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# Problem Based Learning Model Development by Blended Learning and Google Classroom Media in Public SHS 1 Sale Rembang

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**Abstract**

Learning achievement of economy lesson at Public SHS I Sale has not met minimum passing grade. Therefore, there is a need to develop practice and effective learning model to improve it. This research aims to describe and analyze economy lesson learning in the school. To find out *problem based learning* model design through *blended learning* aided by *Google Classroom* and to analyze practicability and effectiveness of the learning model aided by *blended learning* and *Google Classroom media* in learning.

This *Research and Development* was done in three stages: preliminary, product development, and product evaluation. Techniques of collecting data used questionnaire, observation, and test. The preliminary stage presented factual learning model. The development stage was initiated by designing model, expert and practitioners' validation, and trial run. Evaluating step was done by *two random selection* design and *pre-test* and *post-test* to find out practicability and effectiveness of the model was done by *Wilcoxon.*

The findings showed poor factual learning model, *problem based learning* model development with *blended learning* aided by *Google Classroom,* and product trial run and product reliability test. The observation and questionnaire of the students showed that the model development was implemented. The finding of reliability test showed post-test of experimental group was higher. It showed the product was practice and effective to be implemented in the school.



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## INTRODUCTION

Learning is an effort to help individuals by creating effective and efficient learning. Learning is an activity to gain knowledge, skill, attitude, and positive values by using various media and learning sources. According to Depdiknas (2003), economy lesson has specific characteristics. The lesson is taken from factual and actual economy. In SHS level, the lesson does not only need knowledge but also reasoning ability, critical, creative, innovative, and problem solving abilities, hard work behaviors, honesty, independency, discipline, and social behavior since the lesson covers complex materials such as memorizing, reasoning, calculation, and latest updated knowledge which entails current era development in daily life. Therefore, economy lesson must be qualified to achieve both personal, domestic, social, and national benefits.

According to Primary and Junior Education General Directory (2004:9) "learning quality is intensity dealing with systematic and synergies of teachers, students, materials, learning climates, and media in creating optimal learning process and achievement as demanded by curriculum". With another word, a learning is said to be qualified when the purpose of learning is properly achieved. The proper delivered learning purpose indicates the learning achievement has met with expectation.

In learning economy at SHS, students sometimes got difficulties in solving problems and having poor knowledge so it weakened learning motivation. This condition influenced motivation and learning achievement which were not in line with expectation. It was seen on low learning achievement score. It is also supported by Central Data of Education Assessment of Education and Cultural Ministry (2018). It showed the average of economy lesson - national examination score of Indonesia in 2017/2018 was 47.05.

Interview from one of economy teachers at Public SHS 1 Sale also explained that within last 5 years, the average score of the national examination score had not met minimum passing grade. This score digression in the last year was caused by low ability of the students in solving problems since their low motivation and low frequency of ICT uses. In fact, computers at the school are provided in three laboratories. The first lab consists of 26 computers, second lab 25 computers with internet connection 3 MHz. Meanwhile, all of the students 100% had internet facilities on their mobile phones. Besides that, all teachers, 100%, were also capable to operate computers; 90% of them were aware of internet; only 5.1% used the internet as learning facility. It means there was no utilization of school facilities maximally in improving learning achievement.

In the effort to improve problem solving ability of the students on economy lesson, *problem based learning* had been implemented as stated in 2013 curriculum. However, the implementation had not been maximum due to various hindrances or difficulties to solve problems so the students were passive, limited time, absence of motivation in understanding the material as basic of solving problems. It is in line with Sanjaya (2009, p. 221) showing that: 1) students did not have interest or confidence and assumed that currently faced problems were difficult to solve. Thus, they were lazy to tray; 2) the success of PBL model needed longer time to prepare and implement in the learning; 3) without giving understanding why they should solve the problems, they would learn nothing.

Learning method has great influence on economy teaching – learning activity. The expected skill of the students to achieve was determined by accuracy of method implementation to situation, condition, and learning objectives. In learning process, there are many methods to implement. By considering different situation, students' conditions, facility, and technology at schools, then certain methods may be selected or combined to make students interested and motivated in learning economy. The learning model is expected to take benefits of current facilities and technology development.

Academic qualification, teacher competence, and information – communication technology utilization for learning sake are characteristics of expected pedagogical competences of teachers. Prayitno (2013) stated the rapid development of technology could not be avoided by an educator. Thus, he needs to be more creative and innovative in utilizing technology so that learning would not be monotonous and conservative.

Nowadays, it can be seen so many computer facilities at schools and mobile phone owned by societies. Thus, it cannot be avoided for students to not access the internet. Internet has both negative and positive impacts. One of them is to enable *online* learning or *online* examination. Therefore, it would be effective for teachers to utilize internet as learning facility since it makes learning interesting and reduces negative activities of the students.

Based on the explanation, there is a need to develop learning model by combining current learning model and facilities at school. The model is *Problem based Learning* with *Blended Learning* aided by *Google Classroom* media.

The model development used information and communication technology. The developed model combined online learning process and face to face classroom with syntax problem based learning as stated by government rule number 103 year 2014. It covers: (1) orienting students on problems, (2) organizing students to learn, (3) facilitating individual and group investigations, (4) developing and presenting artefacts (creation) and showing it, and (5) analyzing and evaluating process of problem solving as well as utilizing *Google classroom.* This product was expected to improve the students' abilities in solving problems since it was easy to promote; used technology; and created learning more interesting.

Similar research had been done by Sjukur (2012:368) about influences of *blended learning* to motivation and learning achievements of VHS students. It showed that (1) there was motivation and learning achievement difference of students taught by *blended learning* and conventional learning; (2) there was motivation and learning achievement improvement due to implementation of *blended learning.*

Acep (2015) stated that score of problem solving ability of students taught by *Problem based Learning Blended* (experimental group) was significantly better than the control group taught by common *Problem Based Learning.*

Google classroom is selected because it has various strength points compared to other applications, such as fast accessibility, simple interface, and integrated to all Google services such as *Google drive, Google doc, Google slide, Google form,* and etc.

It is also supported by Vicky et al (2017) telling that Google classroom is appropriate to be implemented in learning. The strength points of *Google classroom* are easy to use, efficient, *cloud* based, flexible, and free (Janzem and Iftakhar, 2016. p. 13). As comparison, factual learning program was implemented.

This research aims to find out factual learning model which becomes the basic of problem based learning model with blended learning and aided by Google classroom and its practicability and effectiveness. This product is expected to be an alternative for teachers to promote interesting learning.

## METHOD

This *Research and Development* adapted *Borg and Gall* model (2008) which was quoted from Sugiyono (2015:315). The adaptation results and development were preliminary, development, and evaluation stages.

This factual research model developed *problem based learning* model with *blended learning* and aided by *Google classroom* media. The product of this development is Google classroom – based learning instrument. The learning instruments were arranged after undergoing training at the school as research site. Product validity was done by experts of education and ICT. To find out the implementation or practicability of the learning program, a trial run test was conducted. It was conducted on eleventh grade – society 3 as experimental group and eleventh grade – social 4 as control group. The tested materials were price index and inflation. To find out effectiveness of the product, reliability test was conducted. The developed product was said effective when it could improve problem solving skill. The test was done through experiment (Sugiono, 2015). This experiment used *two random selection* design with *pre-test* and *post-test.* Technique of collecting data were questionnaire, observation, and test. Technique of analyzing data were quantitatively and qualitatively entailed by *Wilcoxon Match Pair.*

## FINDINGS AND DISCUSSION

Findings on preliminary stage described results of factual learning model. In this step, it

consisted of planning, acting, and evaluating the learning activities. From the factual model, it was found two instruments categorized poor from 10 schools out of 14 schools. They stated that the implementation of learning model had not developed problem solving skill. 9 out of 14 schools showed lack of interest. Based on the findings, a development was done.

In this developmental stage, it was initiated by learning model design with analysis of learning material characteristics. The materials used in the learning were price index and inflation. Based on material analysis, learning instruments and materials were created. The learning instruments consisted of syllabus and lesson plan based on online learning model which implemented PBL syntax. Then, from the learning instruments, learning materials were composed. It consisted of handout and online material. The handout was designed into three parts based on the materials. The first consisted explanation of price index materials, examples of the questions, and test of competency. The second part consisted of inflation explanations, examples of the questions and the solutions, exercises, and test of competency 2. The third part consisted of explanation dealing with demand and offering money materials, examples of the questions, exercises, and test of competency 3. Meanwhile, the online learning materials consisted of: (1) organizing class – creating class, inviting students, and joining to other class; (2) managing topic – creating topic or community consisting of 4 topics (material, discussion, task, and assessment); (3) uploading material – uploading both price index and inflation materials via *file upload* and youtube; (4) developing questions – done by using *Google forms* with its auto correction and analysis; (5) assessing – done by making questions and tasks. To create the questions was done in 2 ways: essay and multiple choices.

Based on the learning instruments and materials, then evaluation or assessment was arranged. The assessment instruments used 5 elaborative questions both for pre-test and 5 for post-test. The product design was validated in order to be hypothetic model.

**Tabel 1.** Validation Results

| Products | Validation Results |
|---|---|
| Syllabus | Very well |
| Lesson Plan | Very well |
| Handout | Very well |
| Online learning material | Very well |
| Questions | Well |

The validation was entailed by experts' suggestions to revise the product into hypothetic product.

To test practicability and effectiveness of the product, an evaluation stage was done through limited trial run and reliability test. The limited test was done for eleventh graders of social 3. The sample was taken randomly from population after having homogeneity test with result

$X^2_{calculated}$ = 0,5767, and error level 0,05 $X^2_{table}$ = 7,8141. Thus, $X^2_{calculated} < X^2_{table}$ Then, Ho is accepted. Therefore, it is said that the sample was homogeneous so it could be taken randomly. In limited test, an observation was done toward teacher and students' activities. Besides that, questionnaire of students' responses was distributed to get data related to the trial run. The results of observation consisted both teacher and students' activities. The students' activities in train run with the model showed average score 28.5. Thus, it is concluded that based on criteria of table 3.3, it was categorized "implemented". Meanwhile, the questionnaire of the students' responses in preliminary learning of the train run showed average score 8.8. It showed that preliminary activity was categorized as implemented. In main learning activity, several series of activities in the trial run showed average score 8.2. It showed the main activity was categorized implemented. Meanwhile, in closing session of the learning, it showed average score 8.6. It was categorized implemented.

Reliability test results of pre-test problem solving question of control group gained lowest score 10 and highest score 45 with average 30.42. Meanwhile, the experimental group gained lowest score 10 and highest score 40 with average score 28.54. The pretest score of problem solving question was initial score of the students in solving problem. The post-test problem solving

questions of control group gained lowest score 40 and highest score 80 with aveage 65.63. Meanwhile, the experimental group gained lowest score 45 and highest score 100 with average score 75.83. The post-test score of problem solving question was called as final score of the students' abilities in solving problems after learning process.

From the pretest result, *normality test* was done toward *pre-test's* problem solving question of experimental group by using Chi square. It showed $X^2_{calculated}$ = 28, 311 and $X^2_{table}$ with dk = 5 and error level 5% was 11,070. Since $X^2_{table}$ was higher than $X^2_{table}$, then the data distribution of the sample was not normally distributed. Normality test of pretest score of problem solving question of control group showed $X^2_{calculated}$ = 29.943 and $X^2_{table}$ with dk = 5 and error level 5% was 11.070. . Since $X^2_{table}$ was higher than $X^2_{table}$, then the data was not normally distributed. Normality test by using Chi Square of problem solving question in posttest showed $X^2_{calculated}$ = 14.981 and $X^2_{table}$ with dk = 5 and error level 5% was 11.070. Since $X^2_{table}$ was higher than $X^2_{table}$, then the data distribution of the sample was not normally distributed. Normality test of the control group's problem solving question in posttest showed $X^2_{calculated}$ = 28.861 and $X^2_{table}$ with dk = 5 and error level 5% was 11.070. Since $X^2_{table}$ was higher than $X^2_{table}$, then the data distribution of the sample was not normally distributed. From the normality test, it could be concluded that the data could be analyzed statistically since they were not normally distributed. Thus, *Wilcoxon Match Pair Pretset* and *Posttest* of prolem solving question was done.

Based on pretest score of the both groups, the $t_{calculated}$ was 34. On error level 0.05, the $t_{table}$ was 54. Since it was lesser than $t_{table,}$ then $H_0$ was accepted. It meant there was no difference between initial problems olving ability of both groups.

Based on the posttest of problem solving questions of both groups, the $t_{calculated}$ was 199. On error level 0.05, $t_{tale}$ was 75. Since it was higher than $t_{table}$ then $H_0$ was denied. Thus, problem solving skills of experimental group was higher.

Besides pretest and posttest results, *Wilcoxon Match Pair* test was also done toward average score of the students' questionnaires. The test of the students' responses showed that $t_{calculated}$ was 15 on error level 0.05 and $t_{table}$ = 1. Since $t_{table}$ was higher, then $H_0$ was denied. Thus, the response of experimental group was higher.

The learning model was done face to face and online by using PBL syntax. In the implementation of the product, it could be concluded the product was practical since the students' responses showed good average score and the result of Wilcoxon analysis showed experimental group responses were better than control group. The product could also improve the students' activeness. It cound be seen from online discussion. There was no passive student. It proved online learning model the students would be brave to deliver their opinion in online learning although once they were not brave to deliver it directly. All of the students were active and not sleepy and focused on learning so they could understand the material better.

This PBL model with *blended learning* could be said effective because the pretest and posttest score analysis of both teams showed average score differences of both teams. The experimental group was higher than control group. The experimental group's gain score was also higher that the control group so the product was effective and practical to be proceeded into final product.

## CONCLUSION

Based on the findings and discussion, it is concluded that factual learning model done in all SHS in Rembang, had not developed problems olving skill and had not impressed the students. The appropriate learning model development to school conditions both facility and infrastructure as well as technology and the students' abilities

was *problem based learning* with *blended learning* aided by Google classroom. The trial run product and reliability test of the product at Public SHS 1 Sale were practical and effective to be implemented on learning economy. It is suggested for teachers to innovate appropriate learning model based on school condition and technology development to develop students' activeness.

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