

Bringing Sustainable Development Goals into Classrooms: Digital Picture books as Resources for Education for Sustainable Development

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ABSTRACT

Sustainable development issues rarely become a discussion in classroom settings. Teachers tend to have limited understanding and negative attitudes regarding sustainability issues. Moreover, teachers aware of the importance of sustainable development usually struggle to find resources to discuss topics in the classroom. Not only do sustainability issues seem to be simplified in the textbooks, but the interconnection between subjects regarding sustainable development issues is minimal. Picturebooks can greatly nurture students' awareness of sustainable development issues. Picturebooks can nurture students' self-awareness in educational settings and help them develop a positive self-identity. The study evaluates and analyzes possible open-accessed resources for teaching Sustainable Development Goals (SDGs) in the classroom. The analyzed resources are digital picturebooks provided by Room to Read at literacycloud.org website. The framework used for categorization is adopted from the 17 SDGs established by the United Nations in 2015. The findings show that the sustainable development themes are represented in the picturebooks under analysis to a reasonable extent. Among the 17 SDGs, the most frequent themes that appeared in the picturebooks are SDG 4, Quality Education (17%), SDG 5, Gender Equality (14%), SDG 15, Life on Land (14%), SDG 10, Reduced Inequalities (12%), and SDG 11 Sustainable Cities and Communities (10%). However, themes related to SDG 1, No Poverty, SDG 7, Affordable and Clean Energy, SDG 13 Climate Action, and SDG 17 Partnerships for the Goals are hardly found in the picturebooks. The study findings can become a recommendation for teachers to teach and promote awareness of sustainable development in the classroom.

Keywords: Children's Literature, Content Analysis, Education for Sustainable Development, Picturebook, Sustainable Development Goals.

1 Introduction

While becoming a global concern, Sustainable Development Goals (SDGs) are rarely discussed in classroom settings due to some challenges. A previous systematic review found that teachers have limited understanding and negative attitudes regarding sustainability issues [1]. This limitation of teachers' understanding may consequently hinder teaching sustainable development to students. Similarly, teachers tend to have narrow perspectives regarding sustainability issues as they mainly discuss sustainability's social dimension and lack awareness of economic and environmental issues [2]. Moreover, some teachers reported never heard about the sustainable development concept before taking courses in university [3]. On the other hand, teachers that already understand the importance of sustainable development also lack time to prepare the teaching materials [4]. As the SDGs have a broad range of topics, teachers struggle to find resources to discuss the issue in the classroom. The textbooks seem to simplify SDG-related topics, while the interconnection between subjects regarding SDGs is minimal [5]. Moreover, the content may present topics to inform the students, not call them to action. Those challenges may hinder the dissemination and promotion of sustainable development values.

In addition to textbooks, picturebooks can be considered resources teachers can use to teach sustainable development. Picturebooks are written texts that facilitate students to know their world from the cultural messages and values they provide [6]. Not only can picture books be tools for teachers in nurturing students'



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reading comprehension skills, but they also can help students open their perspectives about complex issues beyond the classroom settings. It is under the concern of sustainable development to bring awareness about global citizenship to the students. Picturebooks can nurture students' self-awareness in the classroom and educational settings [7] and help them develop a positive self-identity [8]. Regarding sustainability issues, picturebooks have the potential to spark discussion about ecodesign and eco-literacy [9] which leads the students to develop awareness about their local environmental issues [10]. Therefore, picturebooks can greatly nurture students' awareness of sustainable development themes.

The study aims to evaluate and analyze the digital picturebooks as possible open-accessed teaching resources for teaching Sustainable Development Goals (SDGs) in the classroom context. The analyzed resources are digital picturebooks provided by Room to Read at literacycloud.org website. As found on Room to Read's literacycloud.org website, digital picturebooks in this study refer to various electronically delivered texts, including those digitalized from the existing picturebooks [11]. Initiated in 2000, Room to Read is a non-governmental organization concerned with education that focuses on improving early literacy and girls' education by providing access to quality children's literature. In addition, they are partnered with local communities, organizations, and governments to improve children's learning [12].

2 Research Methodology

This study used a content analysis design to analyze the content of digital picturebooks. According to Krippendorff (2004), content analysis is “a research technique for making replicable and valid inferences from the text to the contexts of their uses” [13]. Content analysis is a type of documentary method used to quantitatively/qualitatively analyze the content of texts and other written, visual, and verbal forms of communication [14]. Specifically, this study used descriptive content analysis, mainly focusing on identifying and describing data content into specific themes. As the concept for analysis is predetermined, the study employs content analysis under the relational analysis type [15], using the sustainable development themes adopted from the Sustainable Development Goals (SDGs) framework of the United Nations [16].

Table 1: Book Level Guidelines according to BSKAP Kemendikbudristek

No.	Levels of Reader	Symbols
1.	Emergent Readers (<i>Pembaca Dini</i>)	A (A1, A2)
2.	Early Readers (<i>Pembaca Awal</i>)	B (B1, B2, B3)
3.	Intermediate Reader (<i>Pembaca Semenjana</i>)	C
4.	Advanced Reader (<i>Pembaca Madya</i>)	D
5.	Skilled Reader (<i>Pembaca Mahir</i>)	E

The resources are digital picturebooks identified from Room to Read (literacycloud.org) website. This website was chosen as it provides many open accessed and downloadable digital picturebooks in the local language written by local writers and illustrators. Open-access resources are beneficial for inclusive and equal access for both teachers and students in any context. The author is inclined to believe that the locality of the resource is essential but rarely depicted in the literature [6]. Therefore, the author only includes digital picturebooks written and illustrated by local writers and illustrators.

In addition, the author limited the analysis to the picturebooks on literacycloud.org, labeled as Level B1 (*Jenjang B1*) and Level B2 (*Jenjang B2*) according to recent book level guidelines [17]. Since the study intended to focus on elementary level context, the author decided to include only Levels B1 and B2 in the analysis, considering the texts' suitability. Moreover, the study includes only the picturebooks in Bahasa Indonesia

written and illustrated by Indonesian people to ensure that the story's context is relevant to the students. There are 56 titles under this category. At the time of the study, Room to Read (literacycloud.org) had already implemented book-level guidelines provided by BSKAP Kemendikbudristek. The complete book-level guidelines are presented in Table 1.

After identifying the picturebooks for analysis, the framework is also specified. To analyze the selected picturebooks, the author uses the framework from the 17 SDGs established by the United Nations in 2015, (see Figure 1) which should be addressed and met by all countries by 2030 [16]. Each of the SDGs is broken down into smaller targets to describe goals in a variety of areas. Furthermore, the targets are matched with the indicators to measure the achievement of the targets. In conducting the analysis, the author refers to both the targets and the indicators for each SDG to have better consideration in identifying and categorizing the digital picturebooks into each SDG theme.



Figure 1: *The 17 Sustainable Development Goals by United Nations.*

3 Results and Discussion

The study found that the sustainable development themes are well represented within the digital picturebooks provided by Room to Read (literacycloud.org). Among the total picturebooks under the analysis (56 titles), most (42 titles) are identified and categorized as having one of the 17 sustainable development themes. Meanwhile, the rest of the picturebooks (14 titles) is hardly identified to discuss specific sustainable development issues. The complete list of titles is shown in Table 2.

The most frequent theme identified in the picturebooks is under the category of SDG 4 Quality Education. Seven picture books are listed in this category: *Kotak Petualang*, *Woli Ingin Melihat Dunia*, *Petualangan Berbagi Impian*, *Penenun Mimpi*, *Pesan Ajaib*, *Butet dan Orang Rimba*, and *Aku Pasti Bisa*. These picturebooks promote inclusive education and lifelong learning opportunities for all, especially those with unprivileged conditions. *Petualangan Berbagi Impian*, for instance, tells a story about how the main character helps children in rural areas in South Kalimantan learn and study under limited circumstances. Similarly, *Butet dan Orang Rimba* also tells a story about the main character's struggle to bring quality education to people in the jungle. For teachers, those stories can be used to encourage students to have quality education and to become lifelong learners. The following themes frequently appearing here are SDG 5, Gender Equality, and SDG 15, Life on Land. Gender Equality themes are presented in *Julia dan Bola Pinang*, *Tugas Penting Kartika*, *Hari Istimewa Suwidak Loro*, *Lili dan Kolam Misteri*, *Ratna Komala dan Biji Rumbia Ajaib*, and *Topeng Dadak Merak*. Those picturebooks can be used to teach students about gender equality and women empowerment. Through *Julia dan Bola Pinang*, students can see that girls can play football, which is often associated with boys. Furthermore, *Ratna Komala dan Biji Rumbia Ajaib* also emphasizes women's roles where a girl, as the main character in the story, becomes a hero that saves her brother from bad guys. Meanwhile, *Kaus Kaki Bebek*

Berverita, under the Life on Land theme, tells a story where the main character and his family experience a flood. This picturebook can provoke classroom discussion about environmental issues.

Table 2: *Digital Picturebooks for Teaching Sustainable Development Goals.*

No.	Sustainable Development Goals	Description	Title of Digital Picturebooks
1.	No Poverty	Eradicating all forms of poverty in every place around the world.	-
2.	Zero Hunger	Put an end to hunger, ensure the availability of food and better nutrition, and encourage sustainable agriculture.	<i>Hari yang Melelahkan</i>
3.	Good Health and Well-Being	Provide good health and well-being for everyone throughout their lifetime.	<i>Karang Gigi untuk Makiki; Ada Owa di Pinggang Wiwit; Sore Seru Suri</i>
4.	Quality Education	Provide everyone access to inclusive and equitable quality education and encourage everyone to seek opportunities for lifelong learning.	<i>Kotak Petualang; Woli Ingin Melihat Dunia; Petualangan Berbagi Impian; Penenun Mimpi; Pesan Ajaib; Butet dan Orang Rimba; Aku Pasti Bisa</i>
5.	Gender Equality	Ensure that all women and girls are empowered and that gender equality is achieved.	<i>Julia dan Bola Pinang; Tugas Penting Kartika; Hari Istimewa Suwidak Loro; Lili dan Kolam Misteri; Ratna Komala dan Biji Rumbia Ajaib; Topeng Dadak Merak</i>
6.	Clean Water and Sanitation	Provide everyone access to clean water and sanitation that is sustainably managed.	<i>Kesatria Sungai</i>
7.	Affordable and Clean Energy	Ensure that everyone has access to affordable and reliable, managed modern energy.	-
8.	Decent Work and Economic Growth	Encourage the growth of an inclusive economy, and provide full productive employment and proper jobs for everyone.	<i>Ketika Paman Kala Diam</i>
9.	Industry, Innovation, and Infrastructure	Develop strong infrastructure, encourage industrialization that is sustainable and accessible for everyone, and encourage innovation.	<i>Dunia Tanpa Roda</i>
10.	Reduced Inequalities	Create an equal society by reducing disparities in education, economy, and other areas within and across countries.	<i>Murai Bintik; Feng; Aku Suka Caramu; Teman Baru Epi; Sama atau Berbeda?</i>
11.	Sustainable Cities and Communities	Create cities and communities that are safe, inclusive, and sustainable by building infrastructure that can withstand	<i>Pahlawan Sampah Elektronik; Luftan dan Monster; Smong, si Raksasa Laut;</i>

No.	Sustainable Development Goals	Description	Title of Digital Picturebooks
		natural disasters and promote sustainability.	<i>Teman Sejati</i>
12.	Responsible Consumption and Production	Encourage responsible use of resources and reduce waste by advocating sustainable production and practices.	<i>Petualangan Bena dan Mima</i>
13.	Climate Action	Seriously address the climate change problem by promoting sustainable development practices that can help mitigate the effect of climate change.	-
14.	Life below Water	Protect and preserve the oceans and marine resources by promoting sustainable fishing practices and reducing pollution.	<i>Gelembung Ajaib Yuyun;</i> <i>Sang Pemimpi Besar</i>
15.	Life on Land	Ensure the protection, restoration, and sustainable use of land-based ecosystems, sustainably manage forests, encounter desertification, and stop and reverse biodiversity loss and land degradation.	<i>Kaus Kaki Bebek Bercerita;</i> <i>Pepuyu, Ikan yang Bisa Berjalan;</i> <i>Inikah Rumahku Sekarang?;</i> <i>Ori si Pemberani;</i> <i>Tuing-Tuing si Ikan Terbang;</i> <i>Mantel Emas</i>
16.	Peace, Justice, and Strong Institutions	Encourage societies that live in peace and inclusivity that promote sustainable development, ensure justice for everyone, and establish all effective, accountable, and inclusive levels of institutions.	<i>Biji Semangka Ajaib;</i> <i>Jarik Adik;</i> <i>Sahabat Kecil Putri Pandan Berduri</i>
17.	Partnerships for the Goals	Enhance the implementation resources and renew the global partnership to achieve sustainable development.	-

These picturebooks open the possibility of discussing sustainability issues in the classroom. Through the story in picturebooks, students are exposed to knowledge about sustainability issues and are engaged in the emotional aspects of the story [18]. By engaging emotionally, students will be more likely to participate in achieving sustainable development goals within their capacity. Besides, bringing picturebooks into the classroom can enhance students' literacy skills. In addition, students reading activities in the classroom, accompanied by reading discussion with the teacher, is essential for literacy development [19].

4 Conclusions

In order to promote Sustainable Development Goals (SDGs), teachers and students need resources that open possibilities for them to bring sustainability issues into the classroom, especially in the context that is close to them. Despite the importance, previous studies show teachers' understanding of sustainability issues and resources to teach sustainability issues are limited. Therefore, teaching SDGs through digital picturebooks is one way to empower students, as global citizens, to start recognizing themselves as part of the change that can make a better world for their future.

Using the framework constructed from the 17 SDGs established by the United Nations in 2015, the study found that sustainability themes based on the SDGs are represented in the digital picturebooks provided

by Room to Read (LiteracyCloud.org) to a reasonable extent. Among the 17 SDGs, some have higher representation in the picture books under analysis, including SDG 4 Quality Education (17%), SDG 5 Gender Equality (14%), SDG 15 Life on Land (14%), SDG 10 Reduced Inequalities (12%), and SDG 11 Sustainable Cities and Communities (10%). However, some SDGs are hardly found in the resources, including SDG 1 No Poverty, SDG 7 Affordable and Clean Energy, SDG 13 Climate Action, and SDG 17 Partnerships for the Goals. The findings from the study can become a reading list recommendation for teachers who want to teach and promote awareness of sustainable development among their students.

5 Declarations

5.1 Study Limitations

The present study has some limitations. First, this study only limits the picturebooks being analyzed under specific categories. Therefore, a broader range of topics is possible when more picturebooks from all reading levels are included in the analysis. Second, this study only categorizes each picturebook title into one SDG category. The titles are put into the strongest theme to avoid the teacher's confusion in deciding the theme. However, the author knows that one title can be used to teach multiple themes based on teachers' needs. Third, the findings of this study are more suggestive than conclusive. Other researchers may have different opinions on identifying and categorizing picturebooks.

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