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Implementation of Lesson Study-Based Problem Based Learning Learning Model to Improve Creative Thinking Ability (KBK)

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ABSTRACT

This study aims to describe the implementation of the Problem Based Learning learning model to improve students' Creative Thinking Ability (KBK) in acid-base chemistry subject. This type of research is descriptive quantitative through Lesson Study activities which consist of three stages, namely Plan, Do, See with the PBL model. The subjects used were class XI students of SMA Negeri 1 Lasem. The data collection method is by giving LKPD questions, observations, field notes, and documentation. The observer's observation results are supported by documentation data in the form of photos and videos. The results of this study indicate that the classification of students' Creative Thinking Ability (KBK) in the first cycle and the second cycle is classified as fulfilling the indicators of the Creative Thinking Ability (KBK) dimension. Therefore, the Dimensions of Students' Creative Thinking Ability (KBK) in chemistry subjects can be improved by using Lesson Study-based Problem Based Learning.

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I. INTRODUCTION

The 21st century is developing rapidly and is referred to as the century of knowledge, competition, technology, the global economy, information, and the century of the industrial revolution (Amin et al., 2022). This change provides opportunities that can be exploited if we have the ability to master. Currently, educational institutions are competing to create a generation that is able to compete in the globalization era. One of them is giving birth to a generation that has the skills needed in the 21st century. At the educational level, 21st century skills have begun to be developed and improved. The purpose of having these skills is to overcome problems that exist in real life. This is in line with research conducted by (Djupanda et al., 2015), that with creativity skills, students can solve and solve problems.The skills possessed by students do not merely exist and appear out of nowhere. However, the role of the learning

process can improve student skills. A quality learning process is proven to be able to help students improve their skills. Quality learning can create an interaction between students and teachers (Al-Faruq, 2023). By getting quality learning, students will show better learning outcomes. Teachers can create quality learning by applying the Problem Based Learning method. This is evidenced by research (Support et al., 2022) which explains that learning by solving problems can improve the quality of learning. So that students' skills can increase, especially in chemistry learning.According to some students, chemistry is considered difficult and difficult to understand. So the application of PBL will train students to think creatively by mastering concepts. Thus, students construct their own knowledge. The application of PBL to chemistry subjects was once implemented by Jayadiningrat who proved that students' skills in chemistry subjects could increase with the application of PBL at XI IPA SMAN 1 Weluli (Jayadiningrat & Ati, 2018).In addition to the application of PBL in the chemistry learning process, Lesson study-based learning is also effective in improving the quality of learning (Mujib, 2019). Lesson study is an approach in the teaching process with the aim of improving the quality of learning (Lewis, 2000). This approach was developed by teachers in Japan as an educational competency development. Lesson study stages namely planning (plan), implementation (do), reflection (see).Based on the explanation above, it is hypothesized that giving problems in Lesson study-based learning will increase students' Creative Thinking Ability (KBK) in solving chemistry problems. Thus the formulation of the research problem is: how does the application of Lesson Study-based PBL affect students' Creative Thinking Ability (KBK)?

II. METHODS

The type of research used is descriptive qualitative research. The subjects taken were class XI MIPA 3 with 36 students at SMA N 1 Lasem. The expected goal is to find out the results of student learning on Acid-Base material in the natural indicators sub-chapter, so Lesson study is carried out in three stages, namely Plan, Do, See which are carried out in two cycles in two different classes. To prove empirical evidence on the focus of the study, those involved in LS activities were Lecturer Eny Winaryati, M.Pd and also students from the LS team. Meanwhile, lesson study activities were carried out for students in class XI MIPA 3 in chemistry.Lesson study was carried out in three stages in two cycles, namely: (1) planning (plan) in compiling lesson designs, (2) conducting learning based on lesson plans and lesson designs and being observed by members of the LS team, (3) reflecting (seeing) based on the results observation.

1. Plan

This stage is carried out by designing learning, namely making lesson designs by applying the stages of Problem Based Learning. This is so that students' creative skills can emerge during the learning process. Before carrying out the learning process in XI MIPA 3, researchers as model teachers and their team designed learning activities through zoom meetings. The researcher explained the lesson design, lesson plan (RPP) and syllabus for acid-base chemistry subject to the Lesson Study team. The model teacher also makes Student Worksheets (LKPD) on acid-base theory and determining the degree of acidity and on determining the color route of natural acid-base indicators. The dimensions of the creativity skills that emerge are as follows :

Creative Thinking Ability (KBK)

(1) Students are able to answer LKPD with various answers.
(2) Students are able to find sources of knowledge from anywhere to answer problems in LKPD.
(3) Students can improve the results of LKPD answers when they have received input from other people (teachers, peers)..

2. Do

In this stage the researcher collects data in the field in the form of tests, interviews, observations and documentation. So by knowing the data collected researchers can present data in accordance with the research objectives.

3. See

At this stage, the model teacher together with the chemistry teacher and the Lesson Study team held discussions and observed the results of in-class learning observations about how students learn and look for students' weak points. To serve as evaluation material and find the right method to be used in the next meeting. This aims to perfect the learning and mastery of the material in students.

Data Collection and Analysis Techniques

Data collection techniques used are observation, field notes, documentation. Data collection techniques to be carried out in this study are as follows:

a. Observations

In this study, observations were made by the Lesson Study team as observers against XI-year-old MIPA 3 students and 3 informants were taken using observation sheets. Observation uses observation sheets according to the creativity dimension.

b. Interviews

Researchers interviewed one chemistry teacher and three MIPA XI students 3 High School over State 1 Lasem. The interview uses the interview manual or is called a semi-structured interview.

c. Documentation

Researchers do video and photographic documentation during the course of the study of students' activities in the classroom, classroom conditions, and others considered to help collect field research data.

III. RESULTS AND DISCUSSION

1. P*lan*

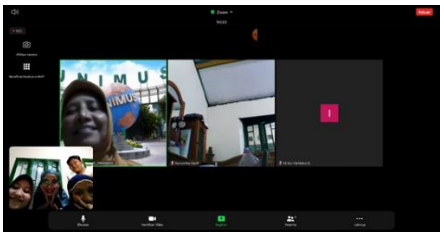


Figure 1 Lesson Study Team planning lesson design

The first cycle begins with making a lesson design. Lesson design in the first cycle contains the introduction of natural indicators to students. Students are given the problem of how natural indicators can identify acidic or basic compounds? This stage is carried out by designing learning, namely making lesson designs by applying the stages of Problem Based Learning. This is so that students' creative skills can emerge during the learning process. Before carrying out the learning process in XI MIPA 3, researchers as model teachers and their team designed learning activities through zoom meetings. The researcher explained the lesson design, lesson plan (RPP) and syllabus for acid-base chemistry subject to the Lesson Study team.

2. Do

The implementation stage is carried out when learning in class. From the documentation data, the teacher divided the class into 5 groups, each group consisting of 6 to 7 students. Students obtain information that learning will be carried out using the

PBL model. Students pay attention to the teacher's explanation regarding the implementation of learning techniques. Each group is given a Student Worksheet (LKPD) which contains problems and questions to be answered by students. The teacher facilitates students if there are difficulties in answering the LKPD. Students are given space to carry out learning activities independently, namely by discussing with groups to build their own knowledge.

3. ***See***

Figure 2 The Lesson Study team reflects on the learning process that has taken place

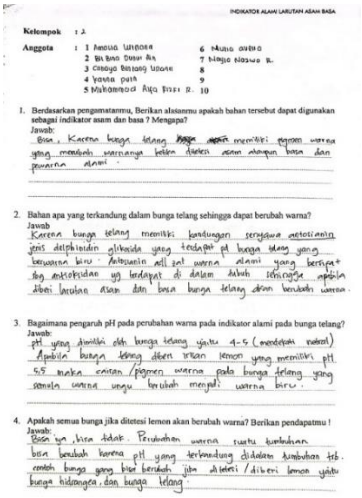
During the implementation process (do) the observers observe student activities with observation sheets and also record student activities during the learning process. This aims to assess student activities based on dimensions and indicators of creativity skills and support the results of observer observations. During the learning activities, the observer observes and records all activities that occur on the available observation sheets.

a. RESULTS

The implementation stage is carried out when learning in class. From the documentation data, the teacher divided the class into 5 groups, each group consisting of 6 to 7 students. Students obtain information that learning will be carried out using the PBL model. Students pay attention to the teacher's explanation regarding the implementation of learning techniques. Each group is given a Student Worksheet (LKPD) which contains problems and questions to be answered by students. The teacher facilitates students if there are difficulties in answering the LKPD. Students are given space to carry out learning activities independently, namely by discussing with groups to build their own knowledge.Data collection techniques used observation sheets according to the dimensions of creativity by observers and also used camcorders to record student activities during the learning process. The following is an analysis of students' creative skills based on the dimensions of creativity: Creative Thinking Ability (KBK) Students' creative skills are observed during the learning process. Creativity that appears is the ability to think creatively. The KBK dimension has 3 indicators namely:

1. **Students are able to answer LKPD with various answers.**

This indicator can be seen from the results of the LKPD answers. The LKPD sheet contains problems regarding natural acid-base indicators that must be answered by each group. Giving problems aims to measure whether students are able to answer LKPD with various answers. From the results of the answers to the LKPD sheets, each group has different answers in answering the problems in the LKPD. It can be seen from the results of the following LKPD answers, that each group will answer LKDP based on their own observations and opinions. So this proves that class XI MIPA 3 meets the indicators.



INDIKATOR ASAM LARUTAN ASAM BASA

Kelompok : 2

Anggota : 1 Annisa Umronah
2 Bi Nur Dewi Ar
3 Cinnya Betsaty Utami
4 Yanna putri
5 Muhammad Aqo Fitri R.
6 Nurul Aulia
7 Nanja Nisawa R.
8
9
10

1. Berdasarkan pengamatanmu, Berikan alasanmu apakah bahan tersebut dapat digunakan sebagai indikator asam dan basa ? Mengapa?
Jawab:
Bisa, Karena bunga telang memiliki pigmen warna yang memberi warnanya bilam diteteskan asam maupun basa dan pewarna alami.

2. Bahan apa yang terkandung dalam bunga telang sehingga dapat berubah warna?
Jawab
Karena bunga telang memiliki kandungan senyawa metabolit jenis delphinidin glikosida yang terdapat pd bunga telang yang berwarna biru. Antosianin adl zat warna alami yang berfungsi sbg antioksidan yg terdapat di dalam daluh terlengkap apabila diberi larutan asam dan basa bunga telang akan berubah warna.

3. Bagaimana pengaruh pH pada perubahan warna pada indikator alami pada bunga telang?
Jawab:
pH yang dimiliki oleh bunga telang yaitu 4-5 (mendekati netral)
Apabila bunga telang diberi irisan lemon yang memiliki pH 2,5 maka enzim /pigmen warna pada bunga telang yang semula warna ungu berubah menjadi warna biru.

4. Apakah semua bunga jika ditetesi lemon akan berubah warna? Berikan pendapatmu !
Jawab:
Bisa ya bisa tidak. Perubahan warna suatu tumbuhan bisa berubah karena pH yang terkandung didalam tumbuhan tsb. contoh bunga yang bisa berubah jika diberi / diteteri lemon yaitu bunga hidrangea, dan bunga telang

Figure 3 LKPD Answers for Group 2 Class XI MIPA 3 with a Very Good score

2. Students are able to find sources of knowledge from anywhere to answer problems in LKPD.

The image below shows students searching for information sources via the internet. This activity is carried out in groups. The division of tasks was also carried out. There are some students who are in charge of writing the results of the discussion, there are also some students who are in charge of finding information via the internet. This proves that students who meet the indicators are able to find sources of knowledge by using the internet as a reference.

Figure 4 Students use the Internet to search for knowledge in answering LKPD

3. Students can improve the results of LKPD answers when they get input from other people.

When presenting the results of their group discussions, students can receive feedback in the form of suggestions and input from the teacher and other group mates.

Figure 5 The teacher provides input on the results of student worksheet answers

b. DISCUSSION

Based on the results of the discussion and analysis in the previous chapter, it was concluded that in general the learning process using Lesson Study-based Problem Based Learning can improve students' creative skills. This is shown in the following discussion: Creativity skills in the Creative Thinking Ability (KBK) dimension are already visible in student activities during the learning process. LKPD work encourages students to find new knowledge and answer problems given by the teacher. There were several students who were able to write down their opinions and thoughts on the LKPD answer sheets in various and varied ways. This proves that the creative skills of students in class XI MIPA 3 are considered very good. From the results of the LKPD answers, they express their opinions according to the problems given by the teacher. The answers from each group varied because the answers were based on opinions and the results of group discussions. Students have shown that they have creativity skills in the Creative Thinking Ability (KBK) dimension with the application of problem-based learning (PBL) based on Lesson Study.

IV. SUGGESTION

The limitations of this research are for the improvement of this research, for further writers to be able to examine more deeply and

comprehensively about problem-based learning by applying Lesson Study to improve the creative skills of SMA N 1 Lasem students.

V. REFERENCES

Al-faruq, Z. (2023). Peran Penggunaan Desain Evaluasi Untuk Meningkatkan Kualitas Pembelajaran. *Ilma Jurnal Pendidikan Islam, 1*(2), 158–171. https://doi.org/10.58569/ilma.v1i2.587

Amin, N. S., Rahmawati, A., Azmin, N., & Nasir, M. (2022). Pengembangan Pembelajaran Blended Learning untuk Meningkatkan Keterampilan Abad 21 Siswa SMAN 2 Kota Bima. *JIIP - Jurnal Ilmiah Ilmu Pendidikan, 5*(12), 5563–5567. https://doi.org/10.54371/jiip.v5i12.1254

Arikunto, Suharsimi. (2002). Prosedur Penelitian Suatu Pendekatan Praktek. Jakarta: PTRineka Cipta.Gfgfd

Djupanda, H., Kendek, Y., & Darmadi, I. W. (2015). Analisis Keterampilan Berpikir Kreatif Siswa Sma Dalam Memecahkan Masalah Fisika. *JPFT (Jurnal Pendidikan Fisika Tadulako Online)*, *3*(2), 29.

Dukungan, H., Terhadap, K., Pasien, M., & Stroke, P. (2022). *Jurnal Pendidikan dan Konseling*. *4*, 1707–1715.

Gundry, L. K., Ofstein, L. F., & Kickul, J. R. (2014). Seeing around corners: How creativity skills in entrepreneurship education influence innovation in business. The International Journal of Management Education, 12(3), 529– 538. doi:10.1016/j.ijme.2014.03.002

Heikkilä, A., & Maijala, V. (2016). Heart failure patients' experiences of mobile phone-based telemonitoring in self- care: a qualitative systematic review protocol. *JBI Database of Systematic Reviews and Implementation Reports*, *14*(5),68–74.

Jayadiningrat, M. G., & Ati, E. K. (2018). Peningkatan Keterampilan Memecahkan Masalah Melalui Model Pembelajaran *Problem Based Learning* (Pbl) Pada Mata Pelajaran Kimia. *Jurnal Pendidikan Kimia Indonesia*, *2*(1), 1.

Winaryati, E., & Munsarif, M. (2021). Creativity: Promotion of the Creative Process; Innovative and Collaborative 21st Century Learning. *Budapest International Research and Critics Institute-Journal* , *4*(4), 9551–9566.