

# The Use of Monopoly-Like Game (MLG) to Promote Qualified Scores for Three Student Competencies

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## The Use of Monopoly-Like Game (MLG) to Promote Qualified Scores for Three Student Competencies

### ABSTRACT

Learning ideally should accommodate to not only improve cognitive competencies, but also social and psychomotor as well. In fact, many practices are still lack of aforementioned concern, learning about thermal energy and its flow for instance. It focuses mainly on cognitive scores which indicate whether students can pass the exam or not. Hence, this research was aimed at describing the use of MLG to promote qualified scores for competencies students have to achieve based on curriculum 2013, namely, social attitude, psychomotor and cognitive competencies altogether. In doing so, one shoot case study design was employed and involved 15 students of grade 7<sup>th</sup>. Research results showed that students gained scores for those competencies. Each of which were 3.50 – 3.85, 3.60 – 4.00, and 3.60 – 3.80 respectively. In such, it indicated that the game was successfully promoting qualified scores for student competencies.

**Keywords:** *Monopoly-like game, student competencies, and science learning.*

### INTRODUCTION

Curriculum 2013 has mandated that science learning must develop knowledge and positive behaviors at the same time. The indicators for those encompass three different competencies, namely, attitude, cognitive, and psychomotor. Attitude brings about internalized characters built step by step throughout the learning process. Honesty, creativity, and feeling to be capable of are the example that can evolve using contextualized activities in the classroom (Khusniati, 2012). Machin (2014) found that having discussion and addressing ideas will influence student attitude such as valuing other students' opinion so as to increase the social relationship. In such a case, students can have more social access among them. Different to attitude, knowledge is about to making students understand the concepts of learning material. Richardson, Abraham, and Bond as cited in Poon & Broadbent (2015) contended that competency of knowledge is always explained in traditional view as how much score students can achieve after examination, especially when the teachers use paper-pencil test or oral test. The scores are then matched to the standard of curriculum 2013 to judge whether the students can pass or not. The third competency, psychomotor, is portrayed as the collaboration between what students think and what they do; or in other words, it stands for hands-on activities, including the way they operate laboratory apparatus (Brinson, 2015) as part of scientific method.

In fact, the mandatory to accomplish high results in three competencies encounters serious challenges when it comes to science learning. Pilot study involving 20 students in public junior high school 32 Surabaya unveiled the support to the concern. More than 65% of them asserted that learning science was categorized as difficult because they possessed low score in their examination. This problem was assumed to link to the didactic teaching model which was implemented in the classroom. In such a case, teacher will have privilege to officially control students' learning behavior so as to increase student understanding towards vast amount of material (Wang, 2011). This occurred in learning about thermal energy and its flow. In light of research, students who suffer from such a teaching model show passive attitude and their score is about no more than 64 which means below the standard, 75 (Kulsum & Hindarto, 2011). Besides, student understanding of thermal energy is limited to the high temperature and is difficult to reach understanding of its implication in real life setting. In terms of psychomotor competencies, didactic teaching can lower student experience active collaboration between minds-on and hands-on activities when they just receive all the information from the teacher.

Many ways has been introduced to tackle the aforementioned problems ranging from collaborative learning to inquiry learning. Those have the same point, that is, the learning process must induce the students to show their active participation to construct their understanding by which entail the theory of personal and social constructivism (McInerney & McInerney 2010). This research, however, focuses mainly on bringing the value of the traditional man made education game (MLG). This is because of two reasons. First, as far as the research about traditional education game, especially cards game, going further, it is known that most of the research is limited to only observe no more than two student competencies (Karakus, 2006; Charlton, et al., 2005; Machin, 2012). Hence, this research stands for the support of the research that has been in a scope of three competencies.

Second, traditional game benefits to student learning. Rohwati (2012) showed that traditional game can trigger the appearance of positive attitude and behavior such as, giving criticism and appreciating opinion during teacher-student discussion. Likewise, Mutiah as cited in Nur (2013) explained that science education game can guide

students to increase their sensitivity towards social issue whereby they can adjust their behavior within particular situation. Hence, this article describe the use of MLG to student learning in terms of three student competencies.

## METHOD

To investigate the extent to which MLG benefits student learning, this research used one-shoot case study research design (Fraenkel et al., 2012) with MLG itself as the independent variable, whereas student competencies as the dependent variable. The design employed 15 students who were then divided into three heterogeneous groups. The heterogeneity of each group was basically determined by cognitive and psychomotor competencies whereby the leader of the group was the student who outperformed the others. The data were collected using two instruments. First, rubrics were employed to observe attitude and psychomotor competencies the students performed during the learning process. Second, paper and pencil test was used to record cognitive competencies after the learning process. Rubric for attitude contains three items, that is, spiritual attitude, honesty, and responsibility. The scale ranging from 4 to 1. Likewise, rubrics for psychomotor consist of 4 point of scale, but the items are only two, namely, skill to generate hypothesis and make conclusion from the data given. The data were then analyzed using descriptive manner to result in comprehensive description about the use of MLG.

## RESULTS AND DISCUSSION

### a. Student playing MLG

MLG is made based on traditional monopoly game consists of board game, dices, pawns and cards (question-answer cards, information cards, punishment cards, and score board). The board game displays 35 boxes in which each functions to support student learning academic and attitude aspects such as answering questions, evaluating answers, and making social commitments.



**Figure 1.** Process of student playing MLG; a. Teacher gave instruction for playing MLG; b. Student played the MLG and showed social interaction; and c. Student did

experiments in social interaction. Before playing the game, students were assigned to several groups containing a five different student. In each group playing, then each student did rock-paper-scissors to determine which one to be on the first place to play MLG. MLG began when the first student rolled the dices to show how many dots to determine his steps on the board game, starting from the start box to finish box. When the pawn stopped to particular box, the student-player will take card in accordance with the box-printed instruction. If the student-player was unable to accomplish the task on the card, he could offer the task to the others. Punishment cards then were applied to those who were not capable of

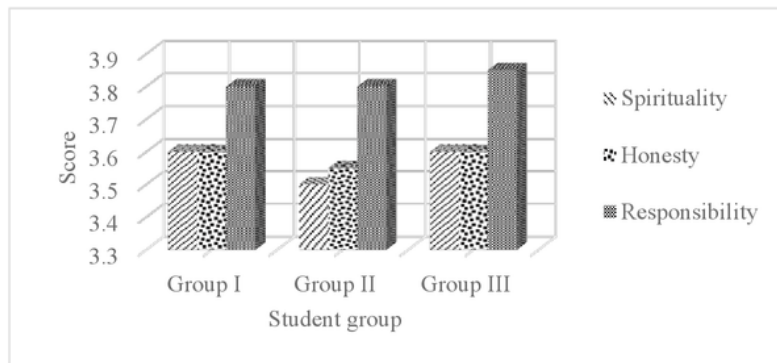
doing the task. For those who were successfully accomplishing the task, they were rewarded score. The winner was determined by the finish box.

**b. Results of the game supporting three competencies**

The assessed learning competencies are attitude, psychomotor, and cognitive aspect. Each of which has different substances. To obtain a clear picture, each of the research results on these is described clearly in the following subsections.

**1) Attitude Competencies**

The purpose of attitude assessment in this research is to know the spiritual attitude in accordance with the Core Competency I and the social attitude of students related to the Second Core Competence during the learning of thermal energy and its flow using MLG. The spiritual attitude that is recorded in the instrument is the attitude of gratitude for the greatness of God who has created thermal energy that can play a role in maintaining the balance of life system. The social attitudes assessed are the honesty and responsibility during the use of MLG and thermal energy transfer. The honest attitude relates to the honest during playing the game and in answering the matter. The social attitude of responsibility includes the responsibility in performing the game and the responsibility in the use of tool / board game. The following data presented results of the observation.



**Figure 2.** Comparison of average score of spirituality honesty, and responsibility among group of students

The diagram above shows that all groups have almost the same value in the sphere of spiritual, honest, and responsible attitude; the difference is about 0.5 to 1. In such a case, all students are categorized to be 100% complete in the spiritual aspect because all groups have succeeded in obtaining values ranging from 3.50 to 4.00. Spiritual attitude arises when students get information about how great the God creates thermal energy and its implication in daily lives. For instance, the flow of the gas particles (wind) from the sea to the land is one of the events caused by thermal energy. Before the industrial era, all the fishermen used the wind to go home after fishing. Even today, energy from the wind is still utilized to balance the expenditure over the use of petrol. Similar to the spiritual aspect, students are also categorized as 100% complete in the honesty and responsibility aspects. The range of scores they obtained was 3.50 - 3.60 and 3.80 - 3.85 respectively. These two attitudes arise from the way the students play MLG. Students are required to play with honest and be responsible if they get penalty (penalty) and have to accomplish assigned duties. According to Cojuharenco et al. (2016), the emergence of a responsibility attitude is triggered by the commitment or interconnection among students. In other words, all students act as supervisors and each of them is convinced not to violate any prescribed rules or conditions. In such, until the game ends all students can be responsible for the results they want to achieve.

When looking at honesty, this attitude cannot be separated from the eruption of responsibility. To be precise, commitment is maintained because each student maintains their honest attitude until the game is over. A sense of honesty can foster mutual trust so that the atmosphere of learning with this game media can be done with seriousness not only to win the game, but also to understand the concept of science on the matter of thermal energy and its flow. The growth of this good character is in line with the research conducted by Mulyatiningsih (2011) which asserts that games involving specific roles, such as those depicted in MLG, can foster good character in students. The specific role is that each player is accountable to himself as someone who acts to run the game as required by the rules of the game. Such an indication is showed by figure (1.b) that MLG provided chances to do

social interaction to build good character by which student can give social feedback to each other to support honest and responsible character.

**2) Psychomotor Competencies**

According to Vigotsky’s theory, students can develop their psychomotor competencies if they directly interact to one another (McInerney & McInerney 2010, pp. 37-55). Using MLG, a group of students gives chances to its member to share information either game rules or knowledge aspect so as to enhance both social aspect and scientific skills at the same time.

In assessing the psychomotor competencies, it lays on Core Competence IV National Curriculum. Psychomotor competencies in this research are limited to skill of generating hypothesis and of conclusion based on the data from the experiment of the effect of various components in heat transfer. Assessment is conducted by giving test of skills after learning process using MLG. The result is presented in the table below.

**Table 1.** Average score of psychomotor competencies among groups of students

Groups	Competency I	Competency II
Group I	3,6	3,8
Group II	3,8	3,8
Group III	3,6	4

Student psychomotor competencies after playing MLG are categorized as good to get passed from the curriculum standard, the scores are in the range of 3,50 - 4,00. Student group 3 possess the highest score because they are able to generate hypothesis and conclusion in very good criteria. The hypothesis contains variables of the experiment as shown in (figure 1.c) and the conclusion extracts the essential of the data. In terms of MLG, Wasilah (2012) asserted that card game can guide students to make better conclusion as long as the game requires students to write about experiment concisely. It is because students can identify the data by matching what the right data are, presented in the card.

Looking at the picture below, the students enjoy the experiment during MLG game. They are enthusiastic to observe the data as shown in figure (1.c) which means they follow the experiment procedure to test the hypothesis and record the data for the conclusion.

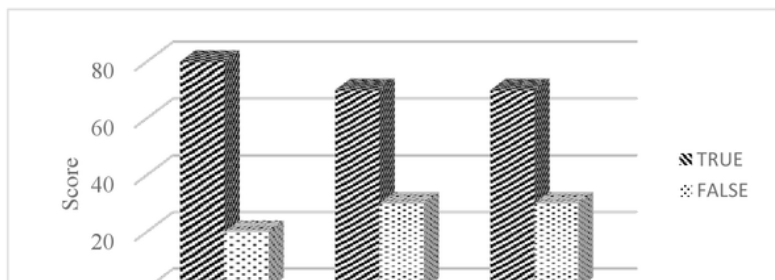
**3) Cognitive Competency**

Cognitive competency is regarded as the ability to understand the material. The assessment is done by paper-pencil test given. The questions are arranged based on cognitive level in Bloom Taxonomy from understanding level to evaluation level. Those include ten questions of multiple choice type and five essays. The result is about in the following table.

**Table 2.** Average score of cognitive competency among groups of students

Groups	Average score
Group I	3,6
Group II	3,8
Group III	3,6

Related to the table 3, student cognitive scores on thermal energy and its flow after using MLG include in the range 2,96-3,40 and are already passed the standard. The amount of students who pass the standard score increase dramatically from last year which is only 65%, according to the interview with the teacher. This is in line with the research conducted Priatmoko & Diniy (2012) that learning outcomes improve over the use of the media. MLG provides reinforcement on the knowledge aspect by means of every end of learning, students' knowledge competence is strengthened using the questions contained in the card. Therefore, the students' knowledge of the taught material is getting stronger and stored in long-term memory. This is consistent with Levie & lentz (1982) statements as cited in Arsyad (2014) learning media can facilitate the purpose for understanding and remembering information.





**Figure 3.** The percentage of student answer of multiple-choice

The percentage of true answer for the three groups is in the range of 60 to 80%. It indicates that all student groups can master the topic. The questions that appears to be difficult for students are item 4 and 6. This is because item 4 questions about the temperature of the mixed components of an object and the students do not understand the calculation of the mixture. Compared to item 4, item 6 gives different style of question. It asks about natural phenomenon which is related to thermal energy. However, students encounter difficulty due to they perceive that the options are bias. Such a shortcoming seems to happen because students are lack of information about the questions due to time consuming.

Although the results of the research have shown good indicators, there are two things become obstacles. First, at the beginning of the game, students tend to have difficulty to follow the rules of the game, and thus will affects the main material to be taught. Second, MLG which combines learning and play use vast amount time rather than the time being used by usual approach of learning. Therefore, the teacher as a learning facilitator must be able to take into account the use of this game on certain materials and the allocation of time available.

#### **CONCLUSION**

MLG which is played to support student learning in the topic of thermal energy and its flow is capable to promote three competencies based on the standard of Curriculum 2013, attitude, psychomotor, and cognitive competency. There are two benefits from using the game. Firstly, the information presented in the card can promote students to realize and recognize what the essential is. By doing so, they can manage their knowledge to understand the concepts. In addition, the students also use their skills of scientific method to generate hypothesis and conclusion. In other words, this will affect both cognitive and psychomotor aspects at the same time. Second, the rules of the game MLG that already set by the students can make them who to be honest and responsible for their role. This influences the attitude of the students.

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