Creative Play and Learning in Natural Environment to Develop Creative-Ecoliteracy in Elementary School Students

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Abstract. Creativity and Sustainability Education (Education for Sustainability Development) are two global agendas in 21st century learning. This underlies the birth of various pedagogical ideas that are relevant for teaching creativity and eco-literacy. Humans are creatures who love to play (homo ludens) and will always desire to be affiliated with nature (biophilia). Therefore, this article aims to describe how creative play and learning in the natural environment are used to develop creative-eco-literacy in elementary school students. This article presents an overview of Participatory Action Research (PAR) studies in social studies teaching. Kemmis, McTaggart, and Nixon (2014) defined PAR as a study, which creates learning innovation through planning, action, observation, and reflection. The teacher makes learning plans by preparing various creative games performed in the natural environment such as playing on grass, identifying colors, shapes, textures of plants and animal, natural sounds, describing, asking, telling about animals, running, digging, and solving environmental problems such as through gardening activities. The teacher does not forget to make the relevance of these activities with the curriculum that applies in the school thematically. Learning activities are then observed and reflected by the teacher to see their effectiveness and impact on students creative-eco-literacy development. The results showed that creative play activities and learning in the natural environment can be used to develop adaptive, aesthetic, cognitive, communication as a language function, sensorimotor, and socio emotional attitudes in students.

1. Introduction

Creativity is one of the skills that is of concern to the global community in the 21st century. Several countries before the turn of the century have formulated the idea of how students can participate in the 21st century which is full of challenges. Education is demanded to be more creative and develop creative skills for students so that they are able to face the challenges of the 21st century (Smith, in the National Advisory Committee on Creative and Cultural Education-NACCE, 1999: 5). With the birth of a creative education it is hoped that it can encourage the development of the capacity of the younger generation in relation to original ideas and their application. The idea and originality in making something (writings) as a 21st century demand is inseparable from the words "creative" and "innovation". "Creative education" to develop creative skills in students is the key word in the
changing paradigm of education that was discussed by the global community at that time. “Creativity” is considered as the first "must have of thinking" in dealing with the 21st century (Griffin, P., Mc.Gaw, B. & Esther, C., 2012, pp. 18-19; P21, 2002; 2008; 2015).

The creation of creative classes in accordance with the themes of the activity will support the formation of creativity. Classrooms, chairs, benches and simple equipment can be transformed into tools for the "performing arts" of historical actors in the past. Creative teachers do not need special laboratories to simulate concepts, creative teachers can use a variety of environmental facilities such as courtyards, river yards and or the natural environment around the school. The teacher can also create creative games in order to hone and foster creativity in students by utilizing the student environment. Thus, the key word is creative education through creative pedagogy (teaching practice) to foster student creativity.

On the other hand 21st century education is education that is able to integrate various environments to support real and relevant world learning for children and face global issues in their lives (Palmer, J.A., 2003; Supriatna, 2016; Ali, 2017). 21st century education must be able to connect not only with technological devices, in partnership with the community and the world of work but also be able to provide broad access to their environment so as to grow awareness and concern for the environment (ecoliteracy) in an effort to realize sustainability. Awareness of human nature as part of the natural environment (biophilia) must also be a concern in the implementation of 21st century education from an early age (Wattimena, R.A.A., 2019). In this paper, the author attempts to describe how one of the creative pedagogies was developed to develop environmental creativity and intelligence through creative play in the natural environment.

2. Method

This study is conducted as Participatory Action Research (PAR) in social studies teaching. Kemmis, McTaggart, and Nixon (2014) defined PAR as a study, which creates learning innovation through planning, action, observation, and reflection. The study was conducted in grade 5 elementary school in Ciamis. PAR activities are carried out collaboratively with the tutor teacher, planned together and practiced by the student teachers. Aside from being a partner for dialogue, tutors also act as observers.

All activities inside and outside the classroom were recorded, brought up in dialogues and then ended with a reflection overview the performance, strengths and weaknesses. All of that was fixed on every face to face session. All processes that were carried out, recorded, observed, improved and validated together resulted in a learning procedure. The procedure is a new finding that can only be implemented again by the teacher in that school. The procedure belongs to the partnering teachers involving tutor teachers and student teachers (Supriatna, 2019).

3. Findings And Discussion

In facing this century, Griffin, P., McGaw, B. & Esther, C., (2012, pp. 18-19) identified four 21st century skill groups, namely ways of thinking, ways of working, ways for working and living in the world. If seen in order, the four skill groups constitute a systematic sequence. Ways of thinking is the first framework that must be owned by someone. Someone can know how to work, how to communicate and how to live together in the world well and it must be preceded by the ability to think (ways of thinking) is good. The ability to make things (wrighting) as the core of ways of thinking. This way of thinking puts creativity and innovation first. This emphasizes that creativity is a way of thinking that must be developed in learning as a priority for students. Creativity becomes a competency to support and develop life and career skills, learning and innovation skills and skills in using media and information technology (information media and technology skills).

After new learning is integrated into existing ‘ways of knowing’, this in turn fosters creativity and originality and builds new cognitive habits (Lai, 2011). The call to develop pedagogical innovation reflects the view that 21st century learning will be a process of creating knowledge that is managed through personalized learning modes and individual teacher support. In this context, the creativity and originality of teachers and students will be highly valued and must continue to be improved (Paavola
and Hakkarainen, quoted in McLoughlin and Lee 2008a). "Creativity" as a way of thinking becomes very much needed by students in realizing their success in the 21st century, especially for teachers in preparing bridges so students can achieve these skills.

As stated in the introduction, talking about relevant 21st century education and presenting real world for students in the frame of global issues will be closely related to building awareness of biophilia and leading to ecoliterture. Wattimena, R.A.A. (2019) states that in the 21st century, Biophilia is hampered by technological developments. Humans as if cut off from nature, and busy with the technology he made himself. As a result, many people feel alienated and lonely, even though they live in big cities. This kind of alienation opens up opportunities for many other life crises, from depression at the personal level to conflicts at the global level. Educational development that gives birth to ecoliterture for students is very important for our education in Indonesia. First, this concept invites people to return to their origin, namely nature. Attitude accustomed to nature will give birth to respect for nature itself. Environmental preservation is no longer an appeal, but a part of awareness and habits of daily life are major issues in education in the 21st century (Palmer, J.A., 2003; Supriatna, 2016; Ali, 2017; Wattimena, R.A.A, 2019). Second, these two concepts are in line with the concept of mindful education. By being aware of their true identity, and accustomed to connecting with nature, life awareness will also increasingly develop. Emotions can be realized, and managed better. Then education not only produces knowledgeable people, but also healthy and happy. Three, ideas will be useless, without the support of effective and efficient systems and the ability of teachers to develop unusual learning. Deconstructing learning to give birth to freedom of learning for students so as to give birth to creative skills and restore their nature as creatures that are not separate from nature. The goal is to create a nation consisting of people who are able to think broadly, creatively and deeply and are sensitive to technological developments, humanity and nature conservation.

Creativity and Continuing Education (Education for Sustainability Development) are two global agendas in 21st century education. This underlies the birth of various pedagogical ideas that are relevant for teaching creativity and ecolititeration. Humans are creatures who love to play (homo ludens) and will always desire to be affiliated with nature (biophilia). Therefore, this article aims to describe how creative play and learning in the natural environment are used to develop creative-ecolititeration in elementary school students. This article presents an overview of Participatory Action Research (PAR) studies in social studies teaching. Kemmis, McTaggart, and Nixon (2014) defined PAR as a study, which creates learning innovation through planning, action, observation, and reflection.

As a form of implementing creative pedagogy, teachers and researchers collaborate in creating personalized learning practices. So that learning activities have been adapted to the existing environment, the needs of competency development and the characteristics of learners — that is what we mean as personalized learning (Williamson B. & Payton, 2009). In the field implementation, the teacher makes learning plans by preparing various creative games that are performed in the natural environment. The game is like playing on grass, identifying colors, shapes, textures, sounds, describing, asking, telling about animals, running, digging, and solving environmental problems such as through gardening activities. The question is why the game is creative? In human life, playing is fun. Humans from childhood to adulthood like games. This is because humans are essentially "homo ludens” ie creatures who like to play or create games (Huizinga, 1938).

Through creative play activities, the teacher does not forget to make the relevance of these activities to the curriculum that applies in schools thematically. Learning activities are then observed and reflected by the teacher to see their effectiveness and impact on students' creative-ecolititeration development. The results showed that creative play activities and learning in the natural environment can be used to develop adaptive, aesthetic, cognitive, communication as a language function, sensorimotor, and socio emotional attitudes in students. The following are examples of creative play activities in the natural environment carried out in this study along with creative and ecoliteracy attitudes developed through creative play in the natural environment:
Table 1. Implementation Of Creative Play In The Natural Environment

| Domain          | Description                                                                 | Examples of Related Skills                                                                 | Creative Skills Development                                                                 | Eco-literacy Development                                                                 |
|-----------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Adaptive        | Ability to function successfully in one’s environment                        | Maintaining balance while walking over a variety of surfaces and inclines                   | Motivation and Confidence                                                                   | Develop Empathy For All Forms Of Life;                                                   |
| Aesthetic       | Being sensitive to beauty in nature and art                                   | Noticing colors, scents, sounds, and textures                                              | Divergent thinking                                                                         | Develop Empathy For All Forms Of Life;                                                   |
| Cognitive       | Mental understandings                                                        | Understanding concepts related to size, shape, weight, comparisons, and causes and effects  | Curiosity                                                                                 | Embrace Sustainability as A Community Practice;                                           |
| Communication   | Ability to share ideas, thoughts and feelings                                 | Describing, asking, responding, and telling                                                | Divergent Question and Answer                                                              | Embrace Sustainability as A Community Practice;                                           |
| Sensorimotor    | Sensory perception and physical movements                                     | Seeing, hearing, tasting, feeling, crawling, digging, running, splashing, carrying         | Risk Taking                                                                               | Anticipate Unintended Consequences                                                       |
| Socio-emotional | Interactions with others and sense of self                                    | Problem solving, sharing, pretending, caring, constructing                                | Collaboration                                                                             | Understand How Nature Sustains Life;                                                     |

(Adapted from: Wilson & Fulton, 2008, Harris, 2014a; 2016b; Goleman, 2012)

Based on the table above, the teacher plays creative games with students in the natural environment. Students are invited to play by running, race to balance the body, identify the color and shape of leaves, play feeding animals, speaking exercises, asking questions and expressing what they
see, explore, work together with involving environmental issues and solving related problems. Richard Louv (2006), in Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder, uses the term, "de-naturing of childhood," and discusses its extent, possible causes, and impact. He talks about the "criminalization of natural play," which he views as both a symptom and cause of the move from children living immersed in the natural world to being divorced from that world. Another advantage of playing in a natural environment is the lessening of aggressive behavior and accidents. Children tend to bridge their differences more easily in a natural environment; fights and accidents - so common on asphalt yards - give way to more constructive play (Hines, 2005). The quality of play also tends to be synchronized in natural environments. Comparative studies of play in green, natural spaces with play in blacktop playgrounds found that playing on asphalt was much more interrupted and completed of short segments. In more natural areas, on the other hand, children were more likely to invent a whole bag that they carried from day to day. Natural schoolyards made more fantasy and make-believe play, and provided ways for boys and girls to play together in egalitarian ways. Children playing in more natural areas also showed a greater sense of wonder (Louv, 2006).

For example applications in elementary social studies learning through creative games in the natural environment. For material on the type of vegetation and / or material on the diversity of flora and fauna, for example, students can be invited to study in the natural environment which of course with activities that have been prepared. Students can be invited to take a walk to the garden, rice fields, to identify shapes, textures, colors, sounds, shapes, both plants, trees and or animals. By learning outside the classroom students are instructionally asked to record words or vocabulary from what they see. The process of recording vocabulary is left brain activity while the process of understanding and feeling what he sees is right brain activity.

If viewed from the development of several aspects in table 1, can we see that learning with creative games in the natural environment is expected to develop students' multiple intelligences (Gardner, H., 2003). When students learn by using creative games in nature such as supporting plants, trees, flower types, leaf shapes, colors, animal sounds and students to remember, write and read by composing vocabulary, students are intentionally drilled to learn their linguistics. This can also be interpreted as a suitable literacy development in the 21st century (Nirmala, R., Rahman, B. Musthafa, 2018: pp. 92-97; Rahman, Asri WS, Rani NW, & Rasi Yugafiati, 2019; Nirmala, SD, R. Rahman, & B. Musthafa, 2018: pp. 8357-8360). The preferred literacy is students who use creative games in an environment that is acquired by the vocabulary as a language acquisition process. In addition, students learn to compile vocabulary, express with language and practice communicating. Through this creative play in the Natural Environment the emphasis is on literacy when students use them to make decisions about those related to caring for the environment. This is a big point that we want to show through this research. Students learn by using their left and right brain; students are facilitated as homo ludens through games; students are facilitated to be facilitated by nature to accommodate the needs of children's biophilia; and also students who drilled two questions as a big agenda of the 21st century, namely creative thinking and ecoliteration. This is also what I mean by using creative play in the natural environment as part of rethinking and reforming education in terms of changing the world with creative pedagogy (Piirto, 2011; Saxena, S., 2015; Scott, 2015; Selkirk, M. & Keamy, K., 2017; UNESCO, 2013).

The above example is only one of several examples of creative games in the natural environment that are used for the development of intelligence in the development of creative and ecoliteration skills. In another example, creative play in the natural environment can be used to develop kinesthetic intelligence in addition to improving the development of creative thinking skills and ecoliteration. When students are invited to walk on paddy fields, for example, walking is a kinesthetic activity that requires balance. In this activity, students can learn the left brain and right brain. When students talk Flowers, sit on the grass, listen to the sound of air, see the colors of plants, study plants around the fields, the right brain of students will use stimulation. But how teachers use what is received, seen, heard and touched by students to be interpreted into certain concepts is an activity that stimulates the left brain. The end product is in addition to the knowledge students teach in explanations and conversations from what they discussed outside. Storytelling activities with divergent or divergent question ability are examples of creativity developed in elementary school students. A
A creative child will be ready to broadcast. The first possibility is that the child will run straight across the field, try the other is the child will run diagonally across the field. In this game the child will be seen as an indicator of his creative skills.

Basically, creative games in the field can be integrated into all subjects in elementary schools, which will be more easily implemented in the form of thematic learning. When children play arrogantly on the ground, using stones, or seeds that they can find in nature and / or leaves as a medium for arrogant play, then the teacher can look for mathematical concepts and can help related problems to be solved. Likewise, a compilation of learning colors and natural coloring, or learning about the air and what is in the air students can learn about ecosystems, students can learn about changes in shape. Again providing reinforcement by asking different questions will help students develop intelligence and other skills that are both interpersonal to work together and or creative skills. The key to freeing is how the teacher uses what is in nature and then packaging it in the form of fun games and how the teacher packs activities that can accommodate the child's pleasure. Creative students will emerge creatively, curious games are also one of the ways that can be used.

4. Conclusion

Creativity and Sustainability Education (Education for Sustainability Development) are two global agendas in 21st century learning. This underlies the birth of various pedagogical ideas that are relevant for teaching creativity and eco-literacy. Humans are creatures who love to play (homo ludens) and will always desire to be affiliated with nature (biophilia). Therefore, this article aims to describe how creative play and learning in the natural environment are used to develop creative-eco-literacy in elementary school students. This article presents an overview of Participatory Action Research (PAR) studies in social studies teaching. Kemmis, McTaggart, and Nixon (2014) defined PAR as a study, which creates learning innovation through planning, action, observation, and reflection. The teacher makes learning plans by preparing various creative games performed in the natural environment such as playing on grass, identifying colors, shapes, textures of plants and animal, natural sounds, describing, asking, telling about animals, running, digging, and solving environmental problems such as through gardening activities. The teacher does not forget to make the relevance of these activities with the curriculum that applies in the school thematically. Learning activities are then observed and reflected by the teacher to see their effectiveness and impact on students creative-eco-literacy development. The results showed that creative play activities and learning in the natural environment can be used to develop adaptive, aesthetic, cognitive, communication as a language function, sensorimotor, and socio emotional attitudes in students.

The teacher does not forget to make the relevance of these activities with the curriculum that applies in schools thematically. Learning activities are then observed and reflected by the teacher to see their effectiveness and impact on students' creative-ecoliteracy development. The results showed that creative play activities and learning in the natural environment can be used to develop adaptive, aesthetic, cognitive, communication as a language function, sensorimotor, and socio emotional attitudes in students. Through the development of the attitude domain above with the use of creative games in the natural environment of students indirectly also developed some creative skills from (Harris, 2014a; 2016b) and indicators of ecoliteracy from Goleman (2012).

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