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Encouraging Children's Environmental Awareness through Pictorial Children's Story *Sea Change*

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Abstract

Rising sea level as one of the effects of climate change may probably destroy the coastal area. This nature phenomenon is explained in a pictorial children's storybook entitled Sea Change. The story tells about rising sea level in Fiji, and it is suitable to the reality occurring in Fiji. Rising sea level reaches the land by the sea, hence the people living there must be relocated. Sea Changes is analyzed using ecocritical approach and semiotic theory. This study aims to reveal the meaning of visual appearance which goes to the values containing in the story. The analysis reveals four ecocritical elements by Scott Slovic, these are where the humans are, where the humans live, how the humans treat the environment, and how humans treat other humans. The four questions are answered using semiotic theory by Charles Sanders Peirce. The method used in this study is a qualitative method with descriptive analysis, which emphasizes the process of semiosis with the meaning of the relationship between signs or representamen in the pictorial book and the values for children. The results of the study are that Sea Change gives some value for children, these are about where humans properly live, and how humans properly treat the environment and other humans.

Keywords: *rising, sea level, ecocriticism, semiotics*

Introduction

Climate change happens in many places on the earth. Rising sea level is one of the effects of climate change. The sea level may rise by two mechanisms related to climate change. The first mechanism is rising global temperature. It increases the sea temperature, hence the sea rises and requires more space and finally the sea level decreases. The second mechanism is the impact of melted ice increasing the volume of water to the sea. In the last several decades, the phenomenon of global climate change needs serious attention since it triggers negative impacts. One of the impacts is global warming.

According to the data from NASA, at the end of 2008, about 1,5 – 2 trillion tons of ice in Greenland, Antarctica, and Alaska melted fast since 2003. Meanwhile in the last five years, Greenland lost 150 – 16- giga tons of ice. (Sinaga and Yusril, n.d.). Consequently, some countries are affected by the natural phenomenon caused by global climate change. The countries which consist of small islands as their territory get the most impacts. There are three categories of impacts : 1) Physical impact which relates to coastal area's condition and existence. 2) Ecosystem impact which relates to extinction of the lives along the beach

(animal, plant) due to increasing sea water acidity and surface. 3) Social impact which relates to existing human being on the coast, such as relocating people who live on the coastal area because of rising sea level. (Karlina and Viana 2020)

The areas which are susceptible to climate change are countries at South Pacific. There are Fiji, Vanuatu, Solomon Islands, Tuvalu, Samoa, Niue, Tonga, Marshall islands, and Cook Islands. Although South Pacific countries do not send carbon emission, they are much affected by climate changes which threat their existence. Rising sea level often happens in South Pacific countries due to their geographical condition. South Pacific countries are small islands and spread around. They exist on the Pacific Ocean, quite far from the continent, and are surrounded by wide ocean. Therefore, when climate change occurred, South Pacific countries get more impacts than non-archipelago countries. Due to rising sea level, relocating people is done, one of which happens is in Fiji. The impacts of climate change provoked island governments, including the Maldives, Tuvalu, Kiribati, and Fiji, to contemplate the future of their nations. Recognizing that it is relatively low-lying geography limits opportunities for adaptations to coastal degradation, the Government of Fiji, for example, has proposed National Relocation Guidelines intended to provide bureaucratic and financial assistance for vulnerable Fijian coastal villages that will have no option but to relocate. (Bertana 2019).

The phenomena of climate change and relocation the Fijians are drawn in a colorful pictorial children story entitled *Sea Change*, written by Jo Vosailagi. Sea Change tells about a boy named Maku and an old man named Tutu. Maku and Tutu live by the beach. One day, Maku was surprised and got up suddenly because his feet felt like being licked. Apparently, that was sea water which got into his house. No more option, Tutu then asked Maku to move from their village to the higher land. They finally moved in hope for the better life in the higher land. The story most likely takes place in Fiji, despite neither statement about Fiji nor South Pacific. Nevertheless, the writer, Jo Vosailagi, comes from Fiji. Actually she was born and raised in England, and after getting married to a Fijian guy, she moved to Fiji (Vosailagi Jo 2006). This story was published by Let's Read Asia. Let's Read is an initiative of The Asia Foundation's Books for Asia program that fosters young readers in Asia and the Pacific. Through this platform, child readers may see other world outside their homeland.

Children literature is an interesting and imaginative way of introducing about nature. Furthermore, a children story which is completed with pictures can be effectively understood by children. Through pictorial story, children from any ages may learn about environmental aspects not only surrounding them, but also the distant places. They may learn the connectivity between them and environment. Children may build their environmental literacy by reading and understanding story that is appropriate to them (Basile and White 2000). *Sea Changes* gives a chance to children to know the environmental reality in coastal area. It draws the phenomenon by children's point of view, hence the content is possibly understandable for children. Rising sea level that happens in the story is not told dramatically as the characters do not get panic knowing the sea water coming into his house. The story ends happily and still finds solution to the problem. Since *Sea Changes* emphasizes the content of nature phenomenon, thus it is appropriate to use eco criticism approach to get the deeper understanding. To analyze the story, semiotic theory is used because the story consists of not only sentences, but also pictures.

According to (Buell 2009), ecocriticism tries to learn, explore, and analyze the nature-based texts for adding the quality in literature and culture studies. Ecocriticism builds

environmental awareness through literary works. Ecocriticism may form human attitude towards nonhuman forms of life and natural phenomena. Furthermore, ecocriticism takes as its subject the interconnections between nature and culture, specifically the cultural artifacts of language and literature. As a critical stance, it has one foot in literature and the other on land. As a theoretical discourse, it negotiates between the human and the nonhuman. Mishra, 2016 says:

Ecocritics, to do something genuinely meaningful, must offer readers a broader, deeper, and more explicit explanation of how and what environmental literature communicates than the writers themselves, immersed in their particularized narratives, can offer crucial to the Ecocritical process of pulling things (ideas, texts, authors) together and putting them in perspective is our awareness of who and where we are. Our awareness, literally, of where we stand in the world and why we're writing.

In short, ecocritics tries to express the process about who the humans are, where the humans live, how the humans treat their environment, and how humans treat other humans. It orients to the interaction between human and non-human, and so is the interrelationship.

To prove and strengthen the arguments between the ecocritical approach and the data, the authors use semiotic theory as the data which are in text and pictures are all signs that can be interpreted. Children readers have an imaginative power, then they will be more interested in enjoying the visual work. This is what makes the existence of the picture as a sign that basically has a relationship with each other. Visual semiotics basically is a field of study of semiotics specifically interested in the investigation of any kind of meaning is conveyed by means of the sight senses (Budiman 2011). To analyze the composition of the dominant literary images as selected in this study, it must prioritize the visual aspect. Semiotic theory of Peirce, used in this analysis because it emphasizes the visual aspect of the story. Peirce (Short 2007) described trichotomy of signs based on phenomenology. The first trichotomy is considering sign from the sign itself. It consists of qualisign, sinsign and legisign. Each of them is described as, 1) Qualisign is a sign but it cannot be a sign until it is realized. However, the realization has not been a perfect sign. 2) Sinsign is a single sign, and it must relate to qualisign. 3) Legisign is something that becomes sign and agreed by human (Short 2007). The second trichotomy is most fundamental sign division. It consists of three signs based on the relation between sign and its object, these are icon, index, and symbol. (Nöth 2001). Signs are physical objects that can be captured by the five human senses. Sign, according to Peirce consisting of symbols (signs emerging from the deal), icons (signs emerging of similarity) and index (mark that appears on the cause-effect relationships). While this sign is called an object reference. The object or reference is reality or what is considered to exist. Interpretant is the concept of thinking of the people who use sign and lowered it to a particular sign or mark that is in someone's mind about the object that is referenced a sign. Suppose such as when someone sees a chair. Seat here plays as an object, the representamen is "chair", and the interpretant is the seating. The most important thing in the process of semiosis is how another sign appeared on a new sign generated. Another description of relation between representamen and object is the picture in toilet. In the toilet for woman, the icon is something like skirt. The sign/ representamen is skirt, the object is woman as the skirt wearer is commonly woman. Therefore the interpretant or meaning is that skirt is kind of woman’s stuff. It is considered as symbol because it is general perception and agreed by common people. If the image of skirt relates to toilet, the meaning

is that the toilet is for woman. Principally, the semiotic process by triadic relation will create meaning which becomes the new sign, and the new sign can relate to another sign, and so on, since the process is unlimited. To get significance in analysis, several previous researches are needed. The first research is by Aslan & Bas, (2020) entitled Ecocritical approach to children's literature: Example of "I am a Hornbeam Branch". It analyzes a novel I am Hornbeam Branch based on environmental problems. It builds children's eco-consciousness which aims to raising sense of protections for environment. Another previous research is by Bhalla (2012)entitled Eco-Consciousness through Children's Literature – A Study. It presents some children stories encouraging the children to environmental awareness.

From semiotic theory use, the previous researches come from two references. The first is a thesis by (Astriawati 2012) entitled *Nilai-Nilai Akhlak Dalam Cerita Bergambar Anak- Anak Seri Islamic Princes (Analisis Semiotika)*. The undergraduate thesis analyzes children pictorial story to find Islamic moral values in the story. Another research is by (Musrifah 2022) entitled Analisis Semiotik Buku Cerita Bergambar "Kenapa Berbeda?". It uses semiotic theory by Ferdinand de Saussure to obtain the meaning of pictures that introducing sex education for children. Meanwhile, the research using the story Sea Changes has not been appeared yet. Hopefully, this research may enrich the repertoire of the study of children story analyzed using ecocritical approach and semiotic theory.

Method

This study uses qualitative research methods with descriptive analysis. Qualitative research is research that consists of case studies, personal experiences, stories about life, interviews, history, cultural texts, or all visible texts especially those that explain life and the problems of everyday life (Denzin 2000). The data used in this study are primary data and secondary data. The primary data here is a material object, entitled *Sea Change*. Secondary data is collected information that helps the analysis process. The information is in the form of reference books, journals, theses, theses, or other sources of information that assist analysis. Meanwhile, the formal object is the theory of ecocriticism by Slovic and semiotic theory of Peirce, especially on the concept of icons, indexes, and symbols.

The work steps taken are to repeatedly observe the pictorial children's story book *Sea Change*, both visual aspects (images) and verbal aspects (conversations or dialogues). The data showing the relationship between signs were analyzed using C.S. Peirce's semiotic theory to find meaning. The new data (produced from the semiosis process) are analyzed based on four concepts of ecocritics by Scott Slovic. In addition, the meanings are also interpreted in relation to the values for children.

Results

Values for Children

Children may build their environmental literacy by reading and understanding story that is appropriate to them. Sea Changes gives a chance to children to know the environmental reality in coastal area. It draws the phenomenon by children's point of view, hence the content is most likely understandable for children. Children may know the reality that happens outside their home country. Environmental change told in the story has been

adapted based on children's point of view as it is not explained dramatically like a disaster. The rising sea level is not told as something very dangerous, but still has impacts for human.

These are the values of the story for child reader:

Children may realize that as humans, they can live everywhere. However, they deserve to live, not deserve to change or modify environmental changes too much. If a change happens, humans should deal with it. Dealing does not mean letting it be and doing nothing. With their creative mind, humans always have alternatives to stay alive and live well without breaking nature's balance.

Children may learn how to treat the environment properly. Nature gives unlimited facilities for everyone, but it does not mean exploiting. Humans may take advantage, such as from agricultural production. However, they should not be greedy. Furthermore, humans should treat other environmental part, one of them is animal. The story gives message that animal should be treated properly too.

Children may learn how to treat other humans in good way in any condition. In Sea Changes, the two characters represent helping each other when they have to leave their old house. As a mature person, Tutu may probably leave Maku who does not have any idea when sea water reaches the house. Maku as a young boy with his innocence states that he will help Tutu building the new house and planting some kinds of plants for their food source.

Discussion

The analysis starts from ecocritical concept by Scott Slovic, these are: who the humans are, where the humans live, how the humans treat their environment, and how humans treat other humans. Those sub-concepts will be analyzed using semiotic theory by Peirce based on triadic relation: representament – object - interpretant.

Who the Humans Are

These are two human characters in Sea Change, Maku and Tutu. Maku is a boy living with Tutu, an old man.



Fig 1. Image of a house

The sign/ representament is the place where the boy sleeps. The object is a table with vase. The interpretant is that the place is a house, because it resembles an image of a house. Thus, the process results imaginative icon. The next analysis is the sleeping boy, and the

object is the place around (which resembles house), so the interpretant is that the boy possibly lives in that house. It is an index because it is causal relation.



Fig 2. Farming Tool

In the second picture, there is an old man holding a tool. The sign/ representament is the tool held by the old man. It resembles a tool for farming. Therefore, the interpretant is that the tool is farming tool utilized by the old man. It is imaginative icon. It can be concluded that the man lives around the house and makes life by farming.

Another sign comes from a sentence by Tutu,

"I have lived here ever since I was a small boy, Maku.". The representament is the words lived here, and the object is since I was s small boy. It means the interpretant is a long period, and it is diagrammatic icon because it shows time span/ period of something. Tutu said that he had lived since he was a boy, thus he has been living for long time as he is now old.



Fig 3. Where Tutu and Maku Live

The signs in the two pictures, and a sentence said by Tutu show who they are. Maku is a boy living in a house, while Tutu has been living for long time. They are occupants in the setting of the story which is by the sea.

Where the Humans Live

The two characters live by the sea. In the image, a house is characterized by something brown. The sign is the thing which has door, window, short stairs and small balcony. It relates to the object, that is the real house. Therefore, the interpretant is the house because

it has door, window, stairs, and balcony like a house in real (imaginative icon). Besides the house, there is something blue and it is the next sign. It relates to the object, that is coconut tree. The interpretant is a representation of the sea, and it is symbol because the blue color like water and coconut tree are common convention about beach. The humans in this story live in that by-the-sea house since Tutu was young. It means one of the humans here has been living for long time.

After deciding to leave the old house, Maku and Tutu chooses another place which is higher in order to avoid the rising sea water.

Maku points a green land behind his house. As the land is higher than the area around the house, so this is the sign relating to a higher land in real usually called hill. Hence the high land behind Maku and Tutu's house is an imaginative icon for the hill. Maku and Tutu plan to move there for more safety.

"Just think. It would be lovely to live up there. We could still see the sea, but it wouldn't be able to lick our toes any more." You could sit in the shade under the trees. We could plant some flowers beside the house. And we could grow pawpaw and eggplants and chilies," he added excitedly.

What Maku said indicates that humans can live everywhere. They have lived by the sea, and can move due to a danger. They can choose another place, deal with reality, and make their life well there.

How the Humans Treat Their Environment

Maku and Tutu accept the reality that sea water level rises and their house has to be left. They try to prevent the water reaching their house, one of the ways is by building a wall to keep the sea water away from the house.

The first sign from this picture is a wall, it relates with the house beside the wall. The relation creates an interpretant, that is the house is kept from rising sea water. It is index, because there is cause and effect process. Maku tries to protect his house by building wall. However, Tutu as an elder man, refuses Maku's idea and he invites Maku to leave the house instead. As a young boy, Maku has a simple idea that is building wall to keep from the water. However, that idea seems to distract environmental balance, as the water is forced to stop flowing. Therefore as an elder man, Tutu refuses Maku's idea and prefers leaving the house. Tutu seems to protect nature's balance by letting the water flow and rise.



Fig 4. Treating Environment

Treating environment does not only treat the land around, but also the lives on the land. Maku and Tutu treat the land wisely by doing simple farming. Simple farming here means farming in little scale as long as the harvest can afford both of them. That is how they make their life. Another living thing around them is animal. They have a dog as pet animal. They kindly treat the anonymous dog. Even when they plan to move from the beach, the dog is invited too. It means, the humans in this story treat the environment along with all living things on wisely and do not mean to destroy them.

How Humans Treat Other Humans

In this story, there are only two humans as the characters. However, how they treat each other can be the sample of how human treats other humans. Tutu is an old man who has been living for long time in the house, Maku is a little boy living with him. Nevertheless, there is no statement whether they are family or not. Even there is no statement explaining that Maku is probably Tutu's grandson or son, because Maku calls that old man only by name. Despite no statement about family, Tutu treats Maku with love.



Fig 5. Treating Human

In the picture, Tutu and Maku stand side by side. Tutu's right hand holds Maku's left hand. The held hands symbolize unity and protection. As the older man, Tutu tries to protect Maku and invites him to deal with reality happening in their surrounding environment.



Fig 6. Treating Human

The next picture says the same thing. Tutu puts his left hand on Maku's shoulder. It symbolizes that Tutu wants to advise Maku as the younger man. Maku treats Tutu also with love, as quoted below:

> Maku looked up at Tutu and smiled. "Don't worry, Tutu," he whispered. "I'll help you pack all your things. We can build you another house."

As the younger man, Maku helps Tutu to pack his belongings and promises to build a new house. In conclusion, both of the characters (as humans) treat each other very well with love.

From the four ecocritical aspects by (Slovic 2016), Sea Changes presents the relationship of humans and environment. The first aspect is who the humans are. The humans in this story are the two characters, they are the occupants of a house by the beach. They make life by farming. Therefore, they are the occupants who live harmoniously with the environment. The second point is where the humans live. The humans firstly live near the sea. When they cannot live longer by the sea, they plan to move to higher land. It means they can deal with any condition and can live anywhere in any environmental condition. The third point is how humans treat environment. Knowing that the sea water rises and reaches their house, Maku suddenly has an idea to build a wall to keep water away. However, it is refused by Tutu. It means that Tutu does not want to fight the nature phenomenon. He lets the nature keeps its balance. As human, he also treats the environment wisely by farming in little scale. Even when they have to leave their old house, they accept the reality and plan to move to another place. The four point is how human treat other humans. Tutu as older man treats Maku with love and wisely, and so does Maku. Maku as the younger man is helpful.

Conclusion

Nature phenomenon is something common in human life. Every place in the world has the different types of nature phenomenon, depending on the physical and supporting conditions of the place. Nature phenomenon is important to introduce to children because they may build environmental awareness. One of the ways of introducing it through children literature. Analyzed by eco-critical approach and semiotic theory, the pictorial children story book Sea Change reveals some values. The first value is that humans may live everywhere on the earth, yet they should not change or even break environmental balance. The further values are that humans should maintain good relationship with other elements of life, these are nature, animals, and humans themselves.

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