

Ecological Literacy to Improve Students Awareness in Maintaining Nature Contained in Indonesian Language Books for Foreign Speakers

¹Dewi Aprilia Sari, ²Andayani, ³Sarwiji Suwandi

¹*Universitas Sebelas Maret, Indonesia, dewiaprilia@student.uns.ac.id*

²³*Universitas Sebelas Maret, Indonesia.*

Abstract

The problem of ecology is an interesting topic to be studied continually. In this era, the reason why environmental damage is something that occurs recurrently. Education should be an alternative to provide awareness and solutions to environmental damage. One solution to solve that problem requires significant efforts by integrating ecological literacy into textbooks. Therefore, to achieve this goal, it is necessary to provide teaching materials with an ecological perspective. This research was written to describe the value of ecological literacy in Indonesian language textbooks for foreign speakers. This study used a mixed approach to analyse qualitative and quantitative data in one study. Based on the analysis, the ecological literacy values included (1) ecological knowledge (general knowledge, socio-political system, and environmental problems), (2) affective tendency (factors in individuals), (3) behaviour (awareness of self-control), and (4) cognitive skills (related to environmental problems). However, the content value of ecological literacy was more dominant in the aspects of ecological knowledge and had not been emphasised in all aspects.

Keywords: ecological literacy, environmental problems, Indonesian language textbooks.

INTRODUCTION

The environmental problem has become one of the most crucial problems to be overcome, showing that it involves living in the future. In this era of globalisation, development is very rapid in various fields and often triggers people to behave unwanted. The relationship between humans and the environment can cause environmental problems, especially if there is no responsibility (Rahmawati et al., 2020). One of the factors causing environmental problems is the community's low awareness of the environment, so it is necessary to educate and minimise environmental problems (Suwandi et al., 2019). For students, environmental problems provide a unique experience because they actively participate in activities and show a positive attitude in handling these problems (Boyce et al., 2014).

On the other hand, language is an essential part of education. It assures that language as the language of communication is used in all educational activities, particularly in the implementation of learning (Praheto et al., 2020). Besides, language learning activities should not only focus on language teaching and communication skills while ignoring the global problems but also address global issues in teaching language, such as awareness to protect the environment (Cates, 1990). Awareness to protect the environment is a content value of ecological literacy that can be conveyed explicitly and impliedly in a text to show the importance of treating nature appropriately (Sukmawan, 2017).

Environmental literacy can simply be defined as environmental literacy, essentially the capacity to perceive and interpret the relative health of the environmental systems and take appropriate

action to maintain, restore, or improve those systems' health (Roth, 1992). Furthermore, Roth (1992) identified knowledge, affect, skills, and behaviour as the four crucial environmental literacy stands. The components of knowledge include a person's knowledge of 1) physical and ecological systems, 2) socio-cultural systems, 3) environmental problems, and 4) community participation in preparing action plans for solving environmental problems. The attitude component describes a person's sensitivity and response to environmental problems, the skill component portrays a person's ability to take action on environmental problems, and the behavioural component shows involvement and habits as an individual or group to try to solve current environmental problems and avoid the new problems (Hollweg et al., 2011).

Thus, the ecological literacy program's success is through environmental literacy education using textbooks as the media. The textbook used in this study was the Indonesian language textbook for foreign speakers (BIPA). The Indonesian language learning program for foreign speakers increasingly in demand by international students is one of the strategies. Indonesian for foreign speakers (BIPA) is a study specifically designed to provide instruction for international students who want to learn Indonesian. Besides, the teaching of BIPA is used to disseminate the Indonesian language and a means of conveying various kinds of information about Indonesia, including Indonesian society (Riyanti et al., 2019). In this case, books as a media for ecological literacy have a strategic role in language learning, namely (1) a source of material orally and written, (2) sources of communicative interaction activities and student practices, (3) sources of reference for students regarding linguistic aspects, (4) sources of ignition for language activities in class, and (5) syllabus (Cunningsworth, 1995).

Education is an effective means of raising awareness of environmental conservation. In the United States, ecological literacy is related to environmental education, as expressed by McBeth B (2010) that "when we approach the discussion of environmental literacy in the United States, it helps provide a context by stepping back to look at the development of environmental education". The community believes that the education system is responsible

for the sustainability of environmental education. Mental development efforts and positive attitudes towards the environment are carried out by integrating the use of textbooks.

Referring to the theory by (Capra, 2004) and (Goleman, 2009), the value of ecological literacy contained in textbooks includes several things, as follows: (1) identifying ecosystem components, (2) understanding the function and utilisation of ecosystem components, (3) understanding the system of natural management, (4) understanding the values of environmental care, (5) representing concern for environmental damage, (6) solving problems due to the impact of environmental damage, (7) implementing environmental care behaviour, (8) managing the existing natural resources, and (9) utilising the environment wisely and positively. Books are an essential alternative in education because books are effective agents of change (Torres, 1994). Besides, quality textbooks can also be the right means for long-term change because through textbooks, implementing a positive attitude towards the environment will enable children to position themselves as environmental leaders (Utina, 2015).

Research Method

This research used a mixed-method, namely the procedure of collection, analysis, and a mixture of qualitative and quantitative methods in one study (Creswell, 2014). The data collected in this study included qualitative data and quantitative data that aimed to provide a better understanding of the problems in this research. This study's data sources were seven Indonesian language textbooks for foreign speakers entitled "Sahabatku Indonesia" in 2019. The data were obtained from the Indonesian language textbook for foreign speakers entitled "Sahabatku Indonesia" BIPA editions 1, 2, 3, 4, 5, 6, and 7; each of these books consisted of 10 units and themes.

This study employed a content analysis study to interpret the data obtained. The components of ecological literacy contained in the textbook "Sahabatku Indonesia" were (1) knowledge, including general knowledge, political-social systems, and environmental problems, (2) affective tendency, covering factors within the individual regarding environmental awareness, (3) behaviour, comprising awareness of self-

control not to damage the environment, and (4) cognitive skills, consisting of skills to protect the environment. The items analysed in the seven BIPA textbooks encompassed material maps, previews, the introduction of units or chapters, pre-activities, texts, exercises, assignments, and material summaries. The sentences and paragraphs in BIPA textbooks were this research's focus to obtain the data; all texts were read and compared to determine the compatibility of the final data to be achieved.

Results and Discussion

The research results in the book "Sahabatku Indonesia" on the content of ecological literacy are in Table 1. The contents of Ecological Literacy in the Indonesian Language Textbook for Foreign Speakers (BIPA) "Sahabatku Indonesia" edition 1, 2, 3 4, 5, 6, and 7 covered four components: (1) ecological literacy, (2) affective tendency, (3) behaviour, and (4) cognitive skill. The ecological knowledge component dominated among the other three components. From the twenty-five components of ecological literacy, ecological knowledge got 12, with a percentage of 48%, affective tendency got 7, with a percentage of 25%, behaviour and cognitive skills got with a total of 3, with a percentage of 12%, as in the following table:

Table 1. *The Distribution of Frequency and Percentage of Ecological Literacy in the Textbook "Sahabatku Indonesia"*

No	Ecological Literacy Components	Number	Presentation
1.	Ecological Knowledge	12	48%
2.	Affective Tendency	7	25%
3.	Behaviour	3	12%
4.	Cognitive Skill	3	12%
Total		25	100%

The analysis results regarding the content of ecological literacy in Indonesian language textbooks for foreign speakers (BIPA) included 1) knowledge, 2) affective tendency, 3) behaviour, and 4) cognitive skills. Of the four literacy points contained in the seven BIPA

textbooks entitled "Sahabatku Indonesia", they could be described as follows:

Ecological Knowledge Component of Ecological Literacy

Knowledge in ecological literacy includes knowledge of environmental literacy, such as biotic, abiotic, and life components. The type of interaction includes human interaction with nature and the basic components of the social system. Based on the analysis results of ecological knowledge contained in the Indonesian language textbook for foreign speakers (BIPA) "Sahabatku Indonesia", the following data were obtained:

"The Baduy tribe in Lebak Regency, Banten is famous for its local wisdom. Baduy men's education work as farmers. Meanwhile, women's education is at home for weaving cloth and cooking. These daily activities are carried out without the slightest technology; everything depends on nature".

The interaction between nature and humans is reflected in the activities of the Baduy tribe in their daily life. The Baduy tribe relies on nature as a source of livelihood, namely by farming. These activities are carried out without using any technology. Therefore, farming activities carried out by the Baduy tribe without any technology can maintain the balance of nature. Furthermore, the second data is:

"The traditional market is now also cleaner. Sellers and buyers are very familiar with the cleanliness of the market. Many traditional markets make rules that not to litter any places. All those have done so that buyers feel comfortable when shopping at traditional markets".

One of the actions that reflect ecological knowledge in ecological literacy is creating cleanliness and tidiness in traditional markets. The awareness of cleanliness possessed by sellers and buyers is an essential aspect so that the rules for not littering can become a habit performed continuously. The same data can also be seen in the applications of plastic use in the modern market, as follows:

"In commemoration of the National Plastic Waste Care's Day, the government implements a paid plastic bag policy in the modern Indonesian market. The government prohibits

giving plastic bags to consumers. This policy is set to reduce the amount of plastic in Indonesia”.

In Indonesia, to celebrate National Plastic Waste Care’s Day, the government implements a paid plastic bag policy in the modern market. It aims to reduce the use of plastic waste in Indonesia because plastic waste is difficult to decompose, as the next data below:

“The increasing dependence of society with various technologies today also impacts a large amount of electronic waste. Hazardous and toxic wastes that are often found in offices, homes, or commercial facilities are used batteries, plugs, lamps, ink packs, cell phones, laptops, television, and so on”.

However, the unavoidable dependence of society on technology can cause new problems, namely the existence of electronic waste originating from offices or households. This electronic waste creates an imbalance with nature because it contains hazardous materials that can pollute the environment if not handled properly. The same data is also contained in the following data:

“Garbage that is not handled properly is a good place to grow and nest for some harmful organisms. Garbage also has a negative impact on the environment. Garbage thrown away carelessly can cause water pollution”.

Garbage that is not handled properly is a good place for the growth of harmful organisms that can disturb the environment. Environmental problems are very crucial because they involve the quality of life in the future. Waste problems that occur are not only for now but also for the future. The habit of littering garbage is still a cause for concern, so knowledge is needed to improve ecological literacy skills.

Affective Tendency Component of Ecological Literacy

The affective component relates to the factors that exist within the individual to reflect on environmental problems. The ability to understand oneself and act according to the self-understanding of environmental problems is needed because humans always depend on their environment in life. The data analysis obtained from the BIPA textbook “Sahabatku Indonesia” are as follows:

“They opened a post and invited residents to throw their trash in the place that provided. They also provide free trash bags that residents can pick up. It is hoped that all parties will care about environmental sustainability so that the sea is free from plastic waste”.

The awareness to protect the ocean's ecosystem from plastic waste must be embedded in an individual. Preserving the marine environment can be done by inviting residents to throw garbage in the space provided. People who are aware of ecology's importance will be realised if people start to raise awareness about the dangers of garbage.

“It is hoped that the community will participate in reducing plastic and cardboard waste. Hopefully, there will be creative ideas that emerge from this situation, such as using an environmentally friendly shopping bag with a creative design”.

Another option to minimise the presence of waste is to reduce the use of materials that are difficult to decompose by nature and replace them with environmentally friendly materials. The data analysis results were also strengthened by the findings of the following data:

“There are also those who use plastic as a craft material and increase creativity. One that is often used is coffee wrappers. Coffee wrappers themselves are often created into various things such as purses and bags. Because plastic is a type of waste that is difficult to break down, this recycling activity can be tried”.

Plastic recycling is also an option to protect the environment from plastic waste that is difficult to decompose. Recycled plastics not only protect the environment but also increase people's creativity in utilising the plastic itself. The BIPA textbook “Sahabatku Indonesia” contains many affective tendency components that can increase the awareness of international students studying Indonesian to feel responsible for their environment.

Behaviour Component of Ecological Literacy

The behaviour component of ecological literacy in the BIPA textbook “Sahabatku Indonesia” refers to additional content but has not fully demonstrated responsible behaviour towards the environment and efforts to solve the environmental problems. The data analysis

results showed that the BIPA book "Sahabatku Indonesia" edition 1, 2, 3, 4, 5, 6, and 7 contained cultural values or habits of the Indonesian people that impacted environmental sustainability; here are examples of data contained in the textbook:

"One of the Indonesian people's cultures is "Gotong Royong". Gotong royong is usually held on weekends. People usually work together to clean up the environment and build public facilities".

For a long time ago, the culture of mutual cooperation has been very familiar in Indonesian society. It shows that the habit of working together to clean the environment is an action to maintain a balance between humans and their environment. Besides, in Indonesia, there are also Car Free Day activities to reduce air pollution. The data is as follows:

"In Indonesia, there are car-free days. The event is usually held on every Sunday morning. Air pollution is also a special concern for environmentalists. The Car Free Day, which was held in the last few decades, has provided opportunities for many layers of society not only to improve the community's economy but also to reduce pollution so that people can breathe fresh air amid the stuffy cities".

Air pollution is also a particular concern for environmentalists. Therefore, the Car Free Day activity is usually held every Sunday and is followed by people from various backgrounds. This activity aims to reduce air pollution from motorised vehicle fumes, commonly used by people daily. The further data are as follows:

"Floods are very harmful. Prevention must be done immediately, throw of garbage in its place, clean drains, do not cut trees illegally. We can prevent flooding by doing these things".

Flood has become a crucial problem since several decades ago, and it has become the initial awareness point for the community in littering garbage and illegal logging activities. The interest in trading natural resources must be addressed immediately to maintain the balance of nature.

Cognitive Skill Component of Ecological Literacy

The cognitive skill component of ecological literacy refers to analysing and evaluating

environmental problems based on existing evidence. This component category includes the skills needed to select appropriate action strategies and implement ecological literacy planning. The data from the analysis are as follows:

"The government has made many warnings about the dangers of smoking to reduce the number of smokers. However, the warning was still ignored. Even though, smoking can be harmful to smokers and people around them".

An analysis in the BIPA textbook "Sahabatku Indonesia" contained environmental problems discussed in the book and are still challenging to solve. The other aspects of air pollution caused by vehicles; air pollution can also be caused by cigarette smoke. People who are not aware of smoking dangers are still often found in public places and smoke at every place. The other data to solve this problem are as follows:

"The government must continue to educate people who are not fully aware that to create a clean and healthy environment begins with the habit of throwing of garbage".

In terms of instilling ecological literacy values, the role of government is also vital to educate the society to have an awareness of protecting the environment and give some policies to keep the environment clean.

Discussion

For the data obtained from the analysis of ecological literacy in the textbook "Sahabatku Indonesia", the four components were compiled and related. Environmental education's main objective is to produce an individual who is motivated to protect the environment and develop a better life quality. Besides, it provides a basic understanding that humans will continue to live side by side with natural resources and the surrounding of life (Roth, 1992). Through the textbook, which has four components of literacy, it is hoped that it can provide an understanding for international students who are studying in Indonesia to be able to identify environmental problems and create solutions to these problems. As environmental education is a very important way of building environmental literacy, it was necessary to identify concepts that are important for environmental education and environmental literacy (Loubser & Swanepoel, 2001).

Based on the findings above, the Indonesian language textbook for foreign speakers (BIPA) "Sahabatku Indonesia" published by the Indonesian Language and Book Development Agency in 2019 containing ecological literacy content with four aspects of understanding ecological literacy can be used as character development for students about awareness of the environment, especially about environmental preservation. It is in accordance with a study conducted by (Andayani & Gilang, 2020). The research results found that lack of the understanding of international students to the culture obstructed the Indonesian language skills. The differences in the cultural background between the countries of international students' origin to the culture in Surakarta made them adjust the process of cultural adaptation. The adaptation was performed using the approach of familiarity and proximity. Language learning, especially BIPA learning, through textbooks with ecological literacy, is intended to condition students to practice and get used to being consistent in behaving according to the content of ecological literacy in textbooks for foreign speakers. Some of the studies also emphasised foreign language teachers' role in adapting to new teaching and learning media (Rădulescu & Stan, 2018).

BIPA learning with textbooks with ecological literacy in this study is also intended as a source of writing and preservation of local languages, Indonesian, and foreign language acquisition. It aligns with a study conducted by (Mbete, 2015) and (Loubser & Swanepoel, 2001), which stated that environment-based language learning strives for grammar and language diversity representing biodiversity in certain environments. Learning is intended as a source of writing and preserving local languages, Indonesian, and mastery of foreign languages. Environment-based language learning is used to restore interaction, interrelation, interdependence with their living environment and prevent living rootlessness symptoms. BIPA learning using textbooks with ecological literacy is also related to the complexity of cultural outcomes as Indonesian language teaching material for foreign speakers (BIPA). It is in line with a study carried out by (Haryati et al., 2019). Based on the study results, it was found several cultural results at each level or level. This study's results included livelihood (MH) at 37.5%, life equipment and technology (PH) at

6.25%, arts (K) at 31.25%, knowledge systems (SP) at 6.25%, religion (R) at 6.25%, and language (B) 12.5%.

BIPA learning using textbooks with ecological literacy is also related to the effectiveness of integrative learning-based textbooks toward international students' local culture comprehension and Indonesian language skills. It is in agreement with a study conducted by (Andayani & Gilang, 2015). This research results were: (1) the international students' cultural treasure comprehension and Indonesian language skill of students who used the integrative learning textbook model was higher than the conventional textbook; (2) the international students' cultural treasure comprehension and Indonesian language skill with high learning interest were higher than the students with low learning interest; (3) there was a significant positive interaction between integrative learning-based textbook model and learning interest toward the Indonesian language skill of international students in Surakarta. The analysis was continued with the next test (posthoc test) with the Scheffe test. It would explain why foreign teachers could understand the overall essence of research and education. As teachers, they understand that they are the initiator of change through research and address emerging education issues (Hishan et al., 2020).

Textbooks with ecological literacy were dominated by knowledge aspects and have not emphasised aspects of understanding, internalising values, and their application. It reinforces the findings in (Suwandi et al., 2018) study on ecological intelligence in electronic school books for Indonesian junior high school students, which found that the study results of textbooks with literacy were dominated by knowledge aspects and had not emphasised aspects of understanding, and internalisation score. Ecological literacy refers to an understanding of ecological impacts and solving environmental problems (Goleman, 2009). Ecological literacy should combine cognitive skills and a sense of empathy in all aspects of life. In this case, the social and emotional intelligence aspects are built in such a way as to understand, show awareness, while ecological intelligence expands this capacity for all existing natural systems (Suwandi et al., 2018).

Conclusion

The results showed that the Indonesian language textbook for foreign speakers (BIPA) "Sahabatku Indonesia" published by the Indonesian Language and Book Development Agency in 2019 contained ecological literacy content to support the students' understanding level in protecting the environment. The aspects of understanding formation included 1) ecological knowledge, 2) affective tendency, 3) behaviour, and 4) cognitive skills. The four contents of ecological literacy were comprised in the seven textbooks analysed. Textbooks did not only cover learning materials related to language itself but also included knowledge about the importance of environmental literacy, which has not been the main focus on BIPA learning in this era. It is hoped that this textbook's contents about ecological literacy can increase the awareness of international students studying in Indonesia to maintain the environment.

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