EXO OLO TASK: The Development of Higher Order Thinking Skills through Learning Activities Management in Geography Learning

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Abstract. This article was written to explain the suitability between the scores of advance learning activities achieved by students with the "gain score" from the results of the pre-test and post-test of HOTS questions. Advance learning activities include, 1) analyzing, 2) communicating/ dialogue, 3) discussing/ collaborating. Whereas HOTS question is a question that testing students' creativity and strategy in solving problems and is at the level of C4 (analyzing), C5 (evaluating) and C6 (Creating). EXO OLO TASK Learning Model was applied in this quasi-experimental research for four meetings in class X IS 1. The model was practiced by a model teacher and learning activity data was collected by six observers. The suitability was obtained by percentage analysis and strengthened by correlation test with the help of SPSS version 20. The results showed that, 1) during learning, all students showed consistent basic learning activities; 2) most students had a "gain score" in the medium category. While 24.13% of students were able to reach high categories and only 6.89% of students with low gain scores, 3) 65.51% of students had scores of learning activities that match the "gain score" and 34.48% did not. The implementation of this model has only been applied in one class and one school so that it is necessary to implement it in broader classes and schools.

1. Introduction
Geography subjects have four main objectives in the 2013 curriculum, that is to equip students with the ability, 1) to understand environmental and territorial patterns, as well as processes related to geographic symptoms in the national and global context, 2) to master basic skills in obtaining data and information, applying geography knowledge in daily life, and communicating it for the benefit of the progression of the Indonesian nation, 3) to show care for the environment and using natural resources wisely and tolerating the diversity of the nation's culture, 4) to show patriotism, pride as Indonesian nation, and responsible for the integrity of Republic of Indonesia based on Pancasila and UUD 1945.

Whether the objectives of Geography learning are achieved or not is largely determined by the implementation of classroom learning. In the 2013 curriculum, learning must apply 14 principles including interesting and challenging learning [1], effective practice [2], and optimizing the three main learning energies, namely teacher, student and learning sources/ environment [3]. In addition, with the introduction of international assessment standards in the Indonesia curriculum, the assessment of learning outcomes must refer to higher-order thinking skills. For that reason, the questions given during learning must be activity-based. Not only is it difficult, but the questions can trigger students to think creatively, encourage them to implement various strategies and evaluate these strategies when working on questions and trigger collaboration among students.

In connection with this, one effort that can be done is to manage student learning activities. According to Nofrion [4], learning activities that must be managed in learning to develop higher-order thinking skills are advance learning activities namely, 1) analyzing, 2) communicating/ dialogue, 3) discussing / collaborating. If viewed from the questions given, the question must be at the C4-C6 level, which is analyzing, evaluating and creating [4].
However, the practice of Geography learning in the field has not been as expected. The results of Nofrion’s research [5] revealed that Geography learning was still wrapped around four classic problems, that is, 1) the teacher still dominates learning/ teacher-centered, 2) the questions given to students are still dominant questions of LOTS and MOTS level, 3) student learning activities have not effectively managed and 4) low collaboration among students. If this condition is left out, students’ higher-order thinking skills are difficult to develop and learning objectives will be threatened.

Actually, there are many ways that have been done by both teachers and other education experts to develop higher-order thinking skills in learning. Among them through the application of various learning models such as inquiry learning models where students work scientifically and improving class performance [6]. Then, by giving assignments that require interpretation, analysis and manipulation to solve problems, especially in the social sciences [7]. Interactive learning is one of step to foster higher-level thinking skills of students. This is in line with the thought in his work "Mind and Society" which explains that interaction in learning will support HOTS of the students [8]. Then, Brookhart [9] states that giving questions that involve students in depth will make students feel responsible and use intellectual and their best ability to think during learning.

However, the application of the learning models and methods above is not yet in Geography learning. Therefore, in this article, the results of research are presented on the development of higher-order thinking skills in Geography learning, especially on atmospheric dynamics material by applying EXO OLO TASK Learning Model which is the development of Active Learning Models and Collaborative Learning Models.

In accordance with the article title, the focus of this research is the development of high-order thinking skills of students through the management of learning activities by applying the EXO OLO Learning Model. This learning model has four learning steps or syntax that is, 1) concept strengthening, 2) LOTS and MOTS/ EXO TASK questions, 3) HOTS/ OLO TASK questions, 4) reflection. In the step of concept strengthening, students work individually. Then, at the learning step of EXO TASK, students work in pairs. After that, at the OLO TASK learning step, students work in groups. During learning activities take place, teachers and learning observers observe the development of student learning activities both basic learning activity and advance learning activity [4]. While the basic learning activity consists of, 1) observing, 2) asking/ trying, 3) applying/ collecting and advance learning activities consists of, 1) analyzing, 2) communicating/ dialogue, 3) discussing/ collaborating [5].

2. Methods

This type of research is a quasi-experimental research with the design that is used is One Group Pre-Test - Post-Test Design. The researcher randomly selected one class as the experimental class, which is the X IS 1 class in UNP Laboratory High School. The number of research subjects was 29 students.

Moreover, learning in the experimental class was carried out by applying the EXO OLO TASK Learning Model. Before the experiment was carried out, students were given a pre-test and after the experiment, a post-test was conducted. In accordance with the scope of the material on the Basic Competencies of Atmospheric Dynamics and its effects in life, the treatment was given for four meetings, which are March 27th, April 3rd, April 17th, and April 24th, 2018. The modeling was practiced by a model teacher involving six learning observers. The research data was collected with observation sheets of learning activities and the tests of student learning outcomes, that is pre-test and post-test.

Basic Learning Activity and Advanced Learning Activity Observation Sheet in the Implementation of EXO - OLO TASK Learning Model

| No | Students' Name | Aktivitas Belajar Dasar* | Aktivitas Belajar Lanjut** |
|----|----------------|-------------------------|---------------------------|
|    |                |                         |                           |

Class : …………………  Day : …………………
Model Teacher : …………………  Date : …………………
Observer : …………………  Meeting : …………………
Learning observer and teachers are guided by score rubric to assess the development of student learning activities both basic learning activity and advance learning activity. Table 1 shows that Basic and Advanced Activity Assessment Rubric, the score rubric is as follows;

| DIMENSION          | VERY GOOD | GOOD | NOT GOOD |
|--------------------|-----------|------|----------|
| Scale              | 3         | 2    | 1        |
| Learning Activity  |           |      |          |
| A. Basic Activity; |           |      |          |
| 1. Observing       | Showing   | Showing basic learning activities but less consistent | Showing a maximum of two basic learning activities |
| 2. Asking/trying   | consistent basic learning activity | | |
| 3. Applying/Collecting |           |      |          |
| B. Advance Activity; |           |      |          |
| 1. Analyzing       | Showing   | Showing advance learning activity but less consistent | Showing only one advance learning activity |
| 2. Communicating/Dialogue |       |      |          |
| 3. Discussing/Collaborating |       |      |          |

**Source:** Learning Activity Assessment Rubric [10]

After that, the "Gain Score" between the pre-test and the post-test was calculated then classified as follows;

| N-Gain Score | Interpretation |
|--------------|----------------|
| N-Gain > 0.70 | High           |
| 0.30 ≤ N-Gain ≤ 0.70 | Medium       |
| N-Gain < 0.30 | Low            |

**Source:** Normalized N-Gain Classification [11]

Table 2 shows that normalized n-gain classification. Then, based on the average score of advanced learning activity, Table 3 shows that the classification of advanced learning activity is also determined as follows;
Table 3. Classification of Learning Activities

| No | Interval | Criteria |
|----|----------|----------|
| 1  | < 1      | Low      |
| 2  | 1 – 2    | Medium   |
| 3  | > 2      | High     |

Source: Classification of Learning Activities [12]

After that, Table 4 shows that Suitability between Advanced Learning Activity Score and "Gain Score" suitability between the score of advanced learning activity with the students’ "n gain" is searched with information;

Table 4. Suitability between Advanced Learning Activity Score and "Gain Score"

| No | ABL Score | "n Gain" | Information | Follow-up |
|----|-----------|----------|-------------|-----------|
| 1  | Low       | Low      | Suitable    |           |
| 2  | Low       | High     | Unsuitable  | Followed up |
| 3  | High      | High     | Suitable    |           |
| 4  | High      | Low      | Unsuitable  | Followed up |

Source: Advanced Learning Activity Score and "Gain Score" [12]

Afterward, the data was analyzed by percentage techniques to see the tendency of research data. Correlation test using the SPSS application was conducted to determine the significance of the correlation.

3. Results and Discussion

EXO OLO TASK Learning Model is applied for four meetings in Geography subjects. This learning model was chosen because it is an activity-based learning model to develop students' higher-order thinking skills. The main characteristics of this learning model are 1) HOTS questions, 2) management of basic and advance learning activity, 3) Reflection.

3.1 Development of student learning activities’ scores

The data of student learning activities were collected by observers and model teacher using observation sheets. Table 5 shows Basic Learning Activity Scores;

Table 5. Basic Learning Activity Scores

| No | Interval | Total | %   | Information |
|----|----------|-------|-----|-------------|
| 1  | < 1      | 0     | 0   | Showing maximum of two basic learning activities |
| 2  | 1 – 2    | 0     | 0   | Showing basic learning activity but less consistent |
| 3  | > 2      | 29    | 100 | Showing consistent basic learning activity |

The table above informs that all students score > 2, which means that in learning, student shows basic learning activity consistently. Table 6 shows Advance Learning Activity Score. The tendency for advance learning activity is;

Table 6. Advance Learning Activity Score

| No | Interval | Total | %     | Information |
|----|----------|-------|-------|-------------|
| 1  | < 1      | 0     | 0     | Showing only one advance learning activity |
| 2  | 1 – 2    | 5     | 17.24 | Showing advance learning activity but less consistent |
| 3  | > 2      | 24    | 82.75 | Showing advance learning activity consistently |
The table above shows that most students are very enthusiastic in working on questions, proven with a score of advanced learning activity with a score of 3 achieved by 24 students or 82.75%.

### 3.2 The value of "gain score" between the pre-test and the post-test

After calculating the value of "gain score" between the pre-test and post-test scores on the HOTS question, the result is:

| No | N-Gain value | Interpretation | Total | %   |
|----|--------------|----------------|-------|-----|
| 1  | N-Gain > 0.70 | High           | 7     | 24.13 |
| 2  | 0.30 ≤ N-Gain ≤ 0.70 | Medium       | 20    | 68.96 |
| 3  | N-Gain < 0.30 | Low            | 2     | 6.89 |

Table 7 shows that most students have a "gain score" in the medium category, while 24.13% of students were able to reach high category and only 6.89% of students with low gain scores.

### 3.3 Suitability between learning activity score with "gain score" which is analyzed by percentage technique

| No | N-Gain Value | Total | %   |
|----|--------------|-------|-----|
| 1  | Suitable     | 19    | 65.51 |
| 2  | Unsuitable   | 10    | 34.48 |

Table 8 provides information that 65.51% of students have a learning activity score that suitable with the "gain score". Category ‘suitable’ means students have the same score between "gain score" and learning activity score. For example, student A, the score of learning activity is low so the post test scores of HOTS question is also low and vice versa. It's just that this research has limitations in managing students who need more attention.

### 3.4 Correlation between learning activity score with "gain score" which was analyzed by correlation test using SPSS version 20 application

After doing a simple analysis of the suitability between the "gain score" and the score of learning activities using the percentage technique, a correlation test is conducted to study the way. The test result is as follows:

| ABL_SMAB   | N_Gain_SMAB |
|-----------|-------------|
| ABL_SMAB  | Pearson Correlation | 1 | .185 |
|           | Sig. (2-tailed)    |   | .338 |
|           | N                | 29 | 29 |
| N_Gain_SMAB | Pearson Correlation | .185 | 1 |
|           | Sig. (2-tailed)    |   | .338 |
|           | N                | 29 | 29 |

From the Table 9, it is known that between ABL and N-Gain the significance value is 0.338> 0.05, which means there is no significant correlation. However, the results of manual analysis with percentage
techniques can be used as a basis for improvement (assessments as a learning) for all Geography teachers.

Based on the results of research data processing which is described above, it can be seen that in general, by applying EXO OLO TASK learning model on Geography learning of Atmospheric Dynamics material, students have shown consistent basic learning activity which means that students average score in four meetings is 3. While for advance learning activity, most students get a score of 3 which means showing advance learning activity consistently. The results also show that 19 students have suitable learning activity score and "gain score" and 10 students have unsuitable learning activity scores and "gain score".

With the implementation of the EXO OLO TASK learning model that prioritizes the management of learning activity and HOTS questions, it is proven to develop students' higher-order thinking skills. This is definitely relevant to the policy of 4K learning implementation in the 2013 Curriculum, namely, 1) Kecakapan berfikir kritis dan pemecahan masalah (Critical Thinking), 2) Kecakapan berkomunikasi (Communication Skills), 3) Kreativitas dan Inovasi (Creativity and Innovation), 4) Kolaborasi (Collaboration). Brookhart [8] in his book "How to Assess Higher Order Thinking Skills in Your Classroom" states that there are five categories of higher-order thinking skills/ HOTS namely, 1) Analysis, Evaluation and Creating. All three are the top levels in the cognitive/knowledge domain [13], 2) logical reasoning, 3) judgment and critical thinking, 4) problem solving and creative thinking. To ensure this higher-order thinking skill develops in learning, it is very much determined by the carefulness of the learning observer in monitoring and giving a score on student learning activities.

4. Conclusion

The application of EXO OLO TASK learning model on Geography learning material Atmospheric Dynamics and its effects on life can develop higher-order thinking skills for students. This learning model prioritizes the effectiveness of learning activity management both basic learning activity and advance learning activity as well as testing HOTS questions for students. This is proven by the suitability of the learning activity score with the students' "gain score" between the pre-test and the post-test. Although the correlation test did not prove a significant correlation but the results of the percentage analysis proved that most students have suitability between the score of learning activities with different scores between the pre-test and post-test.

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