

Development of Student Worksheets (LKPD) Based on Problem Based Learning to Improve Learning Outcomes in Business Economics Subjects

Monika Karolina Sianturi Arwansyah, Muhammad Yusuf

Universitas Negeri Medan, Indonesia

monika.sianturi26@gmail.com

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Abstract

The curriculum in Indonesia is currently curriculum 2013, especially on the basic framework and structure of the vocational curriculum that states that the 2013 curriculum was developed with the improvement of mindset, among others: education that focuses on teachers so focused on students, as well as passive learning so active learning. Therefore, as a teacher can develop the learning process, especially learning resources that are able to explore the ideas of students into an innovative and critical so that they can produce and solve their own problems, through problem-based LKPD *learning*. This method and type of research is a development study with a 4-D model by Thiagarajan and Semmel. The findings in this study are the use of problem-based learning-based LKPD and the response of students who were found to be positive or good

Keyword: Student Worksheet, Problem Based Learning, Learning Outcomes

INTRODUCTION

The quality of human resources is a big and long-term problem because it concerns the nation's education. When discussing education, it is not separated from the school as a container that brings together elements of education. The school as a formal institute is a vehicle in the institution of acceptance of the purpose of education. Through school, students train themselves a variety of things. In formal education, practice shows a positive transformation so that in the final phase will be able to new skills, skills and insights. But in an effort to achieve adequate results, a learning system is needed. In the teaching and learning system, teachers have a position as director as well as actor and are the dominant aspect in determining the success of the teaching and learning system in the classroom.

According to Suyanto (1999:6), economic learning is not only so that students have a better interpretation of history and social sciences. However, what really means is training students to think rationally and also assume carefully. Furthermore, the purpose of learning is to improve the skills of students in analyzing economic situations and problems in a logical way. Because economics can also be used to solve problems of individual and public economic problems, economics needs to be taught and studied by teachers and students.

Based on the results of interviews conducted by researchers with one of the economics teachers at Medan Student Park Private Vocational School showed that the achievement of student learning outcomes was still not in line with expected. Where the minimum completion criteria for Business Economics subjects are 75. Details can be observed in table 1. 1:

Table 1.1

Percentage of Completion of Students Class X OTKP Mata Pelajaran Business Economics Year of Learning 2020/2021

Class	Sum Student	KKM	Students with ≤KKM grades	Percentage	Students with ≥KKM grades	Percentage
X OTKP-1	29	75	17	58,62%	12	41,37%
X OTKP-2	26	75	16	61,53%	10	38,46%

Source: DKN Business Economics SMK Taman Siswa Medan

From the table above it can be seen that the average of the results of the final repeat grade of the semester for class X OTKP-1 who obtained a score greater than KKM which is 41% or as many as 12 students, and who obtained a score smaller than KKM which is 59% or as many as 17 students, and for class X OTKP-2 who obtained more than KKM which is 38% or as many as 10 students, and who get a score smaller than KKM which is 62% or as many as 16 students. Sourced from the data obtained, it is clear that the percentage of learning of students is still low in categories and has not achieved success in learning in accordance with what is set. This proves that the learning outcomes of students must be improved.

Low learning outcomes are thought to be influenced by several factors such as variations in the learning model used. The learning model still uses conventional methods (monotony) as a result of which teachers are not yet experts in directing the attention of students to follow the learning, so that many students are still less observing. According to Wahyuningsih (2014:95), the process of learning to teach

with a *teacher centered* nature is very easy for teachers but for students it is a saturated and not easy matter, consequently affecting the thinking skills of students.

The last factor that attracts the attention of researchers is that teachers have not been able to compile and develop teaching materials, especially LKPD. According to Katriani (2014: 1), LKPD is a collection of sheets containing student activities that allow learners to carry out real activities with the objects and problems studied. LKPD acts as a guideline for learning learners and also makes it easier for learners and teachers to carry out teaching and learning activities so as to increase the participation of students or students' activities in learning and change the learning situation from *teacher centered* to student centered".

LKPD provided from the school is not the result of the development of the school teacher. However, LKPD is obtained from publishers that have been provided and the internet, so teachers have not developed LKPD to guide their students to increase student engagement and student activity in learning. Teachers still rely on package books from the government even though one of the weaknesses of the government package book according to the Ministry of Education (in Rosliana, 2019:13) "When observed from the structure, namely the absence of learning instructions, supporting information and the stage of question-solving activities so that in their use, the use of package books only allows one-way communication that has an impact on the lack of opportunities of learners. To improve the mindset including creativity of thinking and less support learners in creating their own knowledge so that it has an impact on the skills of understanding concepts that are less well honed".

The curriculum in Indonesia is currently curriculum 2013 in particular (Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 70 of 2013, 2013) on the Basic Framework and Structure of vocational curriculum / MAK which states that the 2013 Curriculum was developed with the improvement of mindset, among others: education that focuses on teachers so focuses on students, as well as passive learning so active learning. Therefore, as a teacher can develop the learning process, especially learning resources that are able to explore the ideas of students into an innovative and critical so that they can produce and solve their own case problems.

One of the efforts to achieve learning goals in accordance with the 2013 curriculum is the need for teaching materials that support learning systems that focus on students and are active in learning. One of the teaching materials is the Student Worksheet or often referred to as LKPD. The existence of LKPD, students have a handle on learning resources so that students can learn independently to produce students' thinking skills. But in reality in the field, there are still many conventional-based LKPDs that are monotonous and saturated for students end up less motivated to assume more innovative and critical. Moreover, there are still

many LKPD encounters that are not in accordance with basic competencies and curriculum indicators in 2013 because the worksheets submitted in the form of disposable worksheets, just buy and without the efforts of teachers to design, prepare and assemble themselves in increasing their creativity to design in making LKPD more creative and innovative in suppressing students to be more active and critical in producing their knowledge.

With these problems, overcoming the weaknesses of student worksheets in business economics learning, teacher creativity is needed in improving student worksheets. In the development of student worksheets in accordance with the 2013 curriculum, conformity of existing problems is needed by utilizing the basis of the combined learning model. Andarwati and Hernawati (2013:166) stated that "the application of LKPD requires a learning model that can create new knowledge". By utilizing the basis of the learning model, the preparation of LKPD can support students so as not to have difficulty in mastering learning and actively participating in the teaching and learning process. Currently, there are many learning models that can be used by a teacher in improving the learning outcomes of students, one option is to use the *problem-based learning* model that can give the widest space to students to be able to think and participate actively in the learning process.

According to Aryanti (2020:6) that:

Problem Based Learning is a learning model that utilizes real-world problems as a context for students to learn critical thinking and problem-solving skills, and to gain the main knowledge and concepts of the subject matter. *Problem Based Learning* emphasizes on students to be independent learning and actively involved in learning.

From the expert statement above it can be concluded that learning with the *Problem Based Learning* model begins with a problem (can be raised by teachers or students), after which students deepen their knowledge about what they already know and what they need to know to solve the problem. Students can sort out problems that are considered interesting to solve so that they are encouraged to play an active role in learning.

Sourced from the results of interviews with teachers in the field of Business Economics studies at the Medan Student Park Vocational School that they have never utilized student worksheets (LKPD) based on *problem based learning* and the way to learn to teach is still conventionally based. The learning model must be able to change the learning style of students from students who learn passively so active in constructing theories. The right learning model can create more useful, fun, and suitable learning for students. Therefore, teachers must be able to be creative and innovative in teaching and be able to raise the concern of students to be active and motivated to learn, and must be balanced with the teacher's expertise in

understanding the model. Related to this researchers choose a *problem based learning* model.

This is related to the research put forward by Benny Satria Wahyudi, Slamet Hariyadi, Sulifah Aprilya Hariani (2014) entitled "Development of Teaching Materials Based on *Problem Based Learning* Model on Environmental Pollution Subjects to Improve The Learning Outcomes of Students of Class X Grujugan Bondowoso State High School", that the hypothesis that reads the development of teaching materials based on problem based learning models on the subject of environmental pollution is able to improve the learning outcomes of Students of State High School Grujugan Bondowoso", that the hypothesis that reads the development of teaching materials based on problem based learning models on the subject of environmental pollution is able to improve the learning outcomes of Students of State High School Grujugan Bondowoso", that the hypothesis that reads the development of teaching materials based on problem based learning models on the subject of environmental pollution is able to improve the learning outcomes of Students of Class X Grujugan Bondowoso State High School", that the hypothesis that reads the development of teaching materials based on problem based learning models on the subject of environmental pollution is able to improve the learning outcomes of Students of State High School Grujugan Bondowoso", that the hypothesis that reads the development of teaching materials based on problem based learning models on the subject of environmental pollution is Increase the learning outcomes of students of grade X Grujugan Bondowoso State High School can be accepted.

Sourced from the above, researchers attempted to study the problem with the title "Development of Student Worksheet (LKPD) Based on Problem Based *Learning* to Improve Learning Outcomes in Mata Pelajaran Business Economics Students Class X OTKP Private Vocational School Medan T.P 2020/2021".

METHOD

This type of research is development research (*Research and Development*). Development research aims to develop, improve and test the effectiveness of a product. This development research refers to the 4-D model by Thiagarajan and Semmel (1974). This model has four stages: *define*, *design*, *development (develop)* and *disseminate*. However, in this study only carried out until the stage of *development* (without the *disseminate* stage). Products developed in research are teaching materials in the form of problem-based *learning* LKPD that has the potential impact to improve student learning outcomes.

This research will be conducted at the Medan Student Park Private Vocational School which is located at Jalan Sabaruddin No. 8 Medan. Wactutu research conducted in semester genap Year of Learning 2020/2021. This sampling is done

by means of total *sampling*. Thus this study can be referred to as population research i.e. class X-OTKP¹ and X-OTKP². Where the 1st experimental class uses LKPD based *problem based* learning model and experiment class 2 uses LKPD based conventional learning model.

The assessment instruments are questionnaires, observations and tests of learning results. The required questionnaires are as follows: (1) Assessment questionnaires or responses from LKPD material experts; (2) Assessment or response questionnaires from LKPD design experts; (3) Assessment or response questionnaires from business economics teachers; (4) Angket assessment or student response to LKPD. The content of the questionnaire is in the form of statements related to the condition or circumstances of LKPD based on *Problem Based Learning* in learning.

Data analysis techniques are used to formulate research results. The results of this data analysis are the answer to the question of the existing problem. The collected data is analyzed descriptively quantitatively and then the results of the analysis are described qualitatively. The data to be collected is data related to LKPD product development assessment data based on *Problem Based Learning* on business economics learning for vocational class X semester 2 through a team of experts, teachers and students. On the questionnaire sheet uses the *Likert* scale with 5 alternative answers available with different weights. The results of the questionnaire sheet will be adjusted to the benchmarks used to interpret the percentage of expert validation questionnaire results as well as the responses of teachers and students. The test used is an objective test of multiple choices with 5 answer choices (a,b, c,d,e) about consumer and producer behavior materials. Before hypothesis testing is first done test data analysis requirements in this case calculated data normality test and data homogeneity test. To test the hypothesis of learning outcomes, the test used is the t test.

RESULTS AND DISCUSSION

The research was conducted at The Medan Student Park Private Vocational School 2020/2021 involving two classes with different treatment in both classes. Class X-OTKP¹ is used as an experimental class I which is given LKPD based on *Problem Based Learning* model and X-OTKP² is used as an experiment class II which is given LKPD based on conventional learning model.

Before conducting research into the field, researchers validated the LKPD developed to 3 validators, namely 2 expert lecturers and teachers in the field of study. The validation process is carried out 1 stage because the results of validation of 1 LKPD are said to be worth trialling without revision with an average percentage of 87%.

LKPD trials are carried out with 2 stages, the first is a small group trial stage and the second stage of trials in the field. In the small group trial stage as well as field trials, the student response was very positive, with a very decent category with a percentage greater than 80%. After this stage is completed, the next stage to find out the feasibility of LKPD developed towards improving learning outcomes.

Before learning begins, pre-tests are held to both classes aimed at looking at students' initial abilities in consumer and producer behavior materials. Researchers pretested the I and II trials using as many as 20 valid multiple choice questions.

After being given different treatment, namely the first experimental class that was given a collaborative treatment of *problem based learning* model, and the second experimental class that was taught with conventional learning models, it was given back post tests to see improvements in learning outcomes. With the post test, the average score was obtained in the first experimental class of 81.03 with 27 students from a sample of 29 students declared to pass KKM. As for the second experimental class, the average score was 74.81 with 22 students from a sample of 26 students declared to pass KKM.

After the calculation using the Liliefors technique, the pre-test normality test for the experimental class I obtained $L_{count} = 0.106$. From the list of *liliefors* tests with real levels $\alpha = 0.05$ with $n = 29$, the $L_{table} = 0.161$ is obtained. This indicates the $L_{count} < L_{table}$ ($0.106 < 0.161$) meaning normal distributed data. Post-test test class experiment I obtained $L_{count} = 0.132$. From the list of *liliefors* tests with real levels $\alpha = 0.05$ with $n = 29$, the $L_{table} = 0.161$ is obtained. This shows $L_{calculated} < L_{table}$ $0.132 < 0.161$ meaning normal distributed data.

While the pre-test normality test for experimental class II obtained $L_{count} = 0.069$. From the list of *liliefors* tests with real levels $\alpha = 0.05$ with $n = 26$ then obtained $L_{table} = 0.173$. This shows $L_{calculated} < L_{table}$ ($0.069 < 0.173$) meaning normal distributed data. Post-test test class experiment II obtained $L_{count} = 0.106$. From the list of *liliefors* tests with real levels $\alpha = 0.05$ with $n = 26$ then obtained $L_{table} = 0.173$. This shows $L_{calculated} < L_{table}$ ($0.106 < 0.173$) meaning normal distributed data.

From the homogeneity test calculation using the interpolation calculation obtained $F_{table} = 1.88$, $F_{the_{count}}$ for the pre test data is 1.19 and $F_{the_{count}}$ for post test data is 1.18. By comparing the price obtained $F_{calculate} < F_{table}$ which is $1.19 < 1.88$ for pre test data and $F_{calculated} < F_{table}$ which is $1.18 < 1.88$ for post test data. It can then be concluded that the variance of both sample groups for pre test and post test has the same variance or homogeneous.

Furthermore, the t-test results were conducted, where the test results were found to have an increase in the learning outcomes of students who used LKPD *problem based learning* on consumer and manufacturer behavior materials compared to the learning results of students who used conventional LKPD (student

handbook) with significance values of 0.05 and $t_{\text{calculated}} > t_{\text{tables}}$ ($2.71 > 1,664$). While based on the calculation of improvement in student learning outcomes from the average post-test grade in the first experimental class (LKPD *problem based learning*) obtained 81.03 and the experiment class II (Conventional LKPD) obtained 74.81. Thus, $H_a: \mu \bar{X}_1 > \mu \bar{X}_2 = 81.03 > 74.81$, so it can be concluded that the results of learning business economics taught using LKPD based *problem based learning* model are higher than the results of business economics learning taught using LKPD based on conventional learning model in students of class X OTKP SMK Private Taman Siswa Medan 2020/2021.

The results of this study are supported by the results of previous research conducted by Lestari with his research entitled "Procedural Adopting 4D Model from Thiagarajan A Study of Biotechnology MSMEs Using PBL Models for Students. The results of this study showed that draft validation from experts was worth 92.1% with good criteria. Validation of the draft by practitioners of 94.5% with excellent criteria. The trial of students amounted to 88.2% with good criteria. The results of the implementation of MFI in the field based on cognitive assessments in 34 students with a pre-test score of 51,912 and post test 61,618. Statistical tests show a significant difference between pre-test and post test scores. Thus it can be concluded that the hypothesis that reads the application of the PBL model MFI can effectively improve learning outcomes in Biotechnology courses is acceptable.

From the overall analysis of data from the results of the study, it can be concluded that the research I conducted that the results I can also experience improvements in student learning outcomes, the use of *problem-based learning-based* LKPD is feasible and the student response is found to be positive or good.

CONCLUSION

Based on the results of research and discussion, it can be concluded as follows:

1. The development of *problem-based learning* LKPD that has been developed in Consumer and Producer Behavior materials for students of class X OTKP SMK Swasta Taman Siswa Medan, the overall results of validation with an average percentage of 87% declared worthy of use in the teaching and learning process.
2. The results of the student response assessment at the small group trial stage and field trials, tested positive i.e. with a very decent category with a percentage greater than 80%.
3. The results of the test-t found an increase in the learning outcomes of students who used LKPD *problem based learning* on consumer and producer behavior materials compared to the learning results of students who used conventional LKPD (student handbook) with significance values of 0.05 and $t_{\text{calculated}} > t_{\text{tables}}$ ($2.71 > 1,664$), as well as results $\mu \bar{X}_1 > \mu \bar{X}_2 = 81.03 > 74.81$. This shows the

learning outcomes of business economics taught using LKPD-based *problem based learning* models are significantly higher than business economics learning outcomes taught using LKPD-based conventional learning models. Based on the results of the study and conclusions, the researchers provide the following suggestions:

1. For teachers who want to implement the development of *problem-based learning* LKPD should be adjusted to the analysis and needs of students during learning by following the steps of the *problem based learning* model so that students can engage more enthusiastically and can cooperate in the team.
2. LKPD developed must be made with a more creative or more interesting design so that all students are interested in working on LKPD.
3. For further researchers who want to conduct similar research to first conduct the feasibility test of LKPD before being used by teachers of the field of study and students.

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