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To cite this article: A N Gadeng *et al* 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **286** 012013

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The Simulation of Smong in Geography Learning to Enhance Understanding of Disaster

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Abstract. Smong is the local wisdom belongs to people in Simeulue Regency, Aceh Province. The Smong poetry become guidance for people in disaster mitigation when tsunami occurred on Sunday, 26 December 2004 which cause only 7 Simeulue people died. Simulation as learning model which encourage students to rehearse on the spot and brought to situation resemble the actual situation, and it is done in classroom. This study aims to simulate the smong poetry into geography learning which comprise activity such as singing the smong poetry, interpreting the lyrics in smong poetry and applying the meaning of smong poetry in disaster mitigation. This study used qualitative approach, and the object of study in this study was the local wisdom smong and simulation learning model. Data was analyzed qualitative descriptively. The study result was the smong simulation learning model which consist of 4 steps, orientation by collaborating the local wisdom smong, participation rehearsal, the implementation of simulation, interview with participants (one or all next activities). The conclusion of this research is teachers can use certain learning model by utilizing people's local wisdom as learning media, particularly in disaster mitigation material in geography subject.

1. Introduction

Indonesia is located in red zone area of natural disaster due to geological location of Indonesia [1][2][3][4][5]. First, Indonesia is located where three plates, Eurasian plate, Indo-Australian plates, and Pacific plate meet [1][2][3][5]. Second, Indonesia also contain many active fault [4][5]. Three, Indonesia is located on the ring of fire so it has many active volcanoes [2][5]. These geological condition as had been explained above is spread in all regions of Indonesia, so Indonesia become the country which is highly vulnerable to geological natural disaster, such as earthquake, tsunami, volcano eruption, landslide, flood and heavy flood and drought disasters.

There are high numbers of people in Indonesia who become the victim of various natural disasters occurred, both injured and died. The death is caused by lack of people preparedness in facing disaster. It is because people do not know the right procedure of natural disaster mitigation. As natural disaster frequently occurs in Indonesia, people are expected to more alert in facing various natural disasters which will occur because their houses are located in natural disaster red zone.



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One step which can be done to create people preparedness in facing disaster is through formal education in school, particularly among students in Senior High School through geography subject in class XI. It is because there is learning material about natural disaster mitigation, so it is expected that by learning that material, students can increase their understanding of disaster. Because knowledge about disaster is one indicator of disaster preparedness. Students need to have understanding of disaster. It is because students can save themselves when natural disaster occurs. Without good understanding of disaster, surely students cannot do disaster mitigation with the right procedure.

Understanding is the level after knowing and remembering something which had been learned. In the other word, it is one's ability to understand something after he or she know and remember it through learning process. In cognitive process dimension, the first level is remembering, understanding and applying. [6] Remembering means take certain knowledge from long term memory, understanding means construct the meaning from learning material, including what had been said, written and drawn by teacher. Applying means apply or use a procedure on certain condition. Usually the good level of understanding will be seen and reflected from attitude and behavior in people daily life. It shows that the expected learning outcome is change in behavior [6].

Next, [6] [7] Students are demanded to be able to understand a material which had been taught by their teacher through learning process, whether oral, written and graphical delivered through instruction, book or computer screen. From that, students can be said that they understand well a material. If students can construct the meaning of learning messages, then deliver it by using their own language and words, but it still has the same meaning and intention as expected. Students also know something to be communicated and can use its content without relating it to another things. In this case, what is expected students' understanding of disaster.

Enhancing students' understanding through subject needs teachers' role when they teach material about natural disaster mitigation, one of them is by using simulation learning model. Simulation method is one way teachers use in learning process, through stages as if it change class situation into real situation as actual situation, in accord with learning material teacher will teach to students, so it demand active role of students and teacher during learning process take place. Simulation present real situation or imagination which cannot be brought in learning setting [8]. [9] Find that the messages which is problematized in a screen during simulation increase recall and problem solving better than the unproblematized messages.

Then, simulation learning method is integrated by applying and inculcating local wisdom values contained in people life. In this case, the local wisdom smong will be collaborated with simulation learning method in geography subject. The local wisdom smong is local wisdom belongs to people in Simeulue Regency, Aceh Province. The local wisdom smong is strongly related to the effort of tsunami disaster mitigation. That local wisdom had been successful to save Simeulue people, and only 7 people died when tsunami occurred on Sunday, 26 December 2004.

So, it is expected that by combining the local wisdom smong in simulation learning method through geography subject particularly in disaster mitigation material in class XI of Senior High School, it can enhance students' understanding of disaster. It is because understanding of disaster is very important to be possessed by students, in order that they know the right way of natural disaster mitigation so it is expected that it can reduce people death or people injured when natural disaster occurs, because students also part of people. So, that problem needs to be discussed in this article which is titled "The Simulation of Smong in Geography Learning to Enhance Understanding of Disaster." The aim of this study is to simulate smong poetry in geography learning which comprise activity to apply the meaning of the word smong in tsunami disaster mitigation, and sing the smong poetry and interpret the lyrics contained in the smong poetry.

2. Method

The method of study used descriptive method, data collection by literature study. The subject in this study were students of Senior High School/MA in Simeulue Regency, and the object of study was the local wisdom smong and simulation. Data was analyzed qualitatively.

3. Result and Discussion

The local wisdom smong belongs to people in Simeulue Regency, Aceh Province. The local wisdom smong had existed in Simeulue since 1907, and it is still preserved well by people in Simeulue Island until now. Because of the local wisdom smong, 78.129 Simeulue people saved from tsunami disaster occurred on Sunday, 26 December 2004 [5] [10] [11] [12] [13]. Smong is the other name of tsunami, and linon is the other name of earthquake in Simeulue people. The local wisdom smong is strongly related to tsunami disaster mitigation which is done traditionally. Simeulue people know that tsunami will occur after big earthquake. Simeulue people's knowledge about tsunami (smong) and earthquake (linon) is acquired from the lyrics contained in the local wisdom smong as follow:

The Lyric of *Smong* in Devayan language

Enggel mon sao surita (listen to this story)
Inang maso semonan (once upon a time)
Manoknop sao fano (a village was drown)
Uwilah da sesewan (that was spoken)
Unen ne alek linon (it started with an earthquake)
Fesang bakat ne mali (followed with huge wave)
Manoknop sao hampong (alls lands are drowned)
Tiba-tiba maawi (suddenly)
Anga linon ne mali (if the earthquake is strong)
Oek suruik sauli (followed by the receding water}
Maheya mihawali (hurry to find a place)
Fana me singa aktaek (go to highland to save your life)
Ede smong kahan ne (that's what you called *smong*)
Turiang da nenek to (the history of our ancestor)
Mi redeem teher ere (please remember these)
Pesan navi-navi da (the message and advice)
Smong dumek-dumek mo (tsunami is your bathwater)
Linon uak-uwak mo (earthquake is your swing)
Kilek sulu-sulu mo (lighting is your lamps)
Eklaik kedang-kedang mo (thunder is your drum)

In the lyrics of smong poetry, it is explained the signs before tsunami occurs, when tsunami occurs, and mitigation action which should be done by people when tsunami occurs, and how the condition of people settlement after tsunami occurs. [14] Smong poetry can tell clearly various signs that occur before tsunami, when tsunami occurs, and how the steps that must be done by people in order can be saved from tsunami as part of mitigation of tsunami disaster. The smong poetry in Simeulue people is

conveyed through folkore (manafi-nafi), sleeping child song (mananga-nanga) and song (nandong) [11] [12] [13][14].

The result showed that Simeulue people's knowledge about the effort of tsunami disaster mitigation is very good. The understanding about smong is strongly inculcated in Simeulue people's memory from children until older people. The strong inculcation of smong in Simeulue people's memory shows that smong had experienced long process and had been inculcated for years, so sooner and later it become collective memory in the form of people value system and become part of Simeulue people character [12][13]. So it is reasonable to know that there were only 7 people who died when tsunami occurred on Sunday, 26 December 2004.

Furthermore, the smong poetry which is very famous in Simeulue people will be collaborated with geography subject in class XI precisely in basic competence 3.7 which analyze type and natural disaster mitigation through education, local wisdom, and utilization of modern technology and basic competence 4.7 in which students make sketch and map of local region disaster potency and disaster mitigation strategy based on that map. With the material of natural disaster mitigation learning: type and characteristic of natural disaster, disaster mitigation cycle, distribution of natural disaster prone-areas in Indonesia, institutions which are involved in mitigation, people participation in natural disaster mitigation in Indonesia. As for learning activity which can be done is reading geography textbook and reference book, and/or observing video show which is related to natural disaster and disaster mitigation. Questioning about natural disaster and disaster mitigation in Indonesia. Discussing about natural disaster and disaster mitigation. Presenting discussion result report which is related to natural disaster and disaster mitigation completed with sketch and/or map. Doing disaster mitigation simulation in school environment. Making disaster evacuation map in surrounding environment [15]. Based on syllabus of geography subject for class XI, the local wisdom smong is very suitable to be applied on sub learning material about people participation in natural disaster mitigation in Indonesia. The learning activity which can be done is collaborating the local wisdom smong with simulation learning method. Simulation learning method is like training, resemble the actual situation, but it will be done in unreal situation in classroom.

[17] [16] Simulation method is also known as role play, and it is a simplification process from some situations occur in real life (big scale) into classroom (small scale). By involving all students, the activity done among others are dialog and role play to display a skill as the effort to realize the ideal and students feel as if they are situated in real life. That effort is done in the effort to predict the condition as realistic as possible so the concept learned and the solution developed can be actually practiced in real life. Students should develop concept and skill needed to be practiced in certain fields. Usually, simulation much used in learning the dangerous, difficult and high cost material.

The simulation method used in learning process aims to describe how the condition occurs in field and acted or played by students in classroom, with direction and scenario which had been designed by teachers. The scenario is designed in accord with learning goal teacher expect can be achieved by students in class. By simulation method, as if that students can feel the actual condition if someday the material simulated in learning occurs in real life. Moreover, simulation method is very suitable to be used particularly by geography teachers, when they are teaching the material about natural disaster mitigation to students in class.

[18] As for the syntax (learning steps) in simulation method in general is divided into 4 main stages, namely: The first stage is orientation, with activity of presenting the broad topic about simulation and the concept which will be used in simulation activity, explaining simulation and play, presenting simulation summary. The second stage is participation rehearsal, with activity of making scenario (rule, role, procedure, score, type of decision which will be chosen, and goal), assigning the role, implementing the practice in short term. The third stage is simulation implementation, with activity of leading play activity and play administration, getting feedback and evaluation (about performance and influence of decision), explaining misconception, continuing simulation. The fourth stage is participant interview (one or all of following activities), with activity of concluding an event and perception, concluding

difficulty and views, analyzing the process, comparing simulation activity with real world, relating simulation activity to learning material, assessing and redesigning simulation.

3.1 The Simulation of *Smong* with Words

The word *smong* is the word which should not be spoken carelessly among people in Simeulue. It is because if *smong* is spoken, then all people in Simeulue will run away to save themselves to upland or to the mountain [7]. So, the word *smong* in Simeuleu people is bad sign similarly with the word spoken when emergency situation occurs, for example the word fire and thief or robber. Thus, when these words are spoken it will make all another people give help [12] [13].

It is because the word *smong* is the sign word understood by all people in Simeulue to describe the occurrence of giant wave after big earthquake. They do not only understand this word, but they also understand what action should be done if that event occurs [12] [13] [19] [14]. So, it can be concluded that the definition of *smong* among Simeulue people has the same meaning with the definition of tsunami. And the word *smong* become part of tsunami disaster mitigation effort done by Simeuleu people. It is the word *smong* which will be integrated with simulation learning method in geography subject in class XI in natural disaster mitigation material. As for the aim of doing the tsunami disaster mitigation simulation is by using the word *smong* in order that students know and apply how the right procedure of tsunami disaster mitigation, particularly by using local wisdom contained in Simeulue people.

The activity done is simulation to speak the word *smong* as it occurs in people in Simeulue Island. The first stage is orientation, in this stage teacher is expected to explain first about how procedure to speak the word *smong*. The word *smong* only can be spoken when the signs of tsunami will come. The signs are big earthquake occurs, followed by water sea which is receded from coastline with abnormal distance, then there is big thumping when the sea water receded and sea water will come from the middle of sea toward the coast. Finally, animals behave strangely such as the birds fly in shoal from the sea toward the land, and the cattle in coastal area run away to upland. Thus, when seeing those characteristics in real life, the word *smong* can be shouted very loudly in order that people can save themselves so it can reduce the death and the injured people. Then, teacher explain how the steps which should be done in applying simulation and play method in learning.

The second stage is participation rehearsal, in which teacher design the scenario (rule and procedure) students use when implementing simulation. Teacher divides the task and role of each student. Some students are assigned the task to see the natural phenomena before tsunami occurs, and some others are assigned the task and play role as local people. This activity is done as if in real activity, even though it is only done in classroom or school environment.

The third step is simulation implementation, in which teacher guide and regulate students during simulation activity take place, students begin simulation after teacher give signal and they do it as scenario which had been designed by teacher. When students tell the natural phenomena when tsunami (*smong*) occurs in accord with the result of observation conducted in coastal area, the other students immediately shout the word *smong...smong...smong...smong....smong* with long and loud voice, accompanied by the action to save themselves, then students who become local people immediately shout the word *smong* to the others in order that they can listen and know the bad sign when tsunami occurs, and it is expected that all people can run quickly to upland in mountain to save themselves from tsunami disaster.

The forth stage is interview with participant (one or all of next activity). In this stage, the students make a conclusion about the event and perception about the effort of tsunami disaster mitigation by using local wisdom *smong*, conclude the difficulty and views emerged when the process of simulation *smong* is done, analyze the process and compare the simulation activity with real world, relate the activity and simulation to learning material of natural disaster mitigation, assess and redesign simulation.

3.2 The simulation of smong by using poetry in the song

Smong by using poetry contained in regional song is well-known as nandong. Nandong in Simeulue people means the song, and nandong has hundreds of poem verses which tell the story in the past impressing Simeulue people, both pleasant experience and sad experience. Nandong is regional art belongs to Simeulue people, and conveyed in certain time such as in wedding or circumcision ceremony, religious holiday, and in welcoming the guests from outside of Simeulue. To present nandong performance, there are certain requirements which cannot be done carelessly, anytime and anywhere [14].

In this activity, simulation method will be collaborated with smong poetry contained in regional song belongs to people of Simeulue. Aceh Province. Teachers should regulate the right scenario by including smong poetry in learning process using simulation learning method in geography subject in class XI in the material of natural disaster mitigation. The aim to do disaster mitigation simulation activity by using smong poetry is that students can know and apply the right way of tsunami disaster mitigation, particularly by using people's local wisdom.

The activity which can be done is simulation to sing the smong poetry in regional song as happened in people of Simeulue Island. The first stage is orientation, in this case teacher is expected to introduce the poetry contained in the local wisdom smong and how to play the video when smong poetry sang by Simeulue artists. Teacher explain the content of local wisdom smong to students. Teacher explain the steps which should be done in applying the method of simulation and play in learning.

Next, the second stage is participation rehearsal. In this stage, teacher together with students design the right scenario of story plot in order to do tsunami disaster mitigation simulation through the song of smong poetry. Teacher then divide students' role and task in accord with the procedure as the role played by real people. There are some students who are assigned to sing the smong poetry, shout the word smong, and some who become the local people. Teacher explain the rule and procedure of the play applied, and tell the things students should do and should not do when implementing the learning model of tsunami disaster mitigation simulation. Teacher ask students to do the rehearsal first in accord with scenario and role each student get, before the actual simulation done in learning process in classroom.

Then, the third is simulation implementation. In this stage, teacher guide and monitor simulation activity of tsunami disaster mitigation in accord with the content of poetry in the local wisdom smong played by students in class. Students begin simulation after teacher give signal, and students do simulation in accord with scenario which had been designed by teacher. When simulation activity begin, teacher ask students to sing the smong poetry in class. Students who are assigned to shout the word smong do their task when the smong poetry is sang. Students who are assigned as local people follow the content of song in smong poetry, and do it after the lyric of smong poetry is sang for each paragraph, and ended when students sing all lyrics of smong poetry.

If there is mistake done by students in this simulation activity, teacher jot down that mistake in scenario note in accord with their own role and task, and teacher do not need to stop the simulation activity. Next, teacher can correct and improve those mistakes in break time in order not disturb that simulation activity and students will focus on their own role and task until they finish this simulation activity.

The forth stage is interview with participants (one or all next activity). In this stage, teacher give assessment to all participants in accord with the role and task assigned to them when doing mitigation simulation activity in class. Teacher ask the students about the difficulty and easiness they feel felt when doing simulation learning method. Teacher tell about the actual situation when doing tsunami disaster mitigation and it is compared with situation when doing the simulation of tsunami disaster mitigation in classroom. Then, teacher relates simulation activity of tsunami disaster mitigation which use the poetry of local wisdom smong along with the learning material of natural disaster mitigation in accord with the syllabus of Geography subject for Class XI of Senior High School/MA.

Lastly, teacher make the conclusion about the right procedure of tsunami disaster mitigation and the advantages obtained if students doing tsunami disaster mitigation in accord with the existing

procedure. Then, teacher give score to students when they do tsunami disaster mitigation based on simulation activity students do in classroom.

Much advantages are obtained from doing simulation learning method. As for the first advantage is, teacher can arouse students' spirit in learning. It is because simulation method demand heavily students' active role during learning process in class. There are some advantages obtained from simulation method implementation as suggested by [18][8]. Simulation ease students to learn simulated experience which is designed in the form of play than in the form of teacher's explanations or lectures. By collaboration, students can exchange their idea, peers evaluation but not with teacher evaluation. This social system should be fun and full of collaboration. Simulation can provide learning opportunity students cannot obtain by usual methods. Then, simulation has motivational advantage and can concentrate students' attention. It can help students to be involved with learning materials actively and involve themselves emotionally. In short, all those advantages can help students to develop learning.

Next, the second advantage is, with simulation of tsunami disaster mitigation in class, students know and do not confuse with the right action and procedure in doing tsunami disaster mitigation, so what student have done in simulation activity of tsunami disaster mitigation in classroom can be remembered, memorized and applied in all steps, if tsunami occurs in real life. In choosing the method of simulation or demonstration, students can be encouraged to introduce the right way of disaster mitigation so they can do action if disaster occurs in their surrounding environment [20]. Then, simulation learning method has instructional effect and nurturance effect when teacher apply it in learning process in class to students. [10] Simulation method has instructional effects, namely: 1) self-instruction capacity, 2) curriculum knowledge and skills, 3) self-confident as learner. The nurturance effects are: 1) responsive to feedback; 2) autonomy as learner; 3) sensitive to cause and effect relation. As has been explained, there are many advantages of simulation both for teacher and student. With simulation method, students are impressed with what they have done when doing simulation method.

But behind many advantages obtained by applying simulation learning method, it demand teacher's activeness and task if the simulation activity will run smoothly and successfully. [18] [21][22] As for teacher's task is to present and facilitate understanding and interpretation about the rule in simulation activity. Then, there are four roles played by teacher in this method, namely: to explain, mediate, train and discuss [18]. In doing simulation method, teacher should understand first the material which will be taught to students by using simulation method, because teacher should design well the story plot and scenario which will be played or acted by students in class. Because it is expected that students can do this method as in procedure in order that the learning aim can be delivered as expected by teacher before doing simulation method.

In short, simulation method is very good to be applied by geography teacher when they teach the material which is related to disaster mitigation, because students' comfort during learning process is very needed in order that all materials acquired in class can be remembered, memorized, understood and finally applied in real life.

So, it is expected that after students had done the simulation activity of tsunami disaster mitigation with the help of local wisdom smong, they can enhance their understanding of disaster. [17] student has intelligence in thinking, attitude and acting (behaving) as learning outcome. Because it is very important to students to have understanding of disaster, in order that students do not become the victims of tsunami disaster when it occurs in the future. It is because we cannot predict when and where the earthquake and tsunami disaster will occur. So, the step which can be done through educational process is enhancing understanding of disaster. The next stage after understanding of disaster is students' action, attitude and behavior toward disaster which will be seen clearly and reflected in accord with knowledge and understanding they posses.

4. Conclusion

Simulation learning method by using the local wisdom smong is very good to be applied on students when teacher teach the material of natural disaster mitigation in geography subject in class XI of Senior

High School/MA. It is because simulation learning method can enhance students' understanding of tsunami disaster mitigation. So, because students' understanding of disaster has been good, it is expected that none of students who will be injured or even died when tsunami disaster occurs in the future.

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