

Analysis of Teaching Material Needs Based on a Contextual Approach Use *Liveworksheet* on Dynamic Fluid Materials

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Abstract

This research aims to identify the needs of teachers and students in a material-based approach to learning physics at SMA Negeri 2 Padang. The current teaching materials are general and less interesting for students. The study uses a contextual approach to analyze material and present learning more meaningful and relevant to students' real lives. A questionnaire and journal analysis were conducted with 68 students and one teacher in high school Negeri 2 Padang. The results showed that learning is still teacher-centered and there is no special approach to overcome students' problem-solving abilities. There is also no integrated teaching materials yet, and the study suggests that materials need to be developed to develop a teach-based approach contextually using *Liveworksheets* on fluid dynamic materials.

Keywords : *Approach Contextual, Liveworksheets, Solution Problem.*

INTRODUCTION

The Merdeka Curriculum encourages teachers to act as facilitators of facilities. A teacher creates a learning environment that allows students to explore, ask questions, express opinions, and solve problems actively. One of the excess Curriculum Independent is more simple and deep (Khikmiyah, 2021). Focus mainly on material, which is essential if possible. Teacher integrates content important to learning so that participants understand concepts and lessons more deeply. Teacher role in serving material that is interesting, relevant, and connected with real-life participants education .

One of the steps taken by teachers in the learning process to make it interesting And connect with life real participant educate is with use approach contextual. The contextual approach in learning facilitates the use of the concepts taught in the situations and conditions of students' lives, in accordance with the vision and principles of the Independent Curriculum. The contextual approach allows teachers to relate lesson material to real world situations faced by students (Amir, 2015). In addition, the contextual approach also encourages students to play an active role in solving real-world problems related to subject matter, especially in the context of physics learning.

Physics is a branch of science nature that provides opportunities for students to get understanding draft And ability in solve problem (Syafruddin et al., 2022). Therefore, learning physics cannot be separated from understanding concepts and using these concepts in solving problems. Physics learning for students It is hoped that it will not only focus on mastering concepts, but also on abilities they in apply concepts Which has they understanding in solve physics problems. However, the learning process in the classroom often focuses more on achieving conceptual understanding and pays less attention to developing problem solving skills.

Problem solving ability is a very important skill for students in physics learning. One of the targets of physics learning is to produce individuals who are able to solve complex problems by applying their knowledge and understanding in everyday life (Gunada et al., 2017). For realize objective learning physics on century 21st, Teacher need focus on preparation of students so that be an individual who has investigative skills, solution problems, critical thinking, and creative.

One information technology that can be used by teachers to develop LKPD is through a web-based application called *Liveworksheets*. The *Liveworksheet* website can be used by teachers to convert LKPD into electronic LKPD. *Liveworksheet* is a website that can be used to create and use E-LKPD for free. Using the *Liveworksheet* website is very profitable, because with *Liveworksheet* teachers can create their own interactive E-LKPD (Suryaningsih & Nurlita, 2021). Apart from that, *Liveworksheet* are also easy to use for students. Students can work directly and can get immediate feedback after completing the assignment. Apart from that, the live worksheet has variations in the student activity steps for working on the E-LKPD.

However, reality shows that the solution to the problem of physics participant education is still low. When solving physics questions given by the teacher, students tend to use equality mathematically without doing analytical work, guessing formulas that are in accordance, or memorizing example questions that have been done previously to solve other problems (Ajri & Diyana, 2023). Students often face difficulties when faced with complex problems.

Researcher Already do observation about conditional learning in school. Researchers made observations at SMA Negeri 2 in Padang. Observations were carried out to see the condition of learning and the methods teachers teach in school. After done observation, the learning model is still teacher-centered, lacking availability of material for teach-based IT. The availability model learning is not yet available to overcome ability-solution problems. So, based on the results analysis questionnaire, physics learning, namely (1) physics learning is still centered on the teacher, and (2) teaching materials integrate *Liveworksheet* Not yet available; (3) not yet available; use model learning certain to overcome abilities, solve problems, and educate participant educate.

Wrong One solution to the problem is to make material teach right as well as fulfill the need for participants to educate, specifically Sheet Work Students (LKPD). Student worksheets (LKPD) have a crucial role in the learning process. LKPD functions as a tool that supports teachers in guiding students in developing their skills in

discovering concepts through work steps or problems presented, which are also accompanied by solutions (Syafuddin et al., 2022). Participants can practice their ability to solve problems related to material learning.

long the development era, LKPD can also experience innovation in facet presentation, which is wrong because it is the only one integrated with media electronic or technology known as E-LKPD (Pabri et al., 2022). LKPD, which is usually in hard copy form, is arranged in such a way using an application or site that it is in soft copy form and easier to distribute to students. E-LKPD can be accessed easily, either via PC, laptop, or smartphone. *Liveworksheets* are one of the answers to this challenge.

Liveworksheets are an electronic tool that contains text, images, animations, and videos, which have the advantage of maintaining students' interest so they don't get bored easily (Khomariyah et al., 2022). E-LKPD in this study is defined as a learning tool designed online that contains material and work steps that are systematic and interesting to achieve the expected learning objectives. If reviewed from the benefits E-LKPD expected, it can make process learning more interesting than learning using LKPD in print or paper.

To overcome problems in learning, teachers can take steps by designing lesson materials that focus on a contextual approach. This lesson material consists of seven main components, which include (1), (2) ask, (3) inquiry, (4) learning community, (5) modeling, (6) reflection, (7) authentic assessment (Amir, 2015) . Teaching materials It should be designed with learning principles that encourage students to think active, one of which is using learning based on a contextual approach. With a contextual approach to learning, students are expected to be able to achieve a deep understanding of the subject matter and have the ability to relate it to the situations and realities of everyday life (Pabri et al., 2022).

Learning based approach contextual Also suitable For help increase ability solution problem participant educate (Turner & Rapoport, 1977). If in teaching physics, students are given challenges in the form of problems that are relevant to everyday life through a contextual approach, then students will try to relate and build theoretical or abstract understanding of concepts that are in accordance with physics principles and their experiences. So through process think participant educate the, ability analysis participant educate in solve problem through learning contextual will increase. With thereby, learning contextual can influence ability solution problem participant educate (Mulyani et al., 2021).

Based on the background that has been explained, the research objectives are: 1) know the teaching materials needed by the school, 2) know the learning media Which needed by school, And 3) know ability solution problem participant educate on the material fluid dynamic.

METHOD

This research is the initial stage of research into the development of the Plomp model. Plomp stated that in development research there are several studies inside it like study surveys, studies case, experiment, And etc (Sugiyono, 2013). This

preliminary research was conducted to determine learning problems in school And ability solution problem, specifically on material fluid dynamic. There are two instruments used in this research, namely teacher questionnaires and questionnaires participant educate.

On stage one, researchers gather information about material taught in school and analyze it in a journal with instrument analysis to determine the need for dissemination to teachers and students. It needs an analysis instrument through the distribution of questionnaires to teachers and students at SMA Negeri 2 Padang. Data analysis was obtained qualitatively and quantitatively to determine participants' needs towards learning media in order to improve their problem-solving abilities. Participants were educated on material fluid dynamics. An analysis of the need for device learning was carried out on 68 students at SMA Negeri 2 Padang and 1 person, a teacher. The journals analyzed consisted of 3 journals on problem-solving abilities, fluid dynamics, and fluid material dynamics, which have been published.

The questionnaire addressed to teachers consisted of 47 questions on fluid material dynamic. The questionnaire has 4 values to choose from where 4: strongly agree; 3: agree; 2: disagree; and 1: strongly disagree. Questionnaire indicators used in analysis implementation learning Teacher as following: (1) Use Curriculum Independent In School, (2) Use Model Learning On Material Fluid Dynamic,(3) Identification Ability Solution Problem Participant Educate On Material Fluid Dynamic, (4) Use Material And Media On Material Fluid Dynamic, And (5) Use *Liveworksheet* On Material Fluid dynamic.

The questionnaire addressed to students consists of 40 questions on dynamic fluid material. There are 4 value categories, namely 4: strongly agree; 3: agree; 2: don't agree; and 1: strongly disagree. Questionnaire indicators used in the analysis, implementation, and learning addressed to participants are as follows: (1) Understanding material fluid dynamics; (2) using model learning; (3) using material and media on material fluid dynamics; and (4) using a live worksheet on dynamic fluid materials. Journal analysis selected 3 capability journals solution problem on material fluid dynamics Which has published.

Percentage results of teacher questionnaire analysis of the implementation of physics learning and analysis questionnaire participant educate to need device learning physics used the following equation :

$$percentage = \frac{score\ obtained}{(maximum\ score\ x\ the\ number\ of\ students)} \times 100\%$$

RESULT AND DISCUSSION

Result

The results of distributing teacher questionnaires show that there are almost problems The same can be seen in table 1. In general, the implementation of learning

in schools still teacher-centered. The teacher explains the material more and the students do less active involved in learning.

Table 1. Results spread questionnaire to 1 person Teacher

NO	Indicator	Results (%)
1	Need Teacher use Curriculum Independent in School	76.8
2	Necessity Teacher use model learning fluid dynamic	7
3	Need identify problem solving abilities participant educate on material dynamic fluid	73.9
4	Teacher needs to use material teach print And instructional Media on material dynamic fluid	80.6
5	Need use E-LKPD on material fluid dynamic	75

Results spread questionnaire pesetas educate show problem almost The same also at school. In general, students still have difficulty in the learning process in fluid dynamic material, a lot of ignorance is due to books which are available It is not yet complete to understand dynamic fluid material, and students need it source Study Which complete and practical. Matter this can be seen on table 2.

Table 2 . Results Questionnaire Analysis Need Device Learning To Participant Educate

NO	Indicator	Results (%)
1	Difficulty participant educate understand the material fluid dynamic	80.4
2	Need participant educate understand material use model learning on material dynamic fluid	85.48
3	Need participant educate use material teach print on material dynamic fluid	78.93
4	Need students use the E-LKPD learning media on material dynamic fluid	80.98

The Likert scale is a tool used to assess the attitudes or views of individuals or groups of people towards a social phenomenon, with each answer on the instrument having a varying level from very supportive to very unsupportive (Sugiyono, 2013). The Likert scale involves breaking down the variables to be measured into variable indicators, and then these indicators become the basis for designing instrument items, which can take the form of statements or questions. The following is the scale used in this research: 1. Don't agree; 2. Disagree; 3. Agree; and 4. Strongly Agree. With result range: 1. Very Agree = 100-76; Agree = 75-51; 3. No Agree = 50-26; And Very No Agree = 0-25.

The results of the journal analysis found three journals related to understanding concepts material fluid dynamic. Results analysis obtained that ability solution problem participant low education. The analysis results can be seen on table 3.

Table 3. Results Analysis Journal Ability Solution Problem Participant Educate On Material Fluid Dynamic

No	Journal	Solving Ability Problem (%)
1	Journal 1 [9]	13.20
2	Journal 2 [10]	30
3	Journal 3 [11]	22
	Average	21.73

Discussion

After going through the process of distributing questionnaires and filling them out by teachers and students, which focused on the implementation of physics learning for teachers and the need for learning equipment for students, as well as involving analysis of journals that discussed students' problem-solving abilities in fluid dynamics material, a number of significant findings emerged.

First, related to the need to use the "Independence" curriculum in schools, the results show that as many as 76.8% of teachers at SMA 2 Padang consider the implementation of this curriculum to have been successful. They reported that the Independence curriculum had proven effective in the learning context at the school. This change in the curriculum is also recognized as quite a significant change compared to the previous curriculum. Therefore, teachers feel that special training is needed to understand and implement the Independence curriculum well. The opinions of these teachers underscore the need for more in-depth support and training to ensure that the Independence curriculum can truly be maximized in learning at SMA 2 Padang. In this way, they hope that educators at the school can be more efficient in dealing with the changes and challenges brought about by the transition to a newer and different curriculum. Through special training, it is hoped that teachers will be better prepared and skilled in implementing the Independence curriculum, so that learning in schools will be more quality and relevant for students.

In the context of learning fluid dynamics material, it needs to be emphasized that the use of learning models has a crucial role. Research data shows that as much as 75% of the use of learning models has been applied in physics learning. The learning model adopted is in accordance with the independent curriculum and learning materials related to light waves. However, it should be noted that currently, teachers have not specifically implemented a learning model that can overcome obstacles in students' problem-solving abilities in dynamic fluid material. As a result, as many as

80.4% of students face difficulties in understanding and mastering the material. Given this condition, it is important to refer to the literature review, which shows that students' problem-solving abilities are still relatively low. The journal analysis data presented also illustrates that students' problem-solving abilities in fluid dynamics material tend to be low. In fact, the data contained in Table 3 clearly shows that students' problem-solving abilities in the context of fluid dynamic material are still inadequate.

To overcome this problem, one solution that can be taken is to apply a contextual approach to the learning process. The contextual approach is an approach that allows teachers to establish a close relationship between subject matter and real-world situations faced by students while encouraging students to link the knowledge they gain with its application in everyday life. Thus, this approach can be an effective tool in improving students' problem-solving abilities, which has been one of the main challenges in learning fluid dynamics material. It is hoped that by applying a contextual approach, learning will become more relevant, interesting, and effective in building a strong understanding of the material.

Identification of students' abilities in solving problems in fluid dynamics material shows that as many as 73.9% of students have not carried out problem solving well in this context. In this context, the need for teachers to provide effective learning materials to overcome problems in students' understanding of fluid dynamic material reaches 80.6%. Currently, in schools, only physics books are available as the only source of learning material in dynamic fluids. It is important to note that the teaching methods currently used are still limited to the use of PowerPoint-based presentations (PPT), which have not been able to significantly improve students' problem-solving abilities or encourage students' active participation in the learning process.

The urgent need is that teachers and students feel the need to utilize E-LKPD (E-Collection of Online Supporting Training) in learning dynamic fluid material, with the percentage of teacher needs reaching 75% and the percentage of student needs reaching 80.9%. This is related to the importance of adapting a contextual approach when delivering lesson material. However, there is one aspect that is in the spotlight, namely the use of live worksheets, which until now has never been implemented in schools. Therefore, there is a great opportunity to introduce and integrate Liveworksheets as a tool that has the potential to increase the effectiveness of learning in the context of dynamic fluid materials so that it can meet needs that have been neglected. With efforts to enrich learning resources and provide more diverse learning methods, we hope to achieve significant improvements in problem-solving abilities and the active participation of students in learning dynamic fluid material.

From the results of filling out questionnaires by teachers and students as well as the solutions in other articles, it can be concluded that the application of contextual approach-based teaching materials using Liveworksheets on dynamic fluid topics can improve students' problem-solving abilities. The use of *live worksheets* in learning based on a contextual approach will provide students with the opportunity to learn independently. This type of learning will encourage students to achieve conceptual understanding through real learning experiences, thanks to an approach that is

relevant to their daily lives. *Liveworksheet* has the advantage of providing attractive features that make E-LKPD interactive and not boring, like the ability to insert videos from *Youtube*, audio, and matching activities. After working on the E-LKPD, students can see the value of the results of their work automatically. So, the use of teaching materials with a contextual-based approach using *Liveworksheets* encourages learning that is student-centered, and this is in accordance with the independent curriculum. Use of materials: a teaching-based approach to contextual use *Liveworksheet* This can also provide guidelines for teachers and students. To overcome ability-solution problems, participants are educated in the learning process on material fluid dynamics.

Solution with develop material teach based *Liveworksheet* Also has developed by researcher previously that is Test appropriateness E-KLPD based contextual assistance with *Live Worksheets* to train critical thinking skills in high school (Sulianto, 2008). This agrees with the article entitled development of electronic LKPD contextual wetlands in static fluid material for high school students (Ajri & Diyana, 2023). In the article, researchers have proposed and introduced an approach that utilizes *Liveworksheets* in course material that focuses on static fluids. This approach provides the view that contextual learning and supported by E-KLPD-based technology can be an effective solution in improving students' critical thinking skills in secondary education environments. Thus, based on previous research and recent articles, the application of *Liveworksheets* in a learning context seems to be a promising alternative and is worth considering in efforts to improve the quality of education in high school.

CONCLUSION

Based on the data analysis that has been carried out, it can be concluded that the implementation of the Merdeka curriculum at SMA 2 Padang is appropriate and effective for use today. Teaching materials on curriculum independent Still limited Which published by Ministry Education Culture, Research and Technology. Teachers have not carried out careful identification of students' abilities in solving problems in dynamic fluid material. The results of the journal analysis show that students' understanding is still at a low level. Moreover, technology plays a very important role in improving students' abilities in problem solving. However, currently, teachers only use media in the form of PowerPoint-based text presentations (PPT) and PhET simulations in experiments. Therefore, new innovations are needed that integrate technology, such as *Liveworksheets* with a contextual approach, which can improve students' ability to solve problems . Students are very enthusiastic and agree if the teaching materials are based approach contextual use *Liveworksheet* on material fluid dynamic This integrated with technology. Therefore, with this preliminary research, necessity developed material teach based approach contextual use *Liveworksheet* on fluid material dynamic phase F.

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