

Promoting Environmental Awareness using Comic Books for Children Aged 5 – 6

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Abstract

Environmental awareness is a behavior reflected in a person who is always mindful of their actions so that they do not harm the environment. This behavior is important because environmental damage is increasing due to global climate change and extreme weather. Early childhood education plays an important role in promoting environmental awareness as early as possible. This study aims to identify the problems related to environmental awareness in children and provide an alternative solution to promote environmental awareness in children aged five to six years old. Interviews conducted with two early childhood education teachers in a kindergarten in South Bekasi found that children still have low environmental awareness and the need for learning media to help promote it. The use of comic books as a teaching strategy in early childhood education is still not common as comics are often seen as shallow and lacking educational value. This study reviews literature concerning the use of comic books as learning media in educational settings. By applying descriptive qualitative method, the results show that comic books have the potential to be used as a learning media in early childhood education. This finding is expected to serve as a reference for using comic books in learning to promote environmental awareness for children aged five to six years old.

Keyword: environmental awareness; comic; early childhood

1. Introduction

Based on Intergovernmental Panel on Climate Change (IPCC) data, global warming is estimated to reach 1.5°C in the year 2030 to 2052. This can cause the increasing of environmental damage such as the growing numbers of natural disasters, lack of clean water, and biodiversity loss and if these continue to happen, it is our children in the future who will bear the severe impact of environmental damage (Neenan et al., 2021). Thus, it is essential to promote children's environmental awareness at an early age. Children need to be involved in any discussion's topic related to environment (Neenan et al., 2021) also to be given space to contribute to make change in preserving the nature (Heggen, 2019). Children with environmental awareness realize that they are part of the ecology who live together with other living things so they have critical attitude towards things related to how people uses various natural resources (Sageidet et al., 2019). To conclude, environmental awareness is a behavior reflected in a person who is always mindful of their actions so that they do not harm the environment even to participate in fixing and minimizing the environmental damage.

Promoting environmental awareness is in line with the aim of Sustainable Development Goals (SDGs) by United Nation in Brundtland Report (1987) where sustainable development means building three pillars (society, environment dan economy) for today's well-being without compromising the next generation's well-being (Broström & Frøkjær, 2019). Therefore, as Indonesia is one of UN's members, there is an urgency for our country to also contributes to support the aim of SDGs. One of possible contributions is by promoting environmental awareness as early as possible through education. Environmental awareness is related to strengthening character education or known as *Penguatan Pendidikan Karakter (PPK)* as In Presidential Regulation of the Republic of Indonesia number 87 of 2017 stated that PPK is the responsibility of family, educational units and society. So Early Childhood Education (ECE) as one of education units have this responsibility. However, problems still occur in ECE in Indonesia regarding in promoting environmental awareness which learning activities are mostly focus on academic achievement (Utami et al., 2020) especially on reading, writing and counting (Hapidin & Yenina, 2016) while neglecting the character and moral (Towoliu et al., 2020). This causes children's ignorant behavior towards environment, such as littering, using water excessively, and uprooting plants (Oktamarina, 2021).

Environmental awareness is a behavior that is formed by the cognitive development of children which according to sociocultural theory by Vygotsky, cognitive development can be achieved through social interaction between children, teachers and peers (John-Steiner & Mahn, 1996; Scott & Palincsar, 2013; Seefeldt et al., 2013; Vygotsky, 1978). In a social interaction, there is an important role of cultural tools which can be interpreted as a medium to help build children's perspectives, understanding and experiences (Scott & Palincsar, 2013; Vygotsky, 1978). Comics are a medium that can help develop children's understanding through visualization of stories and characters (Hapidin et al., 2022). Comics are potential medium for conveying knowledge, providing a positive impact on learning and providing learning motivation for young children (Christina et al., 2019; Hapidin et al., 2022; Ismail et al., 2020; Syarah et al., 2018; Wiegerová & Navrátilová, 2017; Wildová & Kropáčková, 2015)

2. Literature Review

2.1 Environmental Awareness in Early Childhood

Environmental awareness is behavior which is formed as the result of children's cognitive development. Vygotsky is one of the famous psychologists with the theory of early childhood cognitive development. In the 1920s, Vygotsky's sociocultural theory defined the connection between children as individuals and social processes in terms of learning and development which children's interaction with the people around them is the core of the success of a learning activity (John-Steiner & Mahn, 1996; Scott & Palincsar, 2013; Seefeldt et al., 2013; Vygotsky, 1978). According to Vygotsky, interactions between one person and another will make a person connected dynamically with their environment which forming the understanding of their world through a reproductive and productive process (Lindqvist, 1995). The reproductive process is related to memorizing activities, while the productive process is related to actions or attitudes. The reproductive process occurs when children learn and remember the patterns and habits of their surroundings. Then after that the child will interpret and build his own concepts and be able to determine the attitude he will display in interactions with his environment.

Vygotsky believed that learning and development are unity and interdependent (Scott & Palincsar, 2013). In learning, children's mental development is stimulated where a link between internal and external processes is formed. Internal and external processes are two inseparable things (Lindqvist, 1995; Vygotsky, 1978). Through learning, the child's ideas (internal) which are imagination, interpretation and desires can be realized in the form of action (external). Internal process is a part of development that is the basis for the realization of external action. However, the internal development process can only take place in learning if there is interaction cooperation between children and the people around them, including their peers (Vygotsky, 1978). Children learn by observing differences in thinking and behavior patterns from the environment around them. Historically, a person's development has been seen as a two-way relationship. It's not just environmental conditions that determine children's development. The environment influences the child, and vice versa, the child influences the environment and through this two-way process a new environmental situation will be formed (Vygotsky, 1978).

Environmental awareness is the goal of environmental education (EE) which are to produce people who are knowledgeable about the biophysical environment and its problems, aware of the strategies that can be used to deal with these problems and actively involved in implementing possible solutions (Fisman, 2005). As for the Tbilisi Declaration held by UNESCO in 1977, awareness of the surrounding environment was considered an important first step in realizing a responsible attitude and protecting the environment (Fisman, 2005; Hungerford & Volk, 1990). In this declaration, environmental awareness is defined as a person's sensitivity to the environment as a whole and the problems within it (Hungerford & Volk, 1990). There is a framework for thinking about systems for changing behavior towards the environment. The behavior change system put forward by Ramsey & Rickson shows that making people aware of the environment and related issues will make a person more aware of

the environment and the problems that exist in it and thus will trigger responsible actions towards the environment (Hungerford & Volk, 1990).

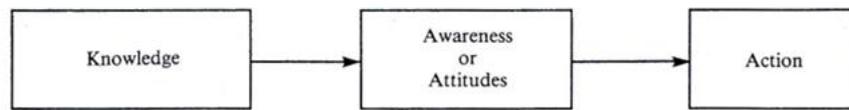


Figure 1. Behavior changes system (Hungerford & Volk, 1990)

To sum up, there are three dimensions of environmental awareness which are knowledge, attitudes and actions. Environmental awareness can be achieved if children have adequate knowledge about the environment and existing problems. Therefore, with this knowledge a responsible attitude will emerge and with children's thinking ability, they are able to act actively participating in relation to environmental sustainability will be achieved.

2.2 Comic Books in Early Childhood

In 1978, Vygotsky proposed the concept of using media to connect people in social interactions in their environment. These tools are formed by society which are product of historical human activities and may change along the cultural developments (Gray & MacBlain, 2012; Vygotsky, 1978). These tools are known as cultural tools in the form of language media or symbol systems (John-Steiner & Mahn, 1996; Vygotsky, 1978). According to Vygotsky, language and behavior are two interrelated things where language is a tool or medium in interpreting the world Lindqvist (1995). Cultural tools have an important role in the development of children's thinking because they can help children to build their perspective, understanding and experiences. Apart from aiming to build relationships with the external environment, cultural tools also help to build internal and functional relationships in the working system of the human brain (Vygotsky, 1978). Cultural tools are used as media in human activities both in social and individual contexts that are semiotic in nature. Included in semiotics are language, various ways of calculating, memorization techniques, algebraic symbol systems, various works of art, written works, schemes, diagrams, maps and drawing techniques (Scott & Palincsar, 2013; Vygotsky, 1978).

Using comics as learning media, especially in early childhood context is still taboo. In contrast, comics contain many aspects of semiotics as stated above, such as language, symbols, drawing and works of art may be beneficial to be used as cultural tools or learning media. Basically, comics have been known to the public for a long time, as in 1993 a cartoonist and senior comics expert, Scott McCloud, theorized comics in the form of a comic entitled "Understanding Comic". In his comic, McCloud defines comics as the pairing of illustrated images with symbols into a sequence with the aim of conveying information and providing aesthetic value to those who see it (McCloud, 1994). In sum, comics are combination of words and images in the form of two narrative lines, namely verbal narrative and visual narrative, both of which are arranged proportionally (Chute, 2008).

However, Stoodt-Hill and Amspaugh-Corson (2005) stated that when choosing books as learning media for young children, there are some factors that need to be considered, which are:

- 1) Using texts or sentences that can stimulate children's thinking and provoke open-ended questions between children and companions (adults/teachers)
- 2) Using simple language style so that easy for children to understand, but still enrich children's language vocabulary
- 3) Techniques that can hook readers; makes it seem as if those reading it are involved in the story
- 4) Have a strength in subjects; each character has a strong character trait
- 5) Accurate in delivering message through the story
- 6) Having an appropriate story for children
- 7) Attractive in terms of characters, story line, drawing and color.

In addition, Wiegerová & Navrátilová (2017) conceptualized the characteristics of scientific comic which aim to reach the efficiency of using comic as learning media in early childhood:

- 1) Presenting scientific ideas in the form of visual image
- 2) Containing only minimal text in the form of dialogue
- 3) Alternative perspectives and scientific perspectives are presented in a balanced manner
- 4) Scientific ideas which are applied in daily life are based on authentic experiences familiar to children
- 5) May contain more scientific explanations depending on the number of variables

To conclude, there are three key points to be considered when using comic books in early childhood learning activities, which are:

- 1) Science content is expressed more in the form of pictorial illustrations than writing
- 2) The development of scientific concepts is delivered in fictional stories
- 3) The stories are close to cases in children's daily lives

3. Material and Method

A descriptive qualitative method is applied in this study along with conducting a literature review approach. Empirical data are also collected by doing interviews with two early childhood education teachers to obtain information regarding the problems faced in the ECE unit.

3.1 Design Study

This study explores and describes the concept of environmental awareness in early childhood and current problems encountered by ECE unit concerning environmental awareness. Literatures with criteria of environmental awareness, sustainability and environmental education in early childhood education context were identified in order to get information about the urgency of promoting environmental awareness in children. Literatures with criteria of book, as well as comic, as learning media for children were identified to get information about the effectiveness of comic in education context. Interviews with ECE teachers were also

conducted to explore the current problems related to environmental awareness encountered in ECE units.

3.2 Data Analysis

There are two categories of literature that were identified, category 1 is literature concerning environmental awareness, category 2 is literature concerning the use of comic books as educational learning media. Those two categories later were being reviewed to get an understanding whether comic books are effective to be used in promoting environmental awareness in children aged 5 – 6.

1) Category 1

Research Area	Reference	Research Focus	Finding
Sustainability	Brostrom et. al (2019)	To explore how to promote environmental awareness in children	Awareness regarding sustainability and nature preservation can be obtain by applying scientific Playworld in learning activity
Environmental awareness	Heggen (2019)	To describe the concept of environmental awareness	Children with eco-citizen identity have a sense of belonging to the planet earth, therefore they will have awareness that they play role in preserving the nature
Sustainability	Sageidet et. al (2019)	To explore the urgency of promoting environmental awareness in children	Most of the children from both Norway and Australia like outdoor activities but they still have limited knowledge in term of sustainability
Environmental awareness	Simsar (2021)	To explore the urgency of promoting environmental awareness in children	Children's awareness of ecological footprint is still low and most of them has Anthropocene attitude to the environment
Sustainability	Neenan et. al (2021)	To explore the urgency of promoting	Children will bear the severe impact of later environmental

		environmental awareness in children	damage, so that children must be given space to get involved and actively participated as co-researchers in research related to geoscience (earth science)
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2) Category-2

Research Area	Reference	Research Focus	Finding
Story books as learning media	Kalogianakis et. al (2017)	To explore the effectiveness of pictorial story book in learning	Through pictorial story book about magnet, children have a complex knowledge about magnetism
Comic books	Wiegerova & Navratilova (2017)	To explore the effectiveness of comic books kindergarten learning	Conceptual comics may help the preschoolers who cannot read yet to understand the natural phenomenon
Comic books	Syarah et. al (2018)	To explore the effectiveness of comic books kindergarten learning	Digital comic is effective in promoting children's understanding of ocean conservation by giving children the experience to see concrete things
Comic books	Artha et. al (2020)	To explore the effectiveness of comic books kindergarten learning	Digital comic is attractive and entertaining to children thus improve children's motivation in learning
Comic books	Ismail et. al (2020)	To explore the effectiveness of comic books kindergarten learning	The use of comic shows a quite large contribution in improving

			preschoolers' literacy skill, not only for reading comprehension, but also provide added value to improve children's critical thinking power
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Data that shows problems faced in the ECE unit regarding environmental awareness is collected through interviews with two ECE teachers named Mrs. H and Mrs. A.

1) Interview 1 (with Mrs. H)

Teacher's name : Mrs. H

Date : August 1st 2023

Question	Respond
What do you understand about environmental awareness in children?	What I know about environmental awareness is children's attitude that show responsibility to protect natural environment surround them
Are there any efforts from teacher to build environmental awareness in children?	Yes, by always reminding children to throw the food packaging waste in trash bin every after mealtime
Besides verbally, has teacher used any tools or media in efforts to build environmental awareness in children?	No, I had never

Teacher's name : Mrs. A

Date : August 1st 2023

Question	Respond
What do you understand about environmental awareness in children?	Environmental awareness is an attitude shown on children are responsible and do not waste the natural resources like water and electricity.
Are there any efforts from teacher to build environmental awareness in children?	Yes, by always reminding children to throw trash in the trash bin, telling children to turn off the tap water and lamps when not in use, and inviting children to water the plants
Besides verbally, has teacher used any tools or media in efforts to build environmental awareness in children?	Most of the time we just do it by reminding the children just like I already mentioned. But sometimes we took the children to the park to show children the beauty of nature so that the sense of loving the nature will emerge in children.

4. Result

There are two categories of literature that had been collected. Category 1 shows a group of literature that proves the urgency of promoting environmental awareness in early childhood education. Besides, it also shows that environmental awareness is a behavior that can be obtained through learning activities. Category 2 shows a group of literature that proves the effectiveness of using comics as learning media. While the interviews show that teacher don't have any specific strategies in promoting children's environmental awareness. Teachers only reminding children verbally which doesn't evocative children's mind.

5. Discussion

According to the interviews with Mrs. H and Mrs. A, we know that children are still have a low level of environmental awareness. It can be said because the children still need to be reminded only to throw the trash in the trash bin also to turn of the tap water and lamps when not in use. Teacher also don't have strategy to promote children's awareness. This causes problems that children are oblivious to their responsibility. The way teachers just keep reminding the children is not effective to arouse children's awareness, because as Vygotsky stated that awareness is a result of cognitive development which can be achieved through learning activities that involving children in social interactions with adults and/or peers. It is proven in Broström & Frøkjær (2019) who applied a play pedagogy called "Playworld" to promote children's awareness regarding sustainability and nature preservation in Danish early childhood education. The urgency of promoting environmental awareness in children also can be seen in both interviews and the literature. As in Sageidet et al. (2019) and Simsar (2021) found that children are still clueless and have limited knowledge related to environment sustainability. While Neenan et al. (2021) stated that the more severe impact of environmental damage later will be borne by today's children, so it is necessary to awaken children now about current environmental issues.

Based on the interviews with Mrs. H and Mrs. A, they don't have means that interest children in teaching about environmental awareness. Thus, tools or learning media are needed as the concept of learning media according to Vygotsky shows that cultural tools have an important role in the development of children's thinking because they can help children to build their perspective, understanding and experiences. Comics are one of the effective media that can be used in learning activities in early childhood education. Artha et al. (2020) found that comic is attractive to children and improve children's motivation in learning. In line with Ismail et al. (2020) who stated that using comic contributes to improve preschoolers' literacy skills and critical thinking. Associated with environmental awareness, Wiegerová & Navrátilová (2017) found that conceptual comic may help children who cannot read yet to understand natural phenomenon. Syarah et al. (2018) also had developed a digital media that empirically proven effective in promoting children's understanding about ocean conservation.

6. Conclusion, Implication, and Recommendation

Environmental awareness can be achieved if children have adequate knowledge about the environment and existing problems and with this knowledge a responsible attitude will emerge and with children's thinking ability, they are able to act actively participating in relation to environmental sustainability will be achieved. Therefore, it is important to awaken children with knowledge first. Comics are useful to deliver knowledge to children as comics contain many aspects that are attractive to children. Using comics will evoke children thinking that beneficial give them understanding about their surroundings so that will promote their awareness.

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