

Creative Drama: Procedure of Improving Renewable Energy Knowledge through New Alternative Learning Skills

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Creative Drama is a procedure of learning which can be used as a tool for improving children and youth in various dimensions along with permitting them to progress their ideas and imaginations through languages and physical movements in free-style role-playing. Teachers will play a role as an activity supervisor who motivates creative expression and has the children and youth as central figures. This article aims to present the procedure of creative drama for improving the learning skill of renewable energy in Wat Khok Ket School (Serm Som Boon Wong) at Plai Pong Pang Sub-district, Amphawa District, Samut Songkhram Province; the population contained 18 persons. The data was collected by using a semi-structured interview conducting to one of the teachers from the science department while pre-posttest and group discussion will be conducted to the rest of 17 eighth-grade students who voluntarily participated in the creative drama activity which included 6 processes: 1) Preparation, 2) Sparking Creativity, 3) Constructing Story, 4) Rehearsal Performing, 5) Performing 6) Feedback. The results of the satisfaction survey will be calculated into percentage, mean, median, and the t-test dependent group value. The result of the study indicated that the additional learning of science in middle school in topic “Renewable Energy and Utilization” through creative drama, leading students to learn more effectively according to the 80/80 standards. For the conclusion, the learning activity should be conducted as follows “Decreasing study but Increasing Knowledge” so students can practice being the person who has simultaneous learning for their entire life; in addition, parents should participate in students’ learning also.

Key words: *Creative Drama, Learning Skills, Renewable Energy*



INTRODUCTION

Affordable access to essential services underpins development. Energy fuels many of these services. Renewable energy harnesses resources and transforms them into energy carriers that are then used in appliances and machinery to provide such services. In order to provide services to current and future generations, the renewable energy itself needs to be sustainable. This renewable energy may influence and interact with the economy, the environment (including other physical resources or commodity systems), and society. Moreover, the effects of this impact and interaction should also be sustainably managed (Howells & Roehrl, 2012). However, due to limitations in the capacity of knowledge of renewable energy technology and public initial investment of Thailand, this initiative requires special support from government agencies: the Ministry of Energy and National Energy Policy Council. Therefore, the 15-year renewable energy plan (2008-2022) has been established with the goal of increasing the proportion of renewable energy use to 20% of the country's final energy consumption by 2022 (Ministry of Energy, 2012), which gives importance to the participation of the parties' development in all sectors, including at the community, regional, and national levels. In the strategy of creating balance and stability of energy, through the process of public participation, the hope is to raise awareness and create an understanding of renewable energy in future development (Office of the National Economic and Social Development Board Office of the Prime Minister, 2012).

Samut Songkhram is one of the provinces having potentiality in renewable energy. In 2011, Samut Songkhram has chosen by Ministry of Energy to conduct the activity "The Prototype Community of Renewable Energy" which educates people about the consciousness regarding energy conservation and renewable energy by applying unused agriculture materials and weeds in the community for producing fuels used in daily life and sustainably, engaging along with citizens in managing renewable energy in the local area including the Eco community for reducing global warming in the way of the prototype community of renewable energy. According to an interview with Mrs. Wadi Saeng-ngam, the teacher at Wat Koke Ket School (Serm Som Boon Wong), a dream model school in alternative energy, found that at present, such activities lack continuous promotion and monitoring from related agencies and departments. This is the reason that the operation cannot achieve the set objectives. At present, the school lacks a budget for technology and learning media to transfer knowledge on renewable energy to students and communities in concrete ways (Saeng-ngam, 2012). The results of the activities demonstrate that implementing any development policy that involves bringing external knowledge to the community will be temporary, and unable to create a sustainable learning process for the community, if the methods and technology for development do not correspond with the basic knowledge of the target group development. Therefore, the government should adjust the operational policy by encouraging the community to develop the learning process consistently through the education system and



community development by pointing out the importance of renewable energy. Furthermore, the government should create opportunities in case of accessing knowledge under participation, and learning activities should be appropriate for the target audience. As an alternative way to exchange knowledge and solve problems that may arise in the future, a focus will be given on learning from direct experience as it relates to gradual living as well as creating learning networks for communities and schools.

In this study, the researchers have chosen creative drama to be a tool for improving students in various dimensions, along with permitting them to progress their ideas and imaginations through languages and physical movements in free-style role-playing. In the process of creating the drama, teacher played a role as an activity supervisor who motivates creative expression and has the students as a Centre of learning beneath the contexts of the school community for the purpose that, the procedure of research gives a chance to teachers in the science department to come up with solutions and opinions about classroom teaching that improves the development of renewable energy knowledge according to the way of life in the community through creative drama. The researcher anticipated that this research would be beneficial in applying to social development and improving the process of learning skills in the others aspects of renewable energy for the country in the future.

1. MATERIALS AND METHODS

1.1 Context

Researchers chose to conduct the study in Wat Khok Ket School (Serm Som Boon Wong), for the reason that the school has a small size and has an overall amount of students of only 213. The school provided 2 levels in education including primary education and secondary education. Therefore, teaching methods could be adjusted into the activity effectively according to those factors and in terms of “Renewable Energy Dream School”; a new procedure of learning skill improvement should be added. Furthermore, the school was located at Plai Pong Pang Sub-district, Amphawa District, Samut Songkhram Province, the community where the Ministry of Energy has chosen to be “The Prototype Community of Renewable Energy”.

1.2 Population and samples

The population participated in this study included a teacher in the science department and 17 eighth-grade students in Wat Khok Ket School (Serm Som Boon Wong). According to the school, the eighth-grade a class had an additional science subject “Renewable Energy and Utilization” which was chosen by researchers to be the significant informant. The population was 18 persons containing eighth-grade students which has only one class with 17 students and a teacher from the



science department.

1.3 Research Instruments

The instruments used in collecting data were semi-structure interview, focus group discussion, pretest and posttest in Renewable Energy topic, a play of creative drama and a satisfaction survey of creative drama.

1.4 Methodology

This research was participatory action research which followed the plan of creative drama to improve learning skills in Renewable Energy designed by researchers and the teacher from the science department. The procedures of creating the drama were as follows:

1. Researchers reviewed the book used in the additional science subject “Renewable and Utilization” which was published following the Basic Education Core Curriculum in B.E 2551 of the Ministry of Education to be the guideline in conducting a creative drama activity for improving the learning skills about Renewable Energy. Biomass Energy was selected as a case study, for the reason that Biomass Energy was the Renewable energy which related to the way of life of people in Samut Songkhram the most.
2. Documents and research related to creative drama were reviewed including technique and the process of creating creative the drama activity
3. The proposal of conducting creative drama and improving the learning skills of eighth grade students was proceeded in a total of 2 weeks (5 days in a week).
4. The proposal of conducting creative drama was submitted to the specialist to prove content validity of the expected learning outcomes
5. Pretest and posttest in the topic of Renewable Energy were created covering the questions and answers in chapter 4 “Biomass Energy” according to the book used in the additional science subject “Renewable Energy and Utilization” page 124 – 125. In this part, the teacher was the one who examined the answer and scored the test and the scores were dependent on the understanding of the students. The questions were designed into open-ended questions using scoring criteria which followed the evaluation lists of test answering in table 1.

Table 1. Test scoring criteria

The Evaluation lists	Scoring criteria	
	Quality	Scores
Using information in describing incorrectly, unclear, missing the point	Unsatisfied	1
Fairly understandable describing, having correct information that supports the subject presented, able to describe the contents but not completely	Fair	2
Understandable describing, logical content and connected to each other, using correct information and agreeable with the topic	Good	3
Perfectly describing, reader can understand all of the contents, logical and well connected, correct information and agreeable with the topic perfectly	Excellent	4

6. Conducting a creative drama activity will conform to the opinion and requirement of the teacher creating the activity of roleplaying; the scenario as the tool for improving learning skills in Renewable energy would be the most effective for the students. Furthermore, students will get knowledge from the researchers who is the specialist directly, even more, the teacher and students were pleased to participate in this research. The activity will be divided in to 6 processes as follows:

6.1 Preparation process consists of ice breaking by using games, music, and stories as a medium in the activity, including “1 posture” introduction game, and closed eyes running game. As for activities to practice using sound and pronunciation, which is the main component of an important drama, games to be used include sound slamming games and R E U A O games.

6.2 Sparking the creativity process consists of activities to practice the creation of imagination, including games used from my time there and live talking games. (From the situation that is specified to be shown) For activities for practicing body movement, the games used include mirror games and creative movement games, which will help players to understand and learn various movements that make them feel more confident in acting.

6.3 Constructing the story process consists of activities including brainstorming to create a storyline with the sequence of events in the story from beginning to end, as well as questions asking players to participate in suggesting creative drama presentations. Additionally, a creative play was created in dialogue, which the researcher wrote and compiled into the creative play. In this regard, the objectives in content and guidelines for presenting creative drama will be based on the study results obtained from the tests created according to the educational concept and classification of

knowledge about biomass energy in Part 1. There are aspects that must be considered and observed.

1) The creative script must be created by the players, which are eighth-grade students at Wat Koke Ket School (Serm Som Boon Wong). The researchers has to observe and record the content of the player's freedom of thought to create a creative play that incorporates knowledge of biomass energy.

2) The creative script must contain biomass energy content that is truly important to the life of the player in order to present, understand, and encourage the audience. For the target, the people in the community must understand the important story of the creative play.

3) The creative plays must have content of knowledge about biomass energy that is analyzed together with the problems that are summarized from the interview and learning tests to be synthesized. It is the body of knowledge that emphasizes the result from the problems found in the community, as well as from the interviews and tests before learning which allows the community to participate in the creation of creative plays.

4) The creative script must be concise, fun, and uncomplicated, and without several structures that are difficult to understand. The dialogue must be natural and suitable for the story of biomass energy. When the story progresses, that is the most exciting. There will be a conclusion to the story that shows who will get the result of that action.

From the processes above, the play of creative drama was created: "Crisis Recovery...Biomass Energy" (Example):

Forth Scene

(Headman Tae, Tai, Lieutenant and sergeant back in place while Kim, Nin and Copter come in front of the stage)

Nin: Hello, everyone

Kim: Today we gonna show you another wonderful thing of Biomass Energy

Copter: It's the thing that almost the same as diesel fuel which called...

Copter, Kim: Bio diesel!!

Nin: Bio diesel is the bio fuel that's refined from the plant in the group of oil plant such as soybean, oil palm, and sunflower seeds

Copter: It is a very difficult procedure in making Bio diesel, so we need to refine oil from those plants and merge them with the ethanol, and after that we will get the mixed

of Bio diesel and glycerol

Kim: And then we separate from each other so we'll get the pure bio diesel fuel!

Nin: This bio diesel can be replaced with diesel fuel or mix it the ratio of 5/90 with diesel fuel and we will get the B5 formula of biodiesel

Copter: But if use only bio diesel, we will call it B100 formula of biodiesel

Kim: The car we drove can used the B100 without diesel as same as the agriculture engine such as tractor, combine, and every engine in the near future

(Kim, Copter, and Nin walk back to the position, Doctor Pati come in front)

Dr. Pati: Just so you know, this is a part of the research conducted in "Biomass-Energy project". We expected this project will be the model for the communities to produce their own Biomass energy for reducing government burden

Grandfather: Isn't it better if we use Biomass Energy instead of the others?

Tharn

Teacher: At least, we can postpone the running out of limited energy until we can find more

Khean sustainable and accessible way

Headman Tae: This reform depends on everyone

(Everyone cheers and after that and two of prime minister followers come in front)

(Prime Minister talk to the audience)

Prime: It's time to consider, the one who agreed put your hand up, the next one who didn't
Minister agree, for those who do nothing will be consider to be the one who agreed.
It is unanimous that the project is....approved!

(The group of Dr. Pati jumping for joy) (Prime Minister talks to DR. Pati)

Prime: You are beyond my expectation Dr. Pati
Minister

Dr. Pati: This is just a beginning sir

Prime: Is that so? I can't wait to a lot more coming from you sir

Minister

(Prime Minister talks to headman Tae's group)

Prime: You did a very great job, headman Tae
Minister

(The headman smiles, Prime Minister and his followers walk to the back stage. Everyone cheers to each other)

6.4 Performance rehearsal process is the place in which the total of 17 people participated the activity. The researcher has ensured that all actors understood the drama and learned the characters themselves every time, before the rehearsal of the performance; the researcher spent time preparing the body and sound before practicing for the performance, and the actual performance. The researcher ensured that every scene has been completed while practicing the songs that will be used in the drama and musicians together. Practice will continue until the actors become confident and understand the characters. At this point, the plays will rehearse like a real show, along with the scenes, clothes and equipment used in the creative drama.

6.5 Performance process is the process of direct communication between the actors and the audience from the preparation of the show; the show is dressed up, make-up, hair-warming, meditation, public relations and show as seen in Figure 1.



Fig.1. The Performance Stage

6.6 Feedback after the creative drama has ended is encouraged, and the audience has been given the opportunity to ask questions about the creative drama. This is for encouraging the eighth-grade student actors who participated in the activity to test their understanding after learning about

renewable energy as seen in Figure 2, as well as all the theatrical audiences. Participation in the questionnaire will evaluate the creative drama performance.



Fig.2. The Actors of Eighth-Grade Students Tested After Creative Drama

7. The results will be calculated into percentage, mean, median, and the t-test dependent group value

3. RESULTS AND DISCUSSION

In data analysis, the result of the test finding is in accordance with the standard 80/80, the results of which are exhibited in the data analysis and are shown in Table 2.

Table 2. Results of the Test Efficiency in Alternative Energy Learning, and Additional Subjects in Renewable Energy Science and Utilization

Items	Pre-Test			Post-Test		
	Scores	Mean	E1	Scores	Mean	E2
1	4	1.29	32.35	4	2.76	69.12
2	4	1.76	44.12	4	2.94	73.53
3	4	1.06	26.47	4	2.71	67.65
4	4	1.06	26.47	4	2.94	73.53
Total	16	5.18	32.35	16	11.35	70.96

The study indicated that creative drama process activities and learning skills created by the

researcher can develop renewable energy learning skills (biomass energy), which are suitable for the teaching and learning of additional subjects in lower secondary school science. "Renewable energy and utilization", Wat Koke Ket School (Serm Som Boon Wong) at Plai Pong Pang Sub-district, Amphawa District, Samut Songkhram Province, which can be seen from the results of the standard 80/80 performance. From the results, it can be found that eighth-grade students who participated in the creative drama process activities and tested the learning (before and after participating in the creative drama process activities) as open-ended questions in the supplementary science course subjects. "Renewable energy and utilization"; there were 4 items, and the average efficiency of the total was 32.35 / 70.96; this shows the creative drama process that the researchers created. The results depict that the students who participated in the activity have got the knowledges and understanding of renewable energy (Biomass energy). This reflected the way that students aimed to create knowledges in the process of creative drama that led the learners in the activities regarding the context of the real environmental problems of the community "Renewable energy and utilization" that would cause the retention rate of learning to be at a high level (Drazin et al., 1999). In addition, creative dramas will affect the behavioral change in learning nature through the experience of storytelling.

The awareness, absorption, understanding, acceptance and change of behavior (Buranakanon, 2009). After transferring / disseminating research to the public, the researchers have evaluated the satisfaction of the creative drama, to develop the learning skills in renewable energy of science teachers at the lower secondary level and 2 eighth-grade students participating in the creative drama process: From the interview with Mrs. Nawaphon At-umam, regarding the satisfaction of social innovation for developing the learning skills in renewable energy, she has found that, "In organizing activities related to renewable energy and utilization is a very effective activity. The students are very interested and everyone was involved in this activity. Importantly, all students have learned: 'What is renewable energy?', 'What is biomass?' After that, students can use the knowledge they have received back to study and develop within their own families, or they may publicize what they have learned to the community they lived in and that what is Biomass Energy which can be used as renewable energy, such as in the village, where most households are engaged in coconut plantations. We can take the rest such as the coconut shell, which can be processed into compressed charcoal or other products. These things can be used to produce fuel for replacing the energy that we have used and wasted. For the eighth-grade students participating in creative drama activities. Everyone can immediately tell that what biomass energy is, even at home or in the community and those can save energy or alternatively use energy from biomass to replace it" (At-Uam, 2016). From the interview, Anutri Khiewphayap spoke of the satisfaction of creative drama to develop learning skills in renewable energy: "Gain knowledge by using coconut pulp and water hyacinth to make charcoal sticks. By using natural waste in the community, there is no need to spend money to buy and able to make people in the community earn more money. The activities

on renewable energy and utilization was considered as a very good activity, fun, and characters show is very joyful and gain additional knowledge as well"(Khiewphayap, 2017). From the interview, Thipkasorn Jaidee is satisfied with creative drama in developing learning skills in renewable energy, saying, "It's an activity that is fun, joyful and impressive, to play a challenging role and also gained knowledge about biomass energy in the community as well" (Jaidee, 2017).

4. CONCLUSION

The results of conducting creative drama for improving the learning skill in Renewable Energy for Wat Khok Ket School Wat Koke Ket School (Serm Som Boon Wong) at Plai Pong Pang Sub-district, Amphawa District, Samut Songkhram Province, indicated that this new technique of teaching can make students understand the lessons of “Renewable Energy and Utilization” more effectively as one of the learning methods; but to make this activity sustainable, it needs to be conducted simultaneously by teachers and students for example, conducting the activity as a club to enhance students’ vision more widely, such as conducting activity in the communities which can improve student learning skills; leadership and cohabitation that will lead student to be unattached to learning only through treatise and this will be benefit for developing society and promoting the others types of renewable energy from this point forward, as seen in Figure 3.

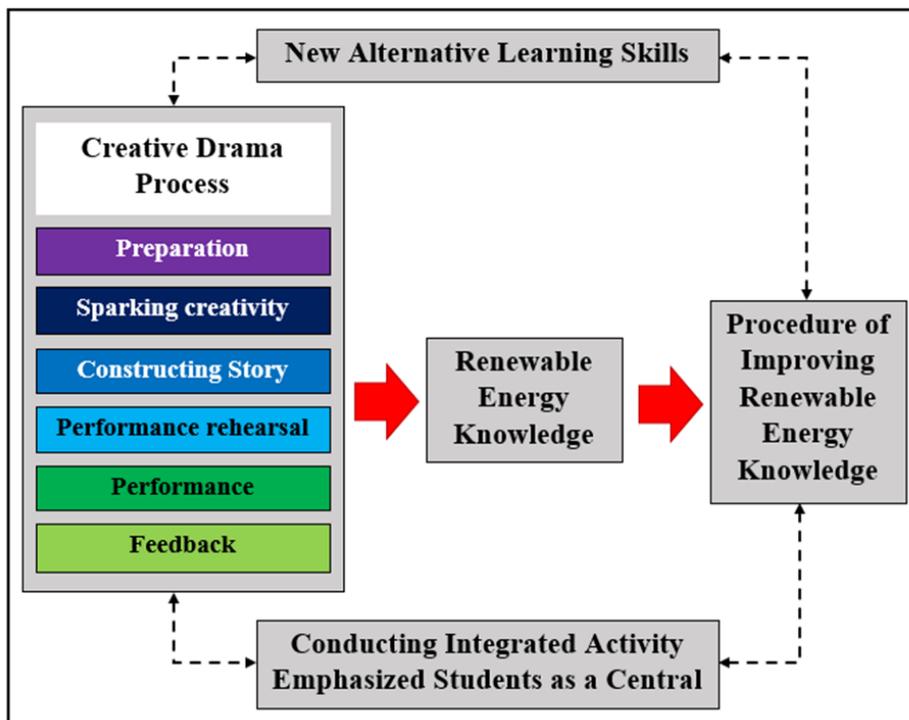


Fig.3. Conceptual framework of Creative Drama: Procedure of Improving Renewable Energy Knowledge through New Alternative Learning Skills



5. ACKNOWLEDGEMENT

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