 years of experience (31%). Only a small proportion have 1–3 years of experience (5%). The dominance of experienced teachers strengthens the credibility of the perceptions provided, as the respondents have had sufficient time to observe the learning process and the development of students' problem-solving skills in the classroom. Therefore, the data obtained represent relatively stable professional perspectives regarding the condition of science (physics) learning

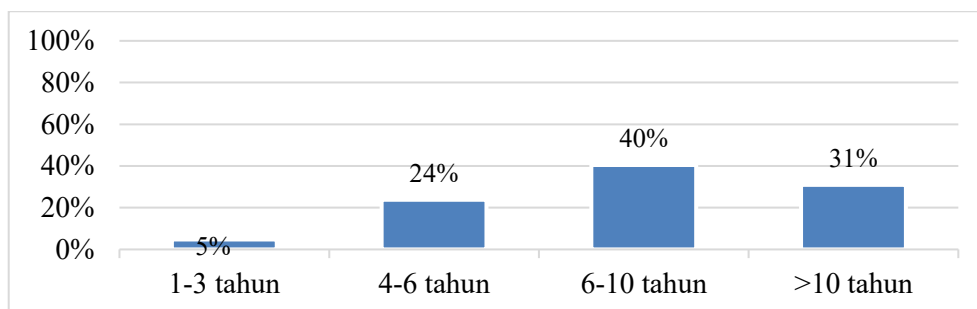


Figure 2. Respondents' Teaching Experience

Teachers' Perceptions of Junior High School Students' Problem-Solving Skills

In order to obtain an overview of students' problem-solving skills in the field of science (physics), an analysis was conducted based on the perceptions of junior high school science teachers in Banyuasin Regency. The results of the analysis of teachers' perceptions of students' problem-solving skills are presented in detail in tabular form for each aspect of problem solving. To provide a clearer picture of students' problem-solving abilities in science (physics), the analysis refers to the stages of problem solving, including focusing on the problem, describing the physics, planning the solution, executing the plan, and evaluating the answer. The detailed results of the analysis are presented in Table 1.

Table 1. Junior High School Students' Problem Solving Skills in the Aspect of Focusing on the Problem

Indicator	SA	A	MA	D	SD
My students are able to visualize situations and events through sketches that show spatial relationships, motion, interactions between objects, and the sequence of events over time.	17%	19%	21%	31%	12%
My students are able to write down the known and unknown quantities, provide appropriate symbols, and include them in the diagram.	14%	24%	38%	14%	10%
My students are able to formulate questions accurately in a form that can be calculated.	21%	26%	21%	19%	12%
My students are able to identify relevant physics approaches and determine the assumptions or constraints that apply to the problem.	19%	29%	14%	17%	21%

Note:

- SA = Strongly Agree
- A = Agree
- MA = moderately Agree
- D = Disagree
- SD = Strongly Disagree

At the problem-focusing stage, the analysis reveals that students' abilities vary across the assessed indicators. Overall, positive responses (combining strongly agree, agree, and moderately agree) are more dominant than negative responses, although the level of achievement is not consistent across all aspects. Students' ability to visualize situations and events through sketches that represent spatial relationships, motion, interactions between objects, and the sequence of events over time is still relatively low, with 57% positive responses and 43% negative responses. This suggests that many students are not yet accustomed to using visual representations as part of their physics problem-solving process. In contrast, students performed better in identifying known and unknown quantities using appropriate symbols and incorporating them into diagrams, with 76% positive responses and 24% negative responses. This indicates that students are more comfortable with symbolic and procedural representations compared to visual ones. For the indicator related to formulating questions in a calculable form, positive responses reached 68%, while negative responses accounted for 32%. Meanwhile, the ability to identify relevant physics approaches and determine assumptions or constraints showed 62% positive responses and 38% negative responses. Overall, the average positive response of 63.25% suggests that students' abilities at the problem-focusing stage can be considered fairly good. However, this achievement is still uneven, particularly in visual representation skills, which appear to be the main weakness in the early stage of problem solving.

Students' difficulties at the initial stage of problem solving indicate that the learning process has not yet fully developed strong representational abilities, particularly in connecting verbal information with visual representations. In physics education, visual representation is not merely a supporting tool, but a fundamental component of scientific thinking that helps students organize information, understand relationships between concepts, and construct mental models of physical phenomena. It also functions as a bridge between conceptual understanding and mathematical formulation. However, when this ability is weak, students tend to process information in a fragmented manner, resulting in incomplete understanding. This aligns with Marzuqah et al. (2019) who emphasize the importance of visual representation in understanding relationships between physical quantities, and (Nurrahmawati et al., 2020) who highlights its strong correlation with problem-solving quality. Similarly, Franestian et al., (2020) report that students still struggle to identify and understand problems accurately, indicating weaknesses in early-stage problem representation.

From a theoretical perspective, this condition reflects limitations in students' ability to construct complete problem representations as described in Pólya's problem-solving framework, where understanding the problem is a crucial foundation for subsequent steps (Pólya & Behnke, 1949). It also suggests that instructional practices have not consistently supported representational translation across verbal, visual, and symbolic forms. In line with (Butomi, 2024) said that Vygotsky's concept of the Zone of Proximal Development, insufficient scaffolding may hinder students' ability to transform verbal information into meaningful visual representations, as supported by Wang et al., (2021) who found that visual-based scaffolding significantly enhances problem-solving performance. Furthermore, the

dominance of procedural approaches indicates an imbalance in learning emphasis, where students may perform calculations well but lack conceptual depth, as noted by (Docktor & Mestre, 2014) Overall, this highlights the need for structured instructional design that emphasizes multiple representations. (Wayan Distrik et al., 2021) supports this view by stating that multiple-representation learning improves conceptual understanding and knowledge transfer. Therefore, gradual representational scaffolding from verbal to visual to symbolic is essential to reduce cognitive load and strengthen conceptual integration in physics problem solving.

Table 2. Junior High School Students' Problem Solving Ability in the Aspect of Describing Physics

Indicator	SA	A	MA	D	SD
My students are already able to construct a physical diagram equipped with an appropriate coordinate system.	10%	12%	14%	24%	40%
My students are already able to assign consistent symbols for each physical quantity involved.	33%	12%	17%	19%	19%
My students are already able to determine the target quantity to be found.	31%	24%	12%	14%	19%
My students are already able to formulate physical equations based on the applicable principles and constraints.	17%	19%	17%	14%	33%

Note:

- SA = Strongly Agree
- A = Agree
- FA = moderately Agree
- D = Disagree
- SD = Strongly Disagree

At the stage of describing physics, the analysis shows that students' abilities vary across the assessed indicators. Overall, positive responses (combining strongly agree, agree, and moderately agree) are not consistently dominant across all aspects, indicating an imbalance in students' mastery of physics representation skills. Students' ability to construct a physics diagram with an appropriate coordinate system is relatively low, with only 36% positive responses and 64% negative responses. In contrast, their ability to assign consistent symbols for each physical quantity shows better performance, with 62% positive responses and 38% negative responses. For the indicator related to identifying the target quantity to be solved, positive responses reach 67%, while negative responses account for 33%. Meanwhile, the ability to formulate physics equations based on relevant principles and constraints is relatively weak, with only 53% positive responses compared to 47% negative responses. Overall, the average positive response of 54.5% indicates that students' abilities at the stage of describing physics are at a moderate level and have not yet reached an optimal condition, particularly in the aspects of diagrammatic representation and equation formulation.

The findings of this study indicate that students still experience difficulties at the stage of describing physics, particularly in constructing diagrams, maintaining consistency in physics symbols, and identifying the target quantity to be solved. This suggests that students' representational and mathematical modeling skills have not yet developed optimally, even though these abilities are fundamental components of effective physics problem solving. Overall, these results are consistent with previous studies showing that students often struggle to connect real-world objects, images, and diagrams with mathematical concepts. In addition, their ability to construct models of physical phenomena using diagrams and graphs remains underdeveloped (Aminah et al., 2018). This reinforces the idea that weaknesses in representation skills are a recurring issue in physics learning. More recent studies also support these findings. Rasyid et al., (2025) emphasizes that effective physics problem solving requires students to integrate multiple forms of representation in a coherent way, including the ability to transform verbal information into interconnected diagrams and equations. When this ability is weak, students tend to rely on procedural approaches without a deep understanding of the underlying concepts.

Furthermore, several studies have highlighted that limited practice in translating between different forms of representation can reduce students' performance in representation-based tasks. This occurs because students lack sufficient representational competence to connect mathematical, visual, and conceptual representations, even though they may perform adequately in numerical calculations ((Hahn

& Klein, 2025; Guentulle et al., 2024). From a theoretical perspective, this situation can be explained using George Pólya's problem-solving model. Pólya emphasizes that understanding the problem is a critical first step, where students must organize information into a meaningful representation before moving on to planning a solution. If this stage is not well mastered, the entire problem-solving process may be affected, as students fail to build a complete mental representation of the problem (Umar et al., 2027).

Table 3. Junior High School Students' Problem-Solving Ability in the Aspect of Planning the Solution

Indicator	SA	A	MA	D	SD
My students are already able to formulate logical relationships between equations to connect the target quantity with the known quantities.	10%	17%	17%	24%	33%
My students are already able to determine the sufficiency of equations by comparing the number of equations with the number of unknown quantities.	17%	14%	12%	24%	33%
My students are already able to organize the solution steps sequentially without unnecessary algebraic repetition.	24%	17%	12%	19%	29%

Note:

SA = Strongly Agree

A = Agree

MA = moderately Agree

D = Disagree

SD = Strongly Disagree

At the stage of planning the solution, students' ability to formulate logical relationships between equations to connect the target quantity with known variables shows relatively low performance, with 44% positive responses and 56% negative responses. A similar pattern is observed in the ability to determine the sufficiency of equations by comparing the number of equations with the number of unknowns, where positive responses account for 43% and negative responses reach 57%. Meanwhile, students' ability to organize solution steps sequentially without unnecessary algebraic repetition is slightly better, with 53% positive responses and 47% negative responses, although it still does not indicate a strong or stable mastery. The findings show that students' ability to plan solutions in physics problem solving is still relatively low, with an average positive response of only 46.7%. The main difficulty appears when students are required to logically connect equations and decide whether the available equations are sufficient to solve a problem. This indicates that many students are not yet able to organize a clear and structured solution plan before starting calculations, meaning their thinking process is still not well organized in managing known and unknown information.

This finding is in line with Jufriadi et al., (2024)), who reported that students still need support in applying the correct concepts to specific problem situations. In addition, Azzahra & Pujiastuti (2020) found that students often skip the planning stage and move directly to calculations without first developing a solution strategy. Similar to this, Tanjung et al. (2024) also noted that students are often confused in identifying the appropriate physical quantities needed to solve problems, which further contributes to weaknesses in the planning process. As a result, the problem-solving process becomes less efficient and more prone to procedural errors. In fact, the planning stage is not just a transition step before calculation, but a crucial part of the thinking process that determines the success of problem solving as a whole. Without proper planning, students tend to apply formulas randomly without a clear strategy, which leads to inaccurate results and limits their conceptual understanding of physics.

Table 4. Junior High School Students' Problem-Solving Ability in the Aspect of Executing the plan

Indicator	SA	A	MA	D	SD
My students are already able to solve equations mathematically according to the planned steps.	7%	12%	14%	19%	48%
My students are already able to check the consistency of units in the calculation results.	5%	12%	19%	24%	40%
My students are already able to substitute numerical values to obtain the final result.	10%	10%	12%	38%	31%

Note:

- SA = Strongly Agree
- A = Agree
- FA = Moderately Agree
- D = Disagree
- SD = Strongly Disagree

At the stage of executing the solution, students' ability to solve equations mathematically according to the planned steps shows relatively low performance, with only 33% positive responses and 67% negative responses. This suggests that many students still struggle to follow a structured solution plan consistently during the calculation process. A similar pattern is observed in the ability to check the consistency of units in the calculation results, where positive responses account for 36% and negative responses reach 64%, indicating that unit analysis is not yet well internalized by most students. Meanwhile, students' ability to substitute numerical values to obtain the final result is relatively higher, with 32% positive responses and 69% negative responses, although it still does not reflect strong mastery.

The findings at the execution stage show that students still face difficulties in carrying out mathematical steps consistently. These difficulties appear in several areas, such as substituting values correctly, handling algebraic manipulation, maintaining proper calculation procedures, checking unit consistency, and ensuring that the final answer matches the original plan. This suggests that students' ability to execute solutions is not yet fully connected to their conceptual understanding and initial problem-solving plan. Similar findings have been reported in physics education research, which shows that students often make mistakes during the calculation process, especially in algebraic manipulation and in failing to verify their final answers ((Musengimana et al., 2025b; Musengimana et al., 2025a; Tong et al., 2025). In addition, Maries (2018) found that even when students are given representational support, they often skip the analysis stage and move directly into calculations, which increases the likelihood of both conceptual and procedural errors. Interestingly, Lasdianto et al., (2023) add that students' difficulty in implementing a solution plan may also be influenced by anxiety. When students feel anxious during problem solving, they are more likely to rush into calculations without carefully following the planned steps, which further reduces accuracy and consistency in their work.

Table 5. Junior High School Students' Problem-Solving Ability in the Aspect of Evaluating the Answer

Indicator	SA	A	MA	D	SD
My students are already able to ensure that the calculation results answer the question with the correct units.	7%	10%	14%	52%	17%
My students are already able to assess the reasonableness of the obtained results.	5%	14%	29%	36%	17%
My students are already able to ensure the completeness of their answers.	2%	10%	24%	38%	26%

Note:

- SA = Strongly Agree
- A = Agree
- MA = Moderately Agree
- D = Disagree
- SD = Strongly Disagree

At the stage of evaluating the solution, students' ability to ensure that the calculation results answer the question with the correct units shows relatively low performance, with only 31% positive responses and 69% negative responses. This suggests that many students still struggle to consistently link their final answers with appropriate physical units. A similar pattern is observed in the ability to assess the reasonableness of the obtained results, where positive responses account for 48% and negative responses reach 52%, indicating that students' sense of physical plausibility is still not well developed. Meanwhile, students' ability to ensure the completeness of their answers is relatively weaker, with only 36% positive responses and 64% negative responses, showing that many students tend to submit final answers without fully checking whether all required components have been addressed. Overall, these findings suggest that students' ability to evaluate their solutions in physics problem solving is still at a low to moderate level, particularly in verifying units, checking reasonableness, and ensuring completeness of answers.

These data indicate that most students are not yet accustomed to performing a final check to ensure the completeness of their solutions. The distribution of these percentages indicates that the ability to evaluate answers has not yet developed optimally. The dominance of the disagree category across all three sub-indicators suggests that most teachers perceive that students are not yet accustomed to conducting systematic final evaluations. The relatively high percentage in the strongly disagree category further reinforces that many students still do not fully understand the importance of rechecking the accuracy of units, the reasonableness of results, and the completeness of their answers. This condition reflects students' weak reflective awareness of the results of the problem-solving process, indicating that answer evaluation has not yet been effectively utilized as a means of ensuring the accuracy and overall quality of the solution. Zumar et al., (2023), in their study analyzing junior high school students' ability to solve science problems, reported similar findings. They found that students' problem-solving ability in the indicator of evaluating answers showed lower achievement compared to other indicators, which was attributed to students' lack of experience in solving complex problems.

Overall, the dominance of the disagree and strongly disagree categories across several key indicators indicates that students' physics problem-solving abilities have not yet developed optimally, particularly in the stages of planning, implementation, and evaluation. These findings suggest that, according to teachers, students still experience difficulties in carrying out the problem-solving process systematically and comprehensively. Therefore, instructional interventions are needed that systematically train students in each stage of problem solving, rather than focusing solely on obtaining the final answer. These findings are consistent with previous research conducted by Rahayu et al., (2021), which reported that the results of the analysis of MTs students' problem-solving abilities were very low on the topic of environmental pollution.

Furthermore, interview results reported by Permatasari et al., (2024) with students indicate that the low level of students' problem-solving ability may also be influenced by internal factors. The interview findings revealed that many students were not adequately prepared to solve problems, lacked confidence in their own answers, and had difficulties with mathematical calculations. The low level of students' problem-solving ability has serious implications for the quality of human resources produced through the educational process. This condition is influenced by various factors directly related to classroom learning practices, including the teaching strategies applied by teachers, the characteristics and complexity of the learning material, and students' prior knowledge. In addition to these instructional factors, the learning environment outside school, including family support, also plays an important role in shaping students' problem-solving abilities (Artinta & Fauziyah, 2021). In line with this, improving students' problem-solving abilities requires the implementation of more appropriate and varied learning strategies. The use of diverse learning models and instructional media can serve as an alternative to support students' active engagement in thinking processes and problem-solving activities (Kinanti & Nurita, 2025). Therefore, further analysis is needed regarding the implementation of instructional materials used by teachers, particularly Student Worksheets (LKPD), in order to ensure their alignment with the problem-solving framework as well as with the learning needs in the classroom.

Teachers' Perceptions of the Use of LKPD

After analyzing students' problem-solving abilities based on teachers' perceptions, this study further identified how Student Worksheets (LKPD) are implemented in classroom learning. This analysis focuses on several aspects, including the frequency of LKPD use within one semester, the types and sources of LKPD used by teachers, the format of LKPD implemented in learning, and teachers' perceptions of the alignment between LKPD and the problem-solving framework. This mapping was conducted to obtain an empirical overview of how LKPD currently function in supporting the development of students' problem-solving skills. As an initial step, the study examined the frequency of LKPD use across learning topics within one semester. The results are presented in Figure 3.

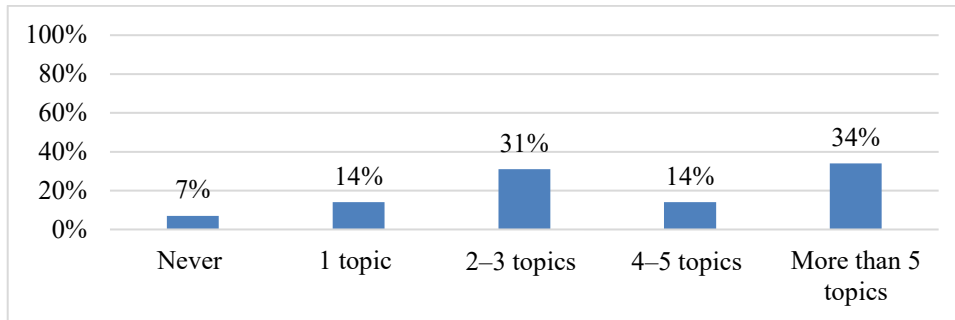


Figure 3. Duration of LKPD Use in One Semester

Based on the data presented in Figure 3, the responses from 42 teachers indicate variations in the use of LKPD across learning topics within one semester. A total of 33% of teachers (14 respondents) reported using LKPD in more than five learning topics, while 31% (13 respondents) used LKPD in two to three topics. Furthermore, 14% of teachers (6 respondents) used LKPD in only one topic, and another 14% (6 respondents) used it in four to five topics. Meanwhile, 7% of teachers (3 respondents) stated that they never used LKPD in the related topics. These findings indicate that the use of LKPD within a semester varies considerably among teachers. While some teachers use LKPD intensively across several topics, others apply it only occasionally, and a small number do not use it at all. This variation suggests that the integration of LKPD into classroom learning has not yet been implemented consistently, which may reduce its potential to support the continuous development of students' problem-solving abilities. To further understand how teachers obtain the LKPD used in their teaching, the study then analyzed the sources of LKPD used by teachers, as presented in Figure 4.

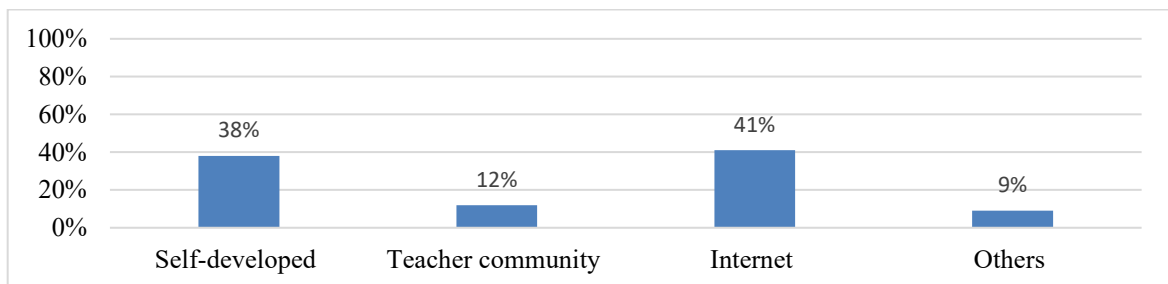


Figure 4. Sources of LKPD Used by Teachers

Figure 4 shows the sources from which teachers obtain LKPD for classroom learning. The results indicate that 41% of teachers obtain LKPD from the internet, making it the most common source. Meanwhile, 38% of teachers develop LKPD independently, 12% obtain LKPD from teacher communities, and 9% rely on other sources. These results indicate that teachers tend to rely heavily on external sources, particularly the internet, when selecting LKPD materials. Although a considerable proportion of teachers develop LKPD independently, the dependence on ready-made resources suggests that the design of LKPD may not always be systematically aligned with specific learning objectives or students' needs. In addition to examining the sources of LKPD, this study also analyzed the format of LKPD used in classroom learning, as shown in Figure 5.

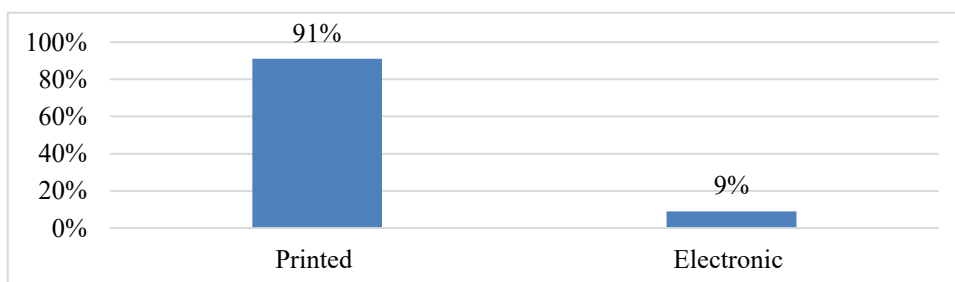


Figure 5. Teachers' Preferred Types of LKPD

Figure 5 presents the format of LKPD used by teachers in the learning process. The results show that 90.5% of teachers use printed LKPD, while only 9.5% use electronic LKPD. This finding indicates that printed LKPD remain the dominant format used in science learning. The limited use of electronic LKPD suggests that the integration of digital learning resources in the form of LKPD is still relatively low, even though digital worksheets have the potential to support more interactive, flexible, and student-centered learning environments. Beyond examining the sources and formats of LKPD, it is also important to understand teachers' perceptions of whether the LKPD currently used are aligned with the problem-solving framework. The results of this analysis are presented in Figure 6.

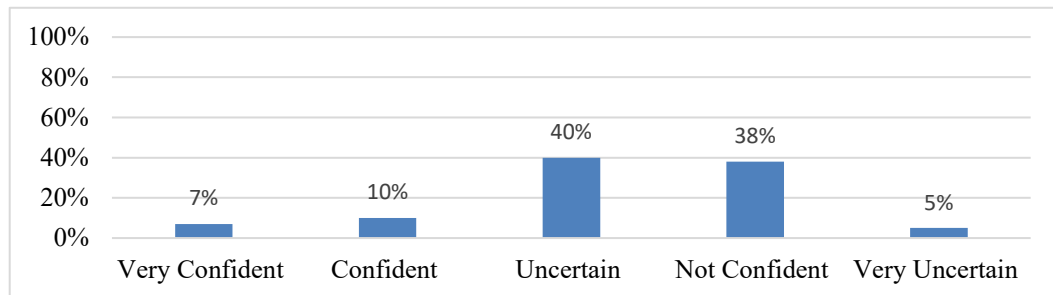


Figure 6. The LKPD Currently Used Are Based on a Problem-Solving Framework

Based on Figure 6, only 17% of teachers reported being confident that the LKPD used in their teaching are based on a problem-solving approach, consisting of 7% very confident and 10% confident. In contrast, the majority of respondents fell into the categories of uncertain (40%), not confident (38%), and very unconfident (5%). These findings indicate that many teachers are still uncertain about whether the LKPD used in their classrooms truly incorporate a problem-solving framework. This suggests that the implementation of problem-solving principles in LKPD has not yet been explicitly and systematically applied in classroom practice.

Overall, the findings presented in Figures 1–6 provide a comprehensive overview of the current practices and challenges related to the use of Student Worksheets (LKPD) in science learning. Although teachers have diverse backgrounds and teaching experiences, the results indicate that the use of LKPD in classroom practice is still inconsistent across learning topics. In addition, many teachers rely on external sources, particularly the internet, when obtaining LKPD, while the majority still use printed formats rather than electronic ones. At the same time, teachers expressed strong agreement that LKPD designed to enhance students' problem-solving skills are highly needed. Taken together, these findings reveal a clear gap between the LKPD currently used in classrooms and the expected instructional needs, particularly in supporting the development of students' problem-solving abilities. Therefore, the development of systematically designed problem-solving-based LKPD becomes an important step toward supporting more effective and meaningful science learning.

CONCLUSION

Based on teachers' perceptions, the problem-solving skills of junior high school students in Banyuasin still need further improvement, and the LKPD currently used has not yet fully facilitated structured problem-solving stages. Teachers also emphasized the importance of developing LKPD that is designed more systematically by incorporating contextual exercises and complete problem-solving stages in physics learning. These findings provide practical implications for teachers and instructional material developers as a reference for designing more effective LKPD to support students' problem-solving skills. Future research is recommended to examine the effectiveness of the developed LKPD across a wider range of schools and science subjects in order to strengthen its applicability and the generalizability of the findings.

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