

THE IMPLEMENTATION OF PROBLEM BASED LEARNING WITH GALLERY WALK STRATEGY ON GLOBAL WARMING

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Abstract

Higher order thinking skills (HOTS) is a high thinking skills that include critical thinking, logical, creative, reflective, and metacognitive. In 21st century, the corporate world becomes more competitive. Therefore, students require to have 21st century skills, 7C's skill. For mastering those skills, students need HOTS. This research aims to analyse the implementation of problem based learning (PBL) with gallery walk strategy on global warming. The research method uses pre-experimental design with purposive sampling technique. The results shows that the mean score of 4 aspects includes: (1) the ability to open lessons, (2) implementation learning steps, (3) ability to close learning, and (4) class atmosphere in is implemented in category very well. Theoretically, the implementation of PBL with gallery walk strategy is able to enhance student's HOTS.

Keywords : Problem based learning, gallery walk strategy

Abstrak

Higher order thinking skills (HOTS) merupakan keterampilan berfikir tinggi yang meliputi berpikir kritis, logis, kreatif, reflektif, dan metakognitif. Semakin kompetitifnya dunia kerja, menuntut peserta didik untuk menguasai keterampilan abad 21, keterampilan 7C. Untuk menguasai keterampilan tersebut, peserta didik membutuhkan HOTS. Penelitian ini bertujuan untuk menganalisis penerapan model *problem based learning* (PBL) dengan strategi *gallery walk* pada materi pemanasan global. Metode penelitian yang digunakan adalah *pre-experimental design* dengan teknik *purposive sampling*. Hasil penelitian menunjukkan bahwa nilai rata-rata observasi, yang meliputi aspek (1) kemampuan membuka pembelajaran, (2) penerapan kegiatan pembelajaran (3) kemampuan menutup pembelajaran dan (4) suasana kelas terlaksana dengan kategori sangat baik. Secara teoritis, penerapan PBL dengan strategi *gallery walk* pada materi pemanasan global dapat meningkatkan HOTS peserta didik.

Kata Kunci : *Problem based learning*, strategi *gallery walk*

INTRODUCTION

In 21st centuries, globalization had grown rapidly. It made Indonesia's economic growth increased significantly (Vares, Parvandi, Ghasemi, & Abdullahi, 2011; Ministry of Education and Culture, Strategic Plan Ministry of Education and Culture 2015-2019, 2015). Based on the Global Competitiveness Index (GCI) data, Indonesia's ranking increased significantly from 55 in the year 2009-2010 to 36th out of 137 countries in 2017-2018 (WEF, 2017). It showed the increasingly competitive workforce of the 21st century in Indonesia (Vares, Parvandi, Ghasemi, & Abdullahi, 2011; WEF, 2017). Therefore, individuals are expected to have more skills to survive.

The skills, that are needed in the 21st century, are "7Cs Skills". It consisted of (1) Critical Thinking and Problem Solving; (2) Creativity and Innovation; (3) Collaboration, teamwork, and leadership; (4) Cross-

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cultural Understanding; (5) Communication, Information, and Media Literacy; (6) Computing and ICT Literacy; and (7) Caree and Learning Self-reliance (Trilling, 2009). Students are expected to mastered these skills. Therefore, a learning skill is needed, Higher Order Thinking Skills (HOTS). HOTS is a learning skill which includes critical, logical, creative, reflective and metacognitive thinking whereas these could rise up when students encounter unusual conditions or phenomena that cause hesitancy on students (King, et al., 2012). In Bloom's taxonomy, HOTS includes the ability to analyze (C4), evaluate (C5), and create (C6) (Anderson, et al., 2001). Teacher as facilitator should provide the right teaching method (Santrock, 2014). One of method that also according to 2013 curriculum is Problem Based Learning (PBL) learning model.

PBL is a problem-based learning model that use authentic problems and product as the learning outcomes

(Arends, 2012). Syntax of PBL is (1) orientation to problem, (2) organize students to learn, (3) assist individual and/or group investigation, (4) develop and present the product and (5) revision and reflection (Arends, 2012). One important element in PBL is revisions and reflections (Mergendoller & Larmer, 2015; Allen & Larmer, 2013). This element allows to enhance the performance of participants students through the use of feedback from various sources, both student peer or teacher (Ridwan, 2015). PBL also can improve students' HOTS (Nisa, Khoirun S. & Wasis, 2018; Prasiwi, Yuhana & Suliyannah, 2018; Yuliana, Okta & Wasis, 2018).

Besides that, education at the high school level should be held on a regular basis interactive, fun, motivating students to participate active, and creativity (Kemendikbud, 2013: 1). To provide a different experience, fun, improve student participation and increase HOTS of students, this learning method is implemented using the gallery walk strategy. Gallery walk is a learning strategy that encourages participants of students to express opinions and ideas with poster as media (Bowman, Sharon L., 2005; Allen & Larmer, 2013). This strategy is also suitable for revision and reflection activities, which is one of the important elements in the model PBL. Gallery walk has some steps, those are (1) determine the topics, (2) devide into small groups, (3) discussion, (4) exhibition and (5) reflection.

Most research about this strategy was due to language. It was caused of this strategy was effective to conceptual topic (Chin, Khor, & Teh, 2015; Nurlaili, 2017). Therefore in this research, the chosen topic was global warming. It was autenthic concept that interdisiplinary with other subjects (Arends, 2012). Besides that, gallery walk was also able to (a) enhance motivation and participation (Megawati, 2016; Batubara, 2017; Ridwan, 2015; Chin, Khor, & Teh, 2015), (b) enhance student's HOTS (Francek, 2006; Rodenbaugh, 2015; Stanley & McKinney, 2016; Setyawati, Syafar, Majid, & Rachmawaty, 2017), (c) improve the communication ability of students (Setyawati, Syafar, Majid, & Rachmawaty, 2017; Pertiwi, Lestari, & Atmojo, 2018; Rodenbaugh, 2015), (d) students can express ideas or opinions in writing (e) give and / or receive feedback (f) reflect on the learning experience of students even for the level of education high (Andayani, 2011), and (g) improve student learning outcomes (Setyawati, Syafar, Majid, & Rachmawaty, 2017; Sari & Mintohari, 2014).

The aim of this research is to analyze the implementation of PBL with gallery walk strategy on global warming.

METHOD

This research was a quantitative descriptive research with pre-experimental design research method. This research used the pretest-posttest, non equivalent design. Using non-equivalent research design is based on sample selection choose by group / class (not taken randomly). This research used 3 classes, those were an experimental class and 2 classes as replication classes. Those classes was chosen using purposive sampling technique, that is based on learning outcomes previous. It held on 2nd semester of 2018/2019. More specifcly, the samples were XI Science 4 as experimental class, XI Science 5 as 1st replication class and XI Science 6 as 2nd replication class.

Tabel 1. Research Design

| Class | Pretest | Treatment | Posttest |
|---------------|----------------|-----------|----------------|
| Experiment | O ₁ | X | O ₂ |
| Replication 1 | O ₁ | X | O ₂ |
| Replication 2 | O ₁ | X | O ₂ |

(Sugiyono, 2011)

Annotation :

X = the treatment

(implementation of PBL with gallery walk strategy)

O₁ = pretest before treatment is given

O₂ = posttest after treatment is given

RESULTS AND DISCUSSION

The teaching implementation data was obtained from the observation sheet of the implementation of teaching filled by two observers, a physics teacher and a fellow student from Bachelor Degree of Physics Education. The observation sheet was used to find out the management class when learning activities happened. Management of the intended class included conditioning students, selecting activities in class, and suitability of the implementation with the steps of the activities in lesson plan that had been made. Observation results was analyzed by calculating the average value of all meeting. Treatment was implemented by giving 3 meetings.

Results of the implementation of PBL with gallery walk strategy could be seen in the following figure :

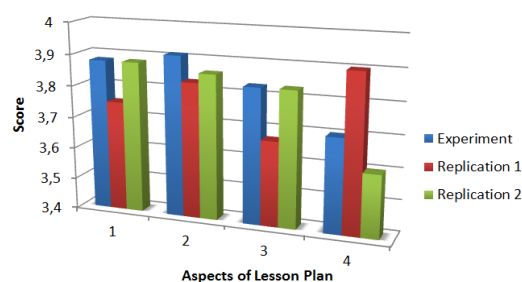


Figure 1. Results of implementation PBL with gallery walk strategy

Based on Figure 1, it was found that the mean score implementation of learning in the experimental class, replication 1 and replication 2 are 3.83, 3.79 and 3.79 respectively included in 'very good' category. Although the average score of teaching implementation in the experimental and replication classes decreased, but this difference was still relatively small. Therefore, both of score were still in the same category, which was very good. In observation sheet of teaching implementation there were 4 aspects observed, which include : (1) the ability to open lessons, (2) implementation learning steps, (3) ability to close learning, and (4) class atmosphere.

PBL has five learning syntax, namely : orientation on the problem; organizing students to learn; guide individual or group investigations; develop and present the work; and revision and reflection. In addition, in the *gallery walk* learning strategy has five steps which consist of determining the topic, division groups, discussions, exhibition activities, and reflection. Every phases and steps were done sequentially, so PBL with *gallery walk* strategy could be implemented well. The teaching activities of PBL with gallery walk strategy describes in the following table.

Table 2. The Lesson Activities of PBL with Gallery Walk Strategy

| Syntax | Activity | HOTS |
|--|---|----------------|
| Orientation to problem | <ul style="list-style-type: none"> • Aperception • Explain the learning objectives • Construct the student's knowledge | C4 |
| Organize students to study | <ul style="list-style-type: none"> • Explain the topic • GW 1 : Explain the topic of discussion | C4 |
| Assist individual or group investigation | <ul style="list-style-type: none"> • GW 2 : Devide into small groups • GW 3 : Discussion | C5 C6 |
| Develop and present the products | <ul style="list-style-type: none"> • GW 4 : Held exhibition • GW 5 : Reflection (results of exhibition) | C4 C5 C6 |
| Revision and Reflection | <ul style="list-style-type: none"> • GW 5 : Reflection (results of revision) | C4 C5 |

Indicators of HOTS ware implemented in every phases. In first and second phases, students learned analysis skill (C4). The third phase, students learned evaluate (C5) and create (C6) skills. In fourth phase, students learned all indicators of HOTS, consist of analysis (C4), evaluate (C5) and create (C6). In fifth phase, students learned analysis (C4) and evaluate (C6).

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Based on the overall learning activities that had been done, the teacher was able to implement the steps which has been planned in the lesson plan. Assessment given to the teacher is very good, because teacher was able to manage and carry out activities learning in accordance with the lesson plan. Theoretically, if the teaching activities is going well, the implementation of PBL with gallery walk strategy will able to enhance student's HOTS.

CONCLUSION

Based on the result of reseach, analysis and discussion that had been done, it is concluded that the implementation of problem based learning with gallery walk strategy was implemented very well. Theoretically, it is effective to enhance student's HOTS on global warming topic.

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