EXO-OLO Task Learning Model: Improving Learning Activities and Student’s Collaboration In Geography Learning Based On Lesson Study

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Abstract. Aims of this paper was to find out the improvement of learning activities and collaboration in geography learning in the “dynamics of the atmosphere and its effects on life” topic through the application of EXO-OLO Task learning model. This learning model was developed in the author's dissertation research and based on cognitive and constructivist learning theory. It is also included in collaborative learning model. The type of the research is quasi experimental research. The populations of the study are students of grade tenth of Universitas Negeri Padang Laboratory High School. The experimental class and the control class were selected by simple random sampling techniques. The treatment in the experimental class (XA) is using the EXO-OLO Task learning model, while in the control class (XB) using the common method which is used by teachers. The data is collected by using observation sheet of student's learning and collaborative activities as well as student's daily test (UH). The observation sheet has been validated by the experts. The data analysis of student's learning and collaborative activities uses descriptive technique. In addition, the ‘t’ test is used to get to know the differences of learning outcomes between experiment class and control class. The result shows that there is an improvement in the quality of learning activities and student’s collaboration using the EXO-OLO Task learning model. This is proved by the increasing of the number of students who got three in learning activities and collaboration after four meetings. The quality of student’s learning activities increases as expected. The "t" test results show the differences between experimental class and control class learning outcomes proved by significance values. Based on the results of this study, the authors propose the teachers to use EXO-OLO Task learning model in geography learning to improve learning activities and collaboration.

1. Introduction
Collaborative learning is an aspect in the changing of educational patterns in the 21st century model school and the core of school reformation. Manabu Sato (2012) said it with the term “silent revolution” or “classroom peaceful revolution” which is marked with the management of student’s learning activities in the form of pairs and groups [1]. It is explained in the perspective of collaborative learning and psychology that the individual learning activities conducted by students is only related to practice and memorization. The case is that learning is a meeting and a dialogue between students and the new
world; composing meanings and relationships in the dialogue between objects, others and themselves. Collaborative learning can help students to work as a team to achieve common goals or missions [2].

In collaborative, learning is the student’s right and the teacher is under obligation to create the learning rights of each student [1]. Learning can be defined as a process where an organization changes it’s behavior as the result of experience [3]. Student’s learning experience can be created from the learning activities during studies. Vygotsky states that cognitive development as one indicator of learning outcomes can occur because of social interactions rather than individual exploration of the environment [4]. The higher the activity of dialogue and interaction in learning will improve the quality of learning [1].

EXO-OLO Task is a learning model which is developed on the basis of cognitive learning theory and constructivist as well as local wisdom’s values of the Minangkabau society: duduak surang basampik-sampik, duduak basamo balapang-lapang. The meaning is that a work becomes easier if we do it together rather than alone. The focus point in learning syntax of the EXO-OLO TASK learning model is the management of student learning activities in the context of collaborative learning. Learning activities consist of individual activities, paired activities, and group activities [5]. Management of learning activities in the form of activities in pairs and groups will have a better impact on the quality of learning [1]. Fawcett & Garton (2005) in his research proved that collaborative learning can improve student’s marks in learning [4]. Collaborative learning is also proved can increase the ability to think and processing information rather than self-study [6]. Furthermore, Laal, Geranpaye & Daemi (2013) explain that collaborative learning is able to encourage individual accountability. Laal (2013) also proved that collaborative learning can create positive interdependence among fellow students [7]. Ghokale (1995) proves that the students who learning collaboratively have higher thinking skills better than self-study students [8]. This condition is match with the opinion of Vygotsky (1978) which states that students are able to show high-level thinking skill when learning collaboratively.

This paper is written to get a new data on the impact of EXO-OLO Task learning model implementation towards student’s collaboration in Geography learning. Student’s collaboration in learning is observed through three forms of student learning activities: 1) individual activity as a basic or warming stage which aims as a learning ladder-step, 2) paired activity and 3) group activity (consists of 4 heterogeneous students per group).

2. Review of Related Literature

2.1. EXO-OLO TASK Learning Model
EXO OLO Task learning model is developed based on the theory of cognitive learning and social constructivism and the values of local wisdom of the Minangkabau society is "duduak surang basampik-sampik, duduak basamo balapang-lapang" which means that if a work is done alone will be heavy. However, if it’s done together then even a difficult work will be easier. According to Nofrion (2017), EXO-OLO TASK learning model is characterized by four main pillars, that is:

2.1.1. Effective learning activities. Learning activities in this learning model is divided into three that is the individual activity, paired activity and group/collaborative activity. Individual activity aims to ensure student’s readiness to learn by using the "keyword" technique. The teacher will display the key words of learning materials and then individually asks the students to make connections between the keywords that have been presented. Then, paired activity has a purpose to build togetherness with others so that there is a positive interdependence between them. Meanwhile, group activity aims to create interaction, mutual care, and mutual help and encourage each other. In addition, this activity also aims to growing social skills such as trusting others, accepting and supporting others, solving common problems and reflecting the process and the results of teamwork.
2.1.2. *Multilevel Questions or Tasks.* It consists of questions or tasks that match the demands of the curriculum or the level of questions in examination. This question or task is called the Examination-Oriented Task or EXO Task. Then, it also consists of questions or tasks that exceed the demands of the curriculum or above the level of examination’s questions at school. It can also be referred as the Olympic standards. The question or task of this category is called Olympiad-Oriented Task or OLO Task.

2.1.3. *Collaboration.* Teacher and students develop a positive interdependence together in implementing this learning model (respect the others’ existence or realize that we cannot solve a problem alone). In addition, they also develop dialogue and interaction, encourage and support each other, trust and doing a reflection together on what has been done during the lesson.

2.1.4. *Continuous development of teacher’s competence.* In each lesson, the teacher should prepare two different questions’ categories at different levels. A teacher must design the questions, make the discussion about the problem, the teaching materials, and design the learning media and observation sheet of learning and assessment before presenting it in front of the class. All of these teacher’s activities if done continuously will be able to improve the teacher’s competence, especially professional and pedagogic competence.

2.1.5. *Collaborative Learning.* Collaboration is one of the elements in the global learning framework that in Indonesia’s curriculum is called 4K; they are 1) Critical Thinking and Problem Solving Skills, 2) Communication Skills, 3) Creativity and Innovation and 4) Collaboration [9]. Besides, collaborative learning is an important aspect in changing educational patterns in various developed countries today and is one of the important factors that determine the quality of learning. This change is called the “silent revolution” or "classroom peaceful revolution". According to Sato (2012), collaborative learning is based on four rationalities, that is: 1) collaborative learning is the essence of learning, 2) collaborative learning embodies student's learning rights, 3) collaborative learning improves student’s low academic skill, 4) collaborative learning ensures students with higher academic ability to be better [10].

To understand the meaning of collaborative learning, the following citations are several opinions from the experts [11][7]:

1) Collaborative learning is a learning approach involving students in groups to solve a problem, complete a task or make a product.

2) Collaborative learning is a canopy of various types of learning approaches involving the intellectual efforts of students, students and teachers together.

3) Collaborative learning is a natural social action in which students talk to each other and communicate between them in solving a problem.

Collaborative learning is not just a bunch of students working together in a group. Collaborative learning is characterized by five things:

1) Positive interdependence. Group members feel connected to each other where they succeed or drown together.

2) High interaction between students in learning. They share their knowledge and clarify what they understand and share with others.

3) Individual accountability. Every individual has the responsibility to do the best for the group.

4) Social skills. Each member of the group must learn the social skills needed for collaboration and implement it to achieve common goals. The form of the social skills is knowing and trusting each other, side by side accepting and supporting each other and solving problems.

5) Reflection. Each member of the group reflects which actions need to be proceed and which one has to stop.
In collaborative learning, students are trained to work together so that by this habit they can solve a problem or do a task even though by themselves [6][11].

2.2. Geography Learning
Geography Learning is part of Geography. It is known in another term as 'geography as a science, geography as education or learning and geography as an attitude'. It is explained in Geography for Life: National Geography Standards, 2nd Edition (2012) that the goal of geography learning is "to equip students with the knowledge, skills, and perspectives to 'do' geography". Geography Education has three main pillars, that is; 1) learning materials, 2) geography basic skills, 3) perspectives [12].

Based on Permendikbud No. 22 on the Standard Process of Basic and Intermediate Education, it is explained that the learning process in the education unit is held interactively, inspirative, fun, and challenging [13]. It motivates the students to actively participate and provide enough space for initiative, creativity, and independence according to the talent, interests, and physical and psychological development of learners.

EXO-OLO TASK learning model is in line with the pillars of geography learning that is on the aspects of perspective where the students should consider the conditions around in carrying out learning activities. This model also refers to the standard of learning process of Curriculum 2013 where students are given the challenging questions or tasks that encourage students to collaborate. Giving the questions or tasks is done in multilevel.

3. Research Methodology
This type of research is a quasi-experimental. The design that is used is post-test control group design. The population of this research is the students of grade 10th Universitas Negeri Padang Laboratory High School which is 210 students. This school was chosen as the school representative located in the city center. Whereas in schools located on the suburbs was discussed in another article but the results were confirmed in the discussion of the article. Class samples are selected by random. The class which is selected as the experimental class is class XA while the control class is class XB. The data collection techniques are test techniques, observation and documentation. The data related to the development of student’s collaboration is obtained through learning observation sheet which has validated by the validator, then presented as percentage analysis. In addition, the data about the learning outcomes are obtained from the student’s daily test marks (UH). Before performing the hypothesis test, the analysis requirements test that is the normality and reliability test should be done first. After that, a ‘t’ test is performed to determine whether there is a difference in learning outcomes between the experimental class and the control class.

4. Result and Discussion
The research was conducted at State University of Padang Laboratory High School. The implementation of learning model was held in four meetings that are on March 8th and 29th 2017 and April 5th and 19th 2017. Mrs. Nopriyani acts as a model teacher and there are four observer. The learning material that is taught is the Dynamics of Atmosphere and its impact on life.

4.1. Development of Learning and Collaborative Activities
The effective and efficient learning activity is one of the pillars of EXO-OLO Task learning model. These learning activities consist of individual activities, paired activities and group activities. The researchers divide it into basic learning activities and advanced learning activities to get the level of learning activity. To assess the development of student learning activities in learning, the learning observation sheet’s instrument is designed as listed in the following table;
Table 1. Rubric of Basic and Advanced Activity Evaluation

| DIMENSION | VERY GOOD | GOOD | QUITE GOOD |
|-----------|-----------|------|------------|
| Scale     | 3         | 2    | 1          |
| Individual Activity: | | | |
| **A. Basic Activity:** | | | |
| 1. Observing | Showing the basic and advanced learning activity consistently and enthusiastically. | | |
| 2. Questioning | Showing the basic learning activity consistently and enthusiastically. | | |
| 3. Collecting Information | Or | |
| **B. Advanced Activity:** | | |
| 4. Associating | Showing the advanced learning activity but less consistently and enthusiastically. | | |
| 5. Communicating | Or | |
| 6. Discussion | Showing the basic learning activity but less consistently and enthusiastically. | | |

Source: Rubric of Learning Activities Evaluation (Nofrion, 2017)

The results of research shows:

4.2. Development of Individual Activity

The development of student’s individual activity is illustrated in the following chart;

**Picture 1. Development of Student’s Individual Activities**

The application of EXO-OLO Task Learning Model in geography learning is proven can increase the number of students who indicates the individual activity with a value of 3 and decrease the number of students who have individual activities with value of 1. Individual activity with a value of 3 means the students show the basic and advanced individual activities consistently and enthusiastically. In addition, the individual activities with a value of 1 means the students show only basic learning activities (observing, questioning, and collecting information). However, students are less consistent and enthusiastic. The number of students who got 3 on individual activity rises from 1 student at the first meeting to 11 students at the fourth meeting. On the other hand, students who got 1 on the individual activity are reduced from 20 students at the first meeting to 9 students at the fourth meeting.

Individual activities aim to ensure that students are fully prepared to continue the learning at the next level. Individual activities also aims to find out how much is the learning preparation of the students as well as to know which students have studied the previous material and which students haven’t.
4.3. Development of Paired Activities
The development of student’s paired activity is illustrated in the following chart;

**Picture 2. The Development of Paired Learning Activities**

![Graph showing paired activity development](image)

Source: Research Data Tabulation (Nofrion, 2017)

The learning observation’s result proves that the implementation of EXO-OLO Task learning model can increase the number of students who have paired activities with the value of 3 and decrease the number of students who have paired activity with value of 1. The number of students who got the value of 3 in paired activity at the fourth meeting is 8 students, while the number of students who got 1 in paired activity decreased from 14 to 7 students. Paired activity aims to develop individual accountability, dialogue and positive interdependence.

4.4. Development of Group Activity
The development of group activities in geography learning with the application of EXO-OLO Task learning model can be seen in the following chart;

**Picture 3. Development of Group Activity**

![Graph showing group activity development](image)

Source: Research Data Tabulation (Nofrion, 2017)
The chart above shows that there is an improvement in the number of students who got 3 in group activity after four lessons. On the other hand, there was a reduction in the number of students who got 1 in group activity in four lessons. In the fourth lesson, the number of students who got 3 is 13 students while the students who got 1 is 4 students left. Group activity becomes the basis for seeing student’s collaboration in learning.

### 4.5. Development of collaborative activities

To get the data of collaborative activities development among students in applying of EXO-OLO Task learning model hence, the researcher makes an assessment rubric of collaborative activity as seen in following table:

| DIMENSION               | VERY GOOD | GOOD   | QUITE GOOD                      |
|-------------------------|-----------|--------|---------------------------------|
| Scale                   | 3         | 2      | 1                               |
| 1. Collaborative Activity | Shows at least three collaborative activities | Shows at least two collaborative activities | Only shows one collaborative activity |
| a. Positive interdependence |          |        |                                 |
| b. Great promotive interaction |          |        |                                 |
| c. Individual responsibility to achieve common goal |          |        |                                 |
| d. Social skill (encourage, trusting, and support each other) |          |        |                                 |
| e. A frequent and regular group process |          |        |                                 |
| f. Reflection             |          |        |                                 |

Source: Modified from Johnson (1994) in Laal (2013)

The results show the data as shown in the following chart:

![The Development of Collaborative Activities](image)

Source: Research Data Tabulation (Nofrion, 2017)

From the chart above can be seen that the number of students who have collaborative activity with value of 3 increased from the first meeting until the fourth meeting. The number of students increased from 3 students at the first meeting to 15 students at the fourth meeting. This means that the implementation of EXO-OLO Task learning model in geography learning can increase the number of
students showing at least three of the six collaborative activities. Otherwise, the number of students who show only one of six collaborative activities in learning decreased from 22 students at the first meeting, to 7 at the fourth meeting. The five collaborative activities observed in this research are; 1) Positive interdependence, 2) Great promotive interaction, 3) Individual responsibility for achieving common goals, 4) Social skills (encourage, trusting and support each other and 5) frequent and regular group process and 6) reflection.

4.6. The Learning Outcomes of Experiments and Control Classes
To see the impact and effectiveness of learning using the EXO-OLO Task learning model, then the research is hypothetically tested by using the "t" test. The steps that should be done are:

4.6.1. Normality Test

| Normal Parameters | N | Mean | Std. Deviation |
|-------------------|---|------|---------------|
|                   | 31| 84.12| 5.090         |
|                   | 31| 71.94| 5.243         |

Table 3. Normality test result

Based on the normality test using One-Sample Kolmogorov-Smirnov, it is obtained sig. 0.630 and 0.661 or greater than α = 0.05. That is, the data is normally distributed.

4.6.2. Homogeneity Test

| Test of Homogeneity of Variances |
|----------------------------------|
| Learning Outcomes               |
| Levene Statistic                |
| df1 | df2 | Sig. |
| .020 | 1  | 60  | .887 |

Table 4. Homogeneity test result

Based on homogeneity test, variant of value in experiment and control class is obtained by value of sig. 0.887. The value is bigger than α = 0.05. That is, the data has a homogeneous variant. Because of the data is normally distributed and has a homogeneous variation, hypothesis testing is done by statistical test of parametric Independent - Sample t Test.
4.6.3. Hypothesis Testing

Table 5. Hypothesis test result

| Learning outcomes          | t-test for Equality of Means |
|---------------------------|-----------------------------|
| Equal variances assumed   | 9.281                       |
| df                        | 60                          |
| Sig. (2-tailed)           | .000                        |
| Equal variances not assumed| 9.281                       |
| df                        | 59.948                      |
| Sig. (2-tailed)           | .000                        |

Source: Research Data Tabulation (Nofrion, 2017)

Based on the results of statistical tests parametric Independent Sample t Test, it is obtained t count value of 0.9281 with degrees of freedom (df) of 60 and the value of sig (2-tailed) of 0.000. Level of significance $\alpha = 0.05$ then it can be seen the value of significance is smaller than $\alpha$. That is, there are differences in classroom learning outcomes using the EXO-OLO Task Learning Model with classes that do not use the EXO-OLO Task Learning Model.

A description of student’s learning outcomes is illustrated in the following table;

Table 6. Student’s Learning Outcomes

| No. | Class     | Highest Mark | Lowest Mark | Average |
|-----|-----------|--------------|-------------|---------|
| 1   | Experiment| 93.3         | 75.5        | 84.1    |
| 2   | Control   | 80           | 62.2        | 71.9    |

Source: Research Data Tabulation (Nofrion, 2017)

The results of this research prove that the application of EXO-OLO Task Learning Model on Geography learning can improve:
1) Quality of student’s learning activities, whether individual, paired, or group activities.
2) Student’s collaborative activities.
3) Student’s learning outcomes in geography learning.

The results of this research are relevant to the results of the research in Batang Anai Senior High School One [14]. It means, from two schools which were located in different regions the implementation of the EXO OLO TASK learning model is equally able to improve learning and collaboration activities. In addition, the applications of this learning model specifically is also able to increase further learning activities [15] in analyzing, communicating, discussing, dialogue and collaboration [16].

5. Conclusions

The implementation of EXO-OLO Task learning model in geography learning based on Lesson Study is proven can increase learning activities and student’s collaboration in Geography learning. Student’s collaboration improvement is based on the increasing of student’s learning activities quality whether in individual, paired, or group activities. In addition, the implementation of the EXO-OLO Task learning model has a positive impact on student learning outcomes. This is proved by the achievement of learning outcomes by students in the experimental class is higher than the control class.
References

[1] Sato, Manabu. 2012. *Mereformasi Sekolah*. Jakarta. PELITA/JICA.

[2] Keser, Hafize & Ozdamli, Fezile. 2012. *What are the trends in collaborative studies in 21st century?*. Procedia – Social and Behavioral Sciences, 46, 157-161.

[3] Dahur, Wilis, Ratna. 2011. *Teori-teori Belajar dan Pembelajaran*. Jakarta. Penerbit Erlangga.

[4] Upton, Penney. 2012. *Psikologi Perkembangan*. Jakarta. Penerbit Erlangga.

[5] Nofrion. 2017a. Buku 1: *Pedoman Pelaksanaan Model Pembelajaran EXO OLO TASK pada Pembelajaran Geografi*. 

[6] Johnson W, D., Johnson T. Roger & Holubec. 2010. *Collaborative Learning (Strategi Pembelajaran untuk Sukses Bersama)*. Penerbit Nusa Media. Bandung.

[7] Laal, Marjan, Geranpaye, Loabat, Daemi Mahrokh. 2013. *Individual Accountability in Collaborative Learning*. 3rd World Conference on Learning, Teaching and Educational Leadership (WCLTA-2012). Procedia – Social and Behavioral Sciences 93, 286-289.

[8] Gokhale, A. Anuradha. 1995. *Collaborative Learning Enhances Critical Thinking*. Journal of Technology Education 7, 1

[9] Badan Standar Nasional Pendidikan. 2010. *Paradigma Pendidikan Nasional Abad-21*. Jakarta:BSNP.

[10] Sato, Masaaki. 2012. *Dialog dan Kolaborasi di Sekolah Menengah Pertama. Praktek “Learning Community”*. Jakarta. PELITA/JICA.

[11] Laal, Marjan. 2013. *Collaborative Learning Elements*. 2nd World Conference on Educational Technology Research. Procedia – Social and Behavioral Sciences 83, 814-818.

[12] PARJITO. 2015. *Visi Pendidikan Geografi di Abad 21*. Prosiding Seminar Nasional 2015. Hal. 249-251. ISBN:978-602-71506-3-8.

[13] Permendikbud RI Nomor 22 tahun 2016 tentang Standar Proses Pembelajaran Sekolah Menengah.

[14] N Nofrion et al. 2018. *IOP Conf. Ser.: Earth Environ. Sci.145 012038*

[15] Nofrion, N; Wijayanto, Bayu. Learning Activities In Higher Order Thinking Skill (HOTS) Oriented Learning Context. *Geosfera Indonesia*, [S.l.], v. 3, n. 2, p. 122-130, aug. 2018. ISSN 2614-8528

[16] Nofrion, N. (2018, October 14). Panduan Pelaksanaan Model Pembelajaran EXO OLO TASK (Mengembangkan Keterampilan Berpikir Tingkat Tinggi (HOTS) Dalam Pembelajaran). https://doi.org/10.31227/osf.io/wh2mp