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## Bilingual Big Book with Integrated SDGs Content to Enhance Reading Skills and Understanding of Sustainable Development Values among Upper Elementary Students

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### Abstract

#### **Background:**

English learning that focuses solely on language structure tends to be less engaging, monotonous, and lacking contextual relevance for elementary students. On the other hand, integrating the values of the Sustainable Development Goals (SDGs) into basic education is increasingly essential to foster global awareness, empathy, and social responsibility from an early age. This research aims to develop a Bilingual Big Book that integrates SDG content into bilingual (Indonesian English) stories for use in elementary English learning. The media is expected to improve vocabulary acquisition, reading comprehension, and students' understanding of global sustainability values.

#### **Methodology:**

The research employed a Research and Development (R&D) approach using the ADDIE model, which consists of five stages: (1) needs analysis, (2) planning and media design, (3) development and expert validation, (4) limited trial implementation, and (5) evaluation and revision. This study recruited 32 students and 3 English teachers as the participants. Data were collected through pre- and post-tests, teacher and student perception questionnaires, classroom observations, and in-depth interviews. The data were analyzed both quantitatively and qualitatively, utilizing descriptive statistical and the Miles and Huberman interactive model for qualitative interpretation.

#### **Findings:**

The findings revealed that the Bilingual Big Book based on storytelling effectively increased students' interest and engagement in learning English. Quantitatively, there was a significant improved in students' reading comprehension by 28% after using the media and an increase of 31% in thematic vocabulary mastery. In addition, the questionnaire results indicated that 92% of students felt the learning process was more enjoyable and easier to understand, while 87% of teachers stated that the media helped explain language concepts more contextually and also awareness on SDGs values.

#### **Conclusion:**

Overall, this research contributes to the development of adaptive, contextual, and transformative English learning media, while also promoting the implementation of education oriented toward sustainable development and global awareness. The developed media not only enhances students' language proficiency but also cultivates their character to become empathetic, and environmentally conscious individuals.

#### **Originality:**


Previous studies on Big Books emphasized linguistic or character aspects but rarely integrated SDGs as moral and contextual frameworks. This study fills that gap by creating a bilingual storytelling medium that bridges language learning with global citizenship education, offering a novel model for sustainable literacy in elementary classrooms.

**Keywords** : Bilingual, big book, SDG content, reading skills

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## 1. INTRODUCTION

Primary education plays crucial role in shaping students' character and developing their basic competencies. However, in many elementary classrooms, learning activities still emphasize rote memorization and textbook completion, with limited opportunities for students to engage with real-world issues or develop values such as environmental responsibility and global awareness. This gap between the broader goals of education and everyday classroom practice becomes increasingly significant amid the challenges of globalization and the current environmental crisis. Therefore, learning should not only focus on cognitive achievement but also foster sustainability values and global citizenship. One relevant approach is the integration of the Sustainable Development Goals (SDGs) into English language learning, which functions as an international language and a tool for cross-cultural communication (Córdova 2024 ; Robbins 2024). Prior studies suggest that such integration has the potential to improve students' linguistic competence while increasing awareness of issues such as climate change, gender equality, and peace (Gourari and Ed-Dali 2024; Mahayanti et al. 2025). However, empirical evidence regarding the implementation and impact of SDG-integrated English learning in primary school contexts remains limited.

An effective learning medium for integrating SDG values into primary English instruction is the Bilingual Big books, a large illustrated storybook presented in two languages that supports language learning while introducing sustainability themes in an engaging and age appropriate manner. Research has shown that Big Books can enhance reading comprehension, learning motivation, and visual literacy among elementary students (Jayendra, Nitiasih, and Mahayanti 2018; Mahayanti, Padmadewi, and Wijayanti 2017; Nalantha, Artini, and Mahayanti 2018). Most of the studies were focused on using the Big Book to support general English literacy learning in lower and upper elementary grades. However, these studies mainly examined conventional literacy outcomes and have not adequately explored how Big Book can

be designed as bilingual media to integrate sustainable development goal (SDG) values within primary English learning. Furthermore, some researchers found when combined with storytelling techniques, the Big Book becomes a contextual and interactive learning medium that facilitates meaningful and deep learning experiences (Ginting, Ariawan, and Budiasih 2024; Mahayanti and Asrina 2017; Mahayanti and Suantari 2017). Storytelling has been proven to increase students' motivation, engagement, and retention of learning materials (Abderrahim and González 2020; Saritepeci and Cakir 2019).

The development of Big Books has also been widely implemented in Bali, showing significant results in improving reading skills among second- to sixth-grade elementary students (Ananta, Nitiasih, and Mahayanti 2017; Jayendra et al. 2018; Krisna, Artini, and Mahayanti 2017; Mahayanti, Artini, and Nur Jannah 2017; Mahayanti, Padmadewi, et al. 2017; Nalantha et al. 2018; Wijayanti, Padmadewi, and Mahayanti 2017). Several studies have even developed character- and moral-based Big Books to build literacy as well as social awareness (Buck, Downs, and Luque 2024; Indriani, Nitiasih, and Mahayanti 2016; Wiraprasta, Nitiasih, and Mahayanti 2017). However, these earlier models generally focused on personal virtues such as honesty, discipline, kindness, and respect, which are important but tend to emphasize individual behavior within familiar social setting. They often do not explicitly address broader and more complex global challenges such as climate change, gender equality, or peace as framed in the United Nations SDGs. As a results, students may develop moral habits without being sufficiently encouraged to understand the interconnected environmental, economic, and social issues shaping their future.

In contrast, SDG-based bilingual storytelling extends beyond conventional character education by positioning children as emerging global citizens who can reflect on real-world problems and possible solutions. Through stories presented in students' first and second language, they simultaneously develop English competence and access meaningful content related to sustainability. This dual focus creates richer learning opportunities that earlier monolingual big books. Moreover, the integration of SDGs into storytelling has been shown to support students' critical thinking and problem solving skills, as learner are invited to question causes, consequences, and actions related to global challenges (Lloret-Catalá and Alcantud-Díaz 2023; Mambu 2022). This perspective strongly aligns with the Content and Language Integrated Learning (CLIL) approach, which synergizes language mastery with meaningful content understanding (Cardiff, Yu, and Díaz 2024). Therefore, compared with previous big books models, SDG-based bilingual storytelling offers a more transformative pedagogical

model by combining literacy development, bilingual exposure, and sustainability education in a single learning medium.

Although studies have shown positive results in the use of Big Books for English learning at the elementary level, challenges remain, such as difficulties in aligning SDG content with language learning objectives, limited availability of ready-to-use media, and lack of teacher training (Kwee 2021; Yu, Robbins, and Kwee 2024). Therefore, this research aims to innovate learning media that are not only contextual and engaging but also aligned with the Pancasila Student Profile and the Merdeka Curriculum. The development of a Bilingual Big Book based on storytelling integrated with SDGs serves as a potential solution to create transformative and sustainability-oriented English learning.

Based on the identified gap in primary English learning materials that rarely integrate language development, engaging storytelling, and sustainability education in a single medium, this study seeks to address the need through the development and evaluation of innovative instructional resources. The objectives of this study are threefold. First, to design and develop a Bilingual Big Book based on storytelling that integrates the values and themes of the Sustainable Development Goals (SDGs) into English language learning for fourth-grade elementary students. Second, to examine the effectiveness of the developed Big Book in improving students' reading comprehension, vocabulary acquisition, and understanding of sustainability values through classroom implementation. Third, to analyze the perceptions of teachers and students regarding the practicality, attractiveness, and relevance of the media in supporting meaningful and sustainable English learning.

## 2. LITERATURE REVIEW

Using storytelling-based instructional media for teaching English to young learners is considered a helpful learning tool due to the close similarity between the characteristics of the media and those of the children. In the present study context, storytelling offers beneficial and contextualized language input via narratives supported by pictures repetition and predictable sequences. Most elementary students can understand vocabulary sentence patterns and text meaning more naturally than through the use of decontextualized drills. Storytelling promotes active participation and imagination and personal or emotional response. This makes storytelling appropriate for primary classrooms. Moreover, it develops students' personal response or emotional involvement.

The use of storytelling-based instructional media in English language teaching for children has long been recognized as an effective approach to support language acquisition and

character development. Storytelling not only provides meaningful contexts for learning language structures and vocabulary but also enhances motivation, emotional engagement, and critical thinking skills (Ginting et al. 2024). In the Indonesian context, storytelling has proven to help elementary students better understand narrative texts and create a joyful learning atmosphere (Asrifan and Darwis 2024; Paluanova 2024; Yuliantari and Huda 2023). This approach becomes even more relevant when combined with value-based content such as the Sustainable Development Goals (SDGs), as it allows students to reflect on social and environmental issues within familiar and engaging narratives (Bok and Cho 2024; Buck et al. 2024; Córdova 2024; Luque and Díaz 2024; B. Yu, Guo, and Fu 2024).

One medium that effectively supports storytelling in English learning is the Big Book, a large-sized storybook designed for shared classroom reading. Various studies in Bali have demonstrated the effectiveness of Big Books in improving elementary students' reading comprehension. Studies by Mahayanti and Asrina (2017); Mahayanti et al. (2017); and Mahayanti and Suantari (2017) found that Big Books improved both literal and inferential comprehension among upper-grade students in southern Bali. Similarly, Jayendra et al. (2018) reported positive outcomes among second graders, while Nalantha et al. (2018) noted that Big Books were highly effective for third graders by connecting story visualization with textual meaning. The studies collectively point out a similar contribution, i.e. Big Books offer enlarged print and vivid illustrations and allow interactive shared reading that makes the multimodal input accessible even for young learners and thus enhances comprehension, vocabulary recognition and engagement across grades. However, they also show a common limitation. Most studies before this one focused on using the Big Books as tools for literacy, primarily in terms of reading, within a regular classroom setting. The Big Books didn't receive sufficient attention for their redesign as bilingual and content-enriched media with a larger educational intent of creating an awareness of sustainability, global citizenship and interdisciplinary English learning.

The strength of Big Books lies not only in their visual and physical format but also in their narrative content and bilingual presentation. Mahayanti et al. (2017) showed that Big Books successfully addressed the challenge of large classroom by increasing student engagement in shared reading. Wijayanti et al. (2017) at the Undiksha Laboratory School also found that Big Books supported fourth graders' language acquisition through communicative and collaborative learning. Other studies demonstrated that structured and thematic Big Books

significantly enhanced basic literacy and narrative text comprehension (Mahayanti and Asrina 2017; Mahayanti and Suantari 2017).

Furthermore, the development of Big Books that integrate education and sustainability has begun to gain attention. Indriani et al. (2016) developed a Character-Based Bilingual Storybook for sixth graders, which not only improved reading skills but also instilled moral values. Studies by Ananta et al. (2017) and Wiraprasta et al. (2017) highlighted how locally contextualized and socially themed Big Books strengthened literacy and children's social awareness of their surroundings. These findings indicate that Big Books can serve as strategic media for explicitly conveying SDG values, especially when designed in a bilingual storytelling format.

Meanwhile, the integration of SDGs in English language teaching has rapidly evolved as a contextual learning approach that encourages students to understand and reflect on global issues (Cardiff, Polczynska, and Brown 2024; Córdova 2024; Robbins 2024; B. Yu et al. 2024). According to Córdova (2024), SDG-based English learning can increase student motivation by providing social meaning to the material. This approach fosters critical thinking and problem-solving skills (Luque and Díaz 2024) and builds awareness of real-world challenges such as climate change, gender equality, and environmental sustainability (Buck et al. 2024; Gourari and Ed-Dali 2024). Through storytelling-based media such as the Big Book, SDG values can be internalized naturally and communicatively in the learning process.

Although many studies have confirmed the effectiveness of Big Books and storytelling separately in enhancing literacy and language skills, research that specifically integrates storytelling, bilingual Big Book media, and SDG content within a single elementary-level learning model remains limited. Most previous studies (Ananta et al. 2017; Ginting et al. 2024; Indriani et al. 2016; Jayendra et al. 2018; Krisna et al. 2017; Mahayanti, Artini, et al. 2017; Mahayanti and Asrina 2017; Mahayanti, Padmadewi, et al. 2017; Mahayanti and Suantari 2017; Nalantha et al. 2018; Wijayanti et al. 2017; Wiraprasta et al. 2017) attempted to investigate the effect of Big Books on reading comprehension, vocabulary enrichment, or character education only but no other themes like global citizenship or sustainability themes. Besides, limited studies have investigated Big Books as bilingual storytelling media that help develop language and students' understanding of values associated with SDGs. Thus, the originality of the study is the development and evaluation of an SDG-enabled Bilingual Big Book combining storytelling, bilingual language exposure and sustainability content and

assessing its effect on language learning outcomes and social awareness among primary school students.

Therefore, the development of Bilingual Big Book based on storytelling with SDG themes is essential and relevant as an innovation in elementary education. Through its narrative and visual approach, students not only learn English more effectively but also build character as globally aware citizens who are conscious of environmental and social issues from an early age (Daiu and Pole 2024; Kwee 2021; Rudenko 2023). The literature review shows that this approach addresses the need for contextual, communicative, and transformative English learning, aligning with the principles of the Merdeka Curriculum and the Pancasila Student Profile. More importantly, it extends previous Big Book and storytelling research which demonstrates that learning can transcend conventional literacy and includes multiple-literacy, values and global issues. It also provides empirical evidence on the simultaneous contribution of SDG-based bilingual storytelling media on elementary students' reading comprehension, vocabulary development and understanding of sustainability, which remains a little researched area of primary English education.

### **3. METHODOLOGY**

#### ***Research Design and Procedure***

The study employed a Research and Development (R&D) approach using the ADDIE model, which consists of five main phases: (1) preliminary study and needs analysis, (2) planning and design of the Bilingual Big Book based on storytelling integrating SDG values, (3) product development and expert validation, (4) implementation and limited classroom trials, and (5) final revision and evaluation. Figure 3.1 illustrates the flowchart of the research procedure.

## The ADDIE Model Procedure

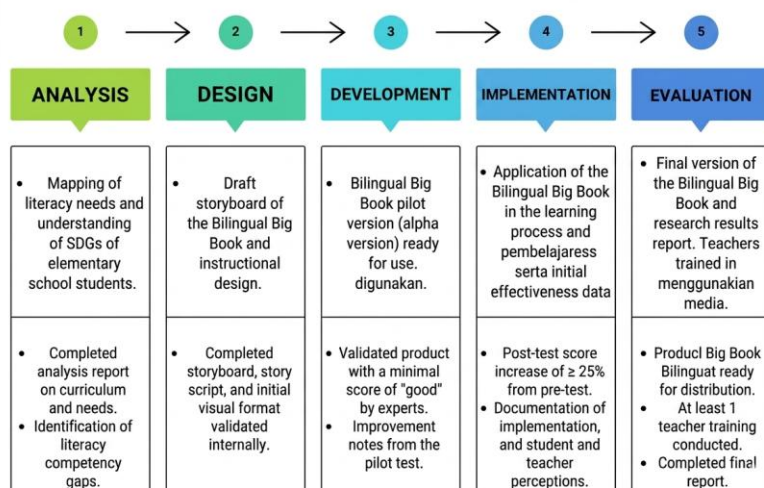


Figure 1 Research Flow

In the initial phase, the needs analysis was conducted based on Richards (2001) model of English learning needs, which includes target needs (language learning goals), learning needs (students' learning styles and strategies), and context of language use. Data were collected through classroom observations, teacher interviews, and curriculum and textbook reviews. This information was used to design story content that is contextual, aligned with students' linguistic and cognitive development, and reflective of SDG values.

### Research Setting and Participants

The research was conducted in an elementary school in Bali that implements English as a local content subject and promotes basic literacy programs. The participants included 32 fourth-grade students, 3 English teachers, and 2 homeroom teachers.

### Instruments

The data collection instruments consisted of four main types: (1) student engagement observation sheets, (2) pre- and post-tests of reading comprehension, (3) teacher and student perception questionnaires, and (4) teacher interview guides. The comprehension tests were designed using Barret's Taxonomy of Reading Comprehension (Barrett 1976), covering literal, inferential, evaluative, and appreciative indicators, and aligned with the English learning outcomes (CP) in the Merdeka Curriculum. The perception questionnaires were adapted from the theory of perception (Robbins 2005), covering content relevance, learning process, usefulness, and media attractiveness. All instruments were validated by experts in English Language Teaching (ELT) and children's literacy to ensure content validity.

The development of the Bilingual Big Book also followed the criteria for effective learning materials proposed by Tomlinson and Matsuhara (2018), emphasizing affective and

cognitive engagement, contextual relevance, active learner participation, and consideration of diverse learning styles. For visual and layout aspects, the study adopted Mahayanti and Asrina (2017) standards, ensuring large visuals, supportive illustrations, and language appropriate to students' developmental levels. Each Big Book story was written bilingually (Indonesian-English) and incorporated at least one SDG theme.

### ***Data Analysis***

Quantitative data from the pre- and post-tests were analyzed using a paired sample t-test to determine significant improvements in reading comprehension. Questionnaire data were analyzed descriptively using frequency distribution, mean scores, and percentages of responses. Qualitative data from observations and interviews were analyzed using the Miles, Huberman, and Saldaña (2014) model, consisting of data condensation, data display, and conclusion drawing/verification. Data triangulation was applied to enhance the validity of findings across instruments and sources.

Through this systematic procedure, the study aimed to produce a Bilingual Big Book based on storytelling that is content-valid, visually engaging, and pedagogically effective in improving students' reading comprehension while simultaneously fostering sustainability values from an early age within elementary English education.

## **4. FINDINGS**

The findings of this study indicate that the developed Bilingual big book was successfully designed in accordance with SDG themes and the developmental characteristics of fourth grade students. Classroom implementation showed that the media effectively improved students reading comprehension and understanding of SDGs value. It demonstrated its potential as an integrated language-learning resources.

### ***Development of a Bilingual Big Book Based on Storytelling Integrating SDGs for Fourth-Grade English Learning***

#### ***Identification of Potentials and Problems***

Based on observations conducted in fourth-grade classrooms, it was found that the dominant instructional medium used by teachers was the course book. This textbook served as the primary source for assessing students' reading ability and answering comprehension questions. However, the use of other supporting media, such as pictures, realia, flip charts, or digital media, was still minimal. As a result, the learning activities tended to be text-based, teacher-centered, and lacked contextual or interactive learning experiences.

This condition contrasts with the characteristics of elementary school students, who

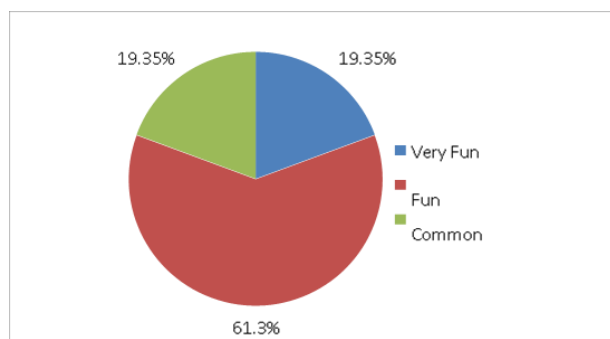
require concrete, visual, and enjoyable learning experiences. The reliance on textual media limited students' imagination and active participation in class. Therefore, there is a significant potential to introduce creative and interactive media such as a storytelling-based Big Book, which can stimulate students' imagination, enrich vocabulary, and enhance learning motivation through contextual and visual storytelling experiences.

Table 1 Media Used by the Teacher During Observation

Media	Students	Realia	Picture	Course Book	Board	OHP	Flipchart	LCD	Etc
V					v				

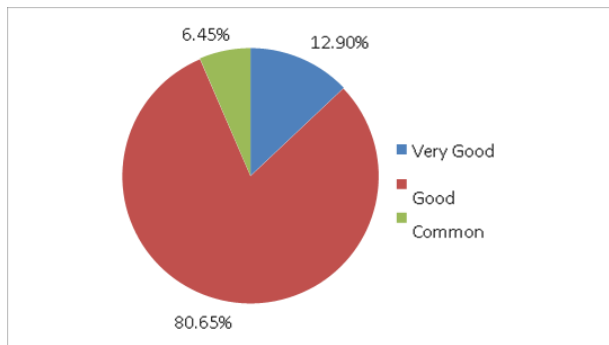
The results of the student questionnaire show that most students perceived the English learning process as fun (61.30%) and even very enjoyable (19.35%), although a small portion felt that learning was just ordinary (19.35%). This indicates that teachers have successfully created a positive learning atmosphere, employing approaches that foster students' interest in learning English.

Chart 1 Students' Questionnaire Results on the Learning Process



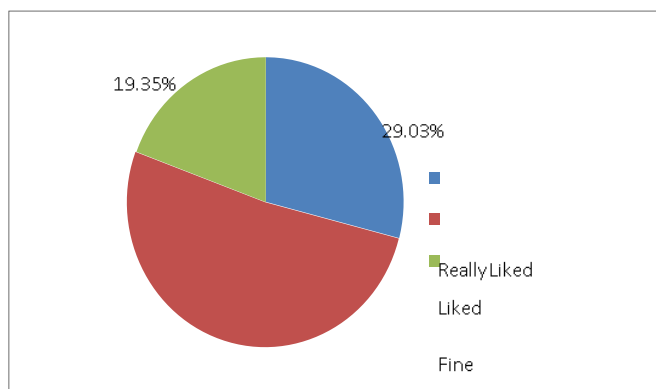
However, the variety of media used in teaching remains limited to textbooks and conventional exercises, leaving students with fewer opportunities to interact with more authentic and visual language contexts. In another questionnaire item, 80.65% of students rated their teacher's teaching methods as good, 12.90% as very good, and 6.45% as average. These findings suggest that while students appreciate their teacher's methods, they still need more visual, contextual, and interactive learning media to help them understand vocabulary and language structures more naturally.

**Chart 2 Students' Questionnaire Results on Teachers' Teaching Methods**

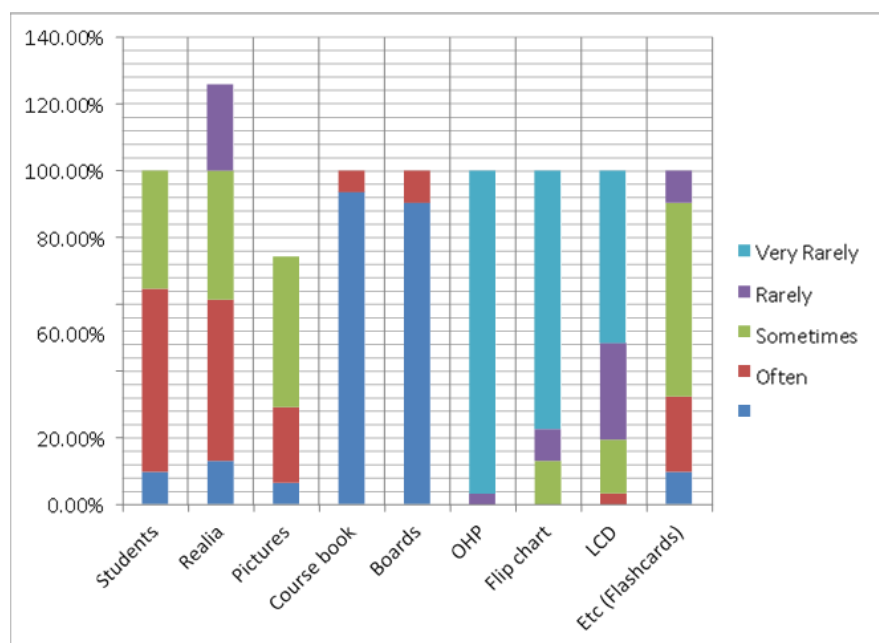


In the third item, which asked about students' feelings toward their teacher's way of teaching English, the results were consistent with previous findings. A total of 51.62% of students stated that they liked their teacher's teaching method, 29.03% said they liked it very much, and 19.35% felt it was just average. These findings confirm that the majority of students enjoy English learning and feel comfortable with their teacher's approach, although there is still room for improvement through more varied, contextual, and interactive learning media and activities.

**Chart 3 Students' Questionnaire Results on Students' Feelings toward the Teacher's Teaching Method**



The last item in the student questionnaire asked about the learning media used by the teacher. Based on the results, the most frequently used medium was the course book, with 93.55% of students stating that it was used very often, and 6.45% stating it was used often. The blackboard was also among the commonly used media, with 90.32% of students indicating it was used very often and 9.68% stating it was used often.

**Chart 4 Percentage of Students' Perceptions toward the Use of Learning Media**

Conversely, media such as OHP, flipcharts, and LCD projectors were among the least frequently used. A total of 96.77% of students stated that the OHP was very rarely used, 77.42% reported that the flipchart was rarely used, and 51.62% indicated that the LCD was very rarely used. Meanwhile, other media such as pictures and relia were used occasionally or frequently, while flashcards were categorized as being used sometimes (58.06%).

From the overall results of the student questionnaire, it can be concluded that although students enjoy learning English and appreciate their teachers' teaching methods, the use of learning media is still highly limited to textbooks and the blackboard, and interaction. This reflects a real need for innovative learning media that not only support language comprehension but also enhance students' emotional engagement and contextual learning experiences.

Moreover, most students admitted that they find it easier to understand vocabulary and sentence structures through pictures and simple stories rather than long texts from textbooks. Students also showed great interest in activities involving and appealing illustrations, especially when related to everyday themes such as environment, cleanliness, or daily life at school and home. This provide a strong foundation for adopting a bilingual storytelling approach that integrates Sustainable Development Goals (SDG) values, such as cleanliness, empathy, responsibility, and environmental sustainability, which are more relevant and meaningful for elementary school students.

Interviews were conducted with five elementary school English teachers with teaching experience ranging from three to ten years. The results revealed consistent patterns regarding the limitations of teaching media, students' difficulties in understanding English texts, and the need for more engaging and contextually relevant bilingual learning media. Some key excerpts from the teacher interviews include:

"So far, we have only used textbooks and worksheets. Students get bored quickly because the texts are less interesting and too long for their level." (Teacher 1)

This teacher emphasized the need to present material in short stories that relate to children's daily experiences, making it easier to understand and more enjoyable.

"Students are more enthusiastic when there are pictures or stories. But we rarely have that kind of media. If we had illustrated Big Books, that would help a lot." (Teacher 2)

This indicates that students need visual and narrative stimuli to comprehend language contexts more naturally.

"Students often have trouble understanding the meaning of English texts without the help of Indonesian. So, bilingual media would be very helpful for their learning process." (Teacher 3)

This teacher stressed the importance of using two languages to bridge meaning, especially for students at the early stages of foreign language learning.

"It would be great if the learning media could also include character values, like environmental care, cooperation, and responsibility. So besides learning the language, children also learn positive attitudes." (Teacher 4)

This perspective supports integrating SDG-related values into learning media to build early awareness of sustainability.

"Big Books can be used not only in class but also at home with parents. That could help improve children's reading habits." (Teacher 5)

This highlights the potential of the Bilingual Big Book as a learning medium that functions beyond the classroom, supporting family-based literacy development.

The teachers agreed that the available learning media are still limited to textbooks and worksheets, and there is an urgent need for bilingual storytelling-based media to enhance students' motivation, engagement, and understanding of English. Teachers also emphasized the necessity of media that can integrate character and sustainability values while enriching English learning with more meaningful, contextual experiences.

From the observation, questionnaire, and interview results, it can be concluded that there is both strong potential and a real need to develop innovative learning media that:

- 1) Are bilingual, bridging comprehension between students' first and foreign languages.
- 2) Are storytelling-based, making learning more engaging, meaningful, and contextual.
- 3) Integrate SDG values such as environmental preservation, social empathy, and global responsibility to foster early sustainability awareness.

- 4) Support early English literacy skills, particularly reading and understanding simple narrative texts.

Thus, the development of a Bilingual Big Book based on storytelling integrating SDGs serves as a strategic solution to create English learning that is engaging, educational, and oriented toward building globally minded and sustainability character development.

### ***Design of the Bilingual Big Book Based on Storytelling***

The second stage of this research was the design of the Bilingual Big Book based on storytelling. The objective of this stage was to develop English learning media that are suitable for the needs of elementary school students while integrating Sustainable Development Goals (SDGs) values into each story theme. This process involved syllabus analysis, literature review, and the development of a Big Book design blueprint as a guide for product development.

### ***Syllabus Analysis***

The syllabus analysis was conducted to determine the themes, basic competencies (KD), and learning indicators for fourth-grade English lessons relevant to the development of the Big Book. Based on the analysis of the elementary English syllabus, five main themes were identified as suitable for inclusion in the Bilingual Big Book, namely: Seasons, Tourism, Direction, Airport, and Transportation.

These five themes have strong potential to be linked to character formation and SDG values, such as environmental awareness (SDG 13: Climate Action), gender equality and cooperation (SDG 5 & 17: Gender Equality & Partnership), and responsibility toward environmental and social well-being (SDG 11 & 12: Sustainable Cities and Responsible Consumption). Teachers who participated as respondents also emphasized that these topics are closely related to students' daily lives and can be developed into engaging and easy-to-understand bilingual narratives.

### ***Literature Review Results***

The literature review revealed that the Big Book is a large-format storybook containing simple text and illustrations, proven effective in improving students' reading skills, comprehension, and attention. According to Hall & O'Conner (2006) and Nambiar (1991), an effective Big Book should have the following characteristics:

- Large size (approximately 45-60cm) with clear text and images.
- Simple and repetitive sentences.
- Short stories (10-15 pages).
- Contains rhyme, humor, and repetitive language patterns.
- Designed with attractive visuals and themes related to children's daily lives.

The Bilingual Big Book was designed with English and Indonesian texts side by side, enabling students to understand meaning and language structure contextually while fostering bilingual reading interest. Additionally, character values integrated into the stories were based on the 18 character education values outlined by the Indonesian Ministry of Education, including honesty, discipline, curiosity, environmental care, responsibility, and peace-loving, which were then aligned with relevant SDG targets.

**Table 1 Matrix of Syllabus Analysis and SDG Content Integration**

No	Theme	SDG content	Title and Summary
1	Seasons ( <i>Musim</i> )	SDG 13: Climate Action Instilling awareness about seasonal changes and climate impacts on the environment.	<i>“The Bird and Four Seasons”</i> A bird travels the world and discovers four distinct seasons. He learns to appreciate the changes in nature and the importance of protecting the environment.
2	Tourism ( <i>Pariwisata</i> )	SDG 12: Responsible Consumption & Tourism Instilling the values of sustainable tourism and responsibility for destination cleanliness.	<i>“The Rabbit’s Holiday Dream”</i> A little rabbit learns about responsible vacationing after seeing his friend littering on the beach.
3	Direction ( <i>Arah Jalan</i> )	SDG 11: Sustainable Cities and Communities Teaching the importance of urban spatial planning and environmental safety.	<i>“The Dog and The Hidden Map”</i> A dog finds a treasure map in his house and learns to follow directions with responsibility and cooperation.
4	Airport ( <i>Bandara</i> )	SDG 16: Peace, Justice, and Strong Institutions Teaching honesty and compliance with rules.	<i>“The Three Bears at the Airport”</i> Three little bears almost lose their passports and learn about honesty and following the rules.
5	Transportation ( <i>Transportasi</i> )	SDG 11 & 13: Sustainable Cities & Climate Action Raising awareness about environmentally friendly transportation.	<i>“The Boy and His Journey to Grandpa’s House”</i> A boy learns that walking to school can help protect the environment.

### ***Blueprint Design of Bilingual Big Book***

Based on the results of the syllabus analysis and literature review, the Big Book design was developed with the following components:

1. Size and Format: 45 x 60 cm, containing 10-15 pages with bilingual text (English-Indonesian).
2. Story Structure: Each story includes a Title Page, Characters, Storyline, Vocabulary Box, SDG Message Page, and Reflection Activity.
3. Illustrations: Bright colors, expressive animal/human characters, and settings that reflect both local Balinese context and global values.

4. Language and Narrative: Simple sentences, repetitive patterns, and integration of key vocabulary from the fourth-grade English syllabus.
5. SDG Values: Embedded naturally within the narrative and reinforced on the reflection page through prompts such as "*What can we do to help our world?*"

The design of this Bilingual Big Book based on storytelling serves not only as an English learning medium but also as a tool for character education and sustainability awareness. Each story fosters empathy, responsibility, and environmental care in alignment with SDG principles. Through the bilingual approach, students can learn vocabulary and sentence structures in meaningful contexts while understanding moral and social messages through stories that are engaging, visual, and relevant to their everyday lives.

Table 2 Storyboard & Visual Layout – Story 1: "The Bird and Four Seasons"

**Tema:** *Seasons (Musim)*

**Nilai Karakter:** Rasa ingin tahu, peduli lingkungan, komunikatif

**Integrasi SDG:** **SDG 13 – Climate Action** (Kesadaran perubahan iklim dan menjaga keseimbangan alam)

Page	Content and Illustration	Narration	Value or Integration of SDG
1. Cover Page	Illustration of a blue bird flying over four different backgrounds: summer, autumn, winter, and spring.	Title: <i>The Bird and Four Seasons</i> Sub-Title: <i>Burung dan Empat Musim</i>	Arousing students' curiosity about natural phenomena in various parts of the world.
2. Introduction Page	Image of a bird sitting on a tree branch, looking at a world map.	<i>This is Bibo, a little bird who loves to travel and see the world.</i> <i>Ini Bibo, seekor burung kecil yang suka berkeliling dan melihat dunia.</i>	Cultivating global curiosity and awareness of natural diversity.
3–4. Summer Scene	Illustration of beach, sunshine, children playing in the sand.	<i>Bibo flies to a sunny beach. It's summer! The sun is bright, and people play happily.</i> <i>Bibo terbang ke pantai yang cerah. Ini musim panas! Matahari bersinar terang, dan orang-orang bermain dengan gembira.</i>	SDG 13: Appreciating the beauty of nature without damaging the environment.
5–6. Autumn Scene	Illustration of orange trees and fallen leaves.	<i>Next, Bibo sees orange leaves falling. It's autumn! The wind is cool.</i> <i>Selanjutnya, Bibo melihat daun-daun berwarna jingga berguguran. Ini musim gugur! Anginnya sejuk.</i>	SDG 15: Respecting the cycles of nature and plant life.

<b>7–8. Winter Scene</b>	Illustration of white snow and children playing snowballs.	<p><i>Bibo flies to a snowy land. It's winter! He feels cold but happy.</i>  <i>Bibo terbang ke negeri bersalju. Ini musim dingin! Ia merasa dingin tapi bahagia.</i></p>	SDG 13: Adaptation to extreme weather changes.
<b>9–10. Spring Scene</b>	Illustration of blooming flowers, butterflies, and soft sunlight.	<p><i>Finally, Bibo visits a garden full of flowers. It's spring! Everything is alive again.</i>  <i>Akhirnya, Bibo mengunjungi taman penuh bunga. Ini musim semi! Segalanya hidup kembali.</i></p>	SDG 15: Cultivating a love of life and nature.
<b>11. Vocabulary Box</b>	List of pictures and words: <i>sunny, windy, cold, flowers, leaves, snow, rain.</i>	<p><i>Let's Learn!</i>  <i>Sunny – Cerah</i>  <i>Windy – Berangin</i>  <i>Snow – Salju</i></p>	Strengthening thematic vocabulary about seasons.
<b>12. SDG Reflection Page</b>	Picture of Bibo planting a tree with his animal friends.	<p><i>What can we do to protect our Earth?</i>  <i>Kita bisa menanam pohon dan menjaga kebersihan lingkungan.</i></p>	SDG 13 & 15: Climate Action & Life on Land.

The Bilingual Big Book design based on storytelling and integrated with the SDGs was developed by considering the characteristics of elementary school students who require visually engaging displays, easy-to-read text, and interactive learning experiences. The book measures 45 x 60 cm, with a total of 12 pages per story, and uses laminated hardcover for durability in classroom use. The fonts used are Open Dyslexic or Comic Sans, both of which are proven to be child-friendly due to their simple and easily recognizable forms. The illustrations use bright colors, soft lines, and clear emotional expressions to help children understand the story visually. The bilingual layout is organized symmetrically: the left page contains text in English, while the right page presents the Indonesian version, allowing children to learn both languages contextually. Additionally, the book features an interactive QR code linked to audio storytelling and short SDG videos, providing a multimodal learning experience that strengthens the understanding of sustainability values.

This Bilingual Big Book design combines local Balinese context with global SDG values, creating a relevant and meaningful learning medium for elementary students. Each story is crafted with a simple yet meaningful plot, using contextual bilingual language and visually engaging educational illustrations. The product functions not only as a tool to enhance English language proficiency but also as an SDG literacy instrument for young learners.

Through inspiring stories and illustrations, the book instills empathy, social responsibility, and environmental awareness in an enjoyable, communicative, and easily understandable way for children.

### ***Prototype of the Bilingual Big Book Based on Storytelling***

The third stage of this research involved developing the prototype of the Bilingual Big Book based on storytelling, which integrates character education values and Sustainable Development Goals (SDGs). After creating five stories, the researcher determined the types of character education embedded in each story. These values were aligned with the storyline, so each book carried a distinct character focus. The values were adapted from the 18 national character values and linked to sustainability principles within the SDGs.

#### a) Integration of Character Education in the Five Stories

Based on the development results, each story contains the following character values:

1. Bibbie's Seasons Adventure, promotes *curiosity, friendliness, and communication, and environmental care*. Language expressions include "Like to travel around the world," "Ask about seasons," and "Say thank you before leaving." These values align with SDG 13 (Climate Action) and SDG 15 (Life on Land).
2. Riry Rabbit's Dream Holiday, emphasizes *discipline, curiosity, and environmental responsibility*. Key expressions include "Listen to mother's suggestions," "Talk about holiday," and "Keep the beach clean." These values support SDG 12 (Responsible Consumption and Production) and SDG 14 (Life Below Water).
3. Follow Me, develops *independence, curiosity, responsibility, and discipline*. Expressions such as "Follow the map," "Clean his own room," and "Finish the mission step by step" highlight values aligned with SDG 4 (Quality Education) and SDG 11 (Sustainable Cities and Communities).
4. At the Airport, teaches *honesty, discipline, and polite communication*. The story features expression like "Excuse me," "Show the passport," and "Say thank you." These values reflect SDG 16 (Peace, Justice, and Strong Institution) through the promotion of integrity and rule-abiding behavior.
5. On the Road, cultivates *democracy, environmental awareness, and active communication*. Expressions include "Give opinion," "Ask about transportation," and "Reduce pollution." The story supports SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action).

Thus, each story in the Big Book prototype not only aims to enhance students' English language skills but also to foster their awareness of character values and global sustainability.

#### b) Illustration Development

After completing the story drafts, the next step was the creation of illustrations for each story. In this stage, the researcher collaborated with three students from the Art Education Department, Universitas Pendidikan Ganesha (UNDIKSHA). All illustrations were designed based on the finalized story scripts to ensure narrative coherence and visual relevance.

Table 3. Example of Big Book Illustrations



The illustrations for the stories with the themes Seasons, Direction, Airport, and Transportation were created manually on A3 drawing paper using watercolor techniques. Once completed, the illustrations were scanned and digitally processed for layout composition. Meanwhile, the illustrations for the Tourism-themed story were created digitally using graphic design software, making them ready for direct integration into the book layout.

All illustrations are original works and have never been published previously. Each image features expressive characters, bright colors, and contextual settings that reflect both Balinese local culture and global SDG values, creating a visually engaging and educational storytelling experience for young readers.

The final stage was the layout design of the Big Book, which involved combining the illustrations and story texts into a ready-to-print book format. Two main software programs were used in this process: Adobe Photoshop CS6, to edit and refine the illustrations, and Adobe InDesign CS6, to arrange the page layouts and integrate bilingual text into the design.

During this stage, several technical procedures were carried out:

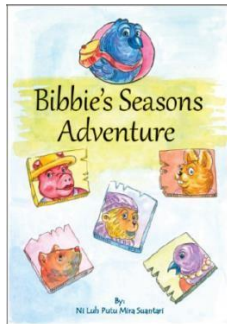
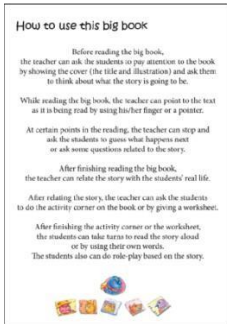
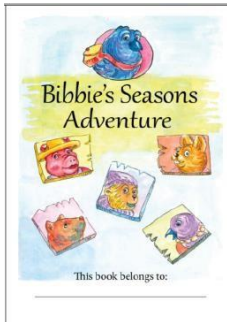
1. Adjusting brightness and contrast of the images.
2. Cropping and combining parts of illustrations to match the narrative content.
3. Adding supporting design elements, such as SDG icons and bilingual text areas.
4. Structuring each page layout to maintain a balanced composition between visual and text.

Each Big Book consists of 20 to 24 pages, with the following structure:

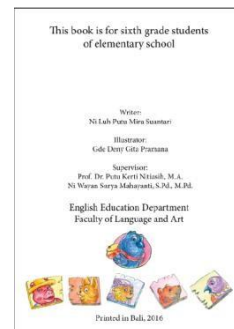
1. Page 1 – Front Cover: Includes the book title, author's name, and main illustration.

2. Page 2 – Instruction Page: Provides guidance for teachers and students on how to use the Big Book effectively.
3. Page 3 – Ownership Page: Space for the student’s name and class information.
4. Page 4 – Book Information Page: Lists the author, illustrator, supervisors, and intended educational purpose.
5. Page 5 - 18/19 – Main Story: Contains 14 - 15 pages of bilingual narrative with full-color illustrations.
6. Page 20 - 21 – Character Description Page: Introduces the main characters featured in the story.
7. Page 22 - 23 – Activity Corner: Offers post-reading activities, such as filling in blanks, matching pictures, or sequencing story events.
8. Page 24 – Back Cover: Includes the story synopsis and highlights of character values embedded in the narrative.

Table 4. Example of Big Book Layout

Page	Description	Layout
1	The front cover	
2	The description of how to use the big book	
3	The page of the belonging of the book	

4 The description of the information of the book



To ensure consistency, each page was designed with a bilingual layout – English text on the left side and the Indonesian version on the right side – accompanied by QR codes linked to audio storytelling and educational SDG videos. The initial prototype was printed in A5 size for preliminary trials before being produced in the final large format (45 x 60 cm). The five completed prototype books are:

1. *Bibbie's Seasons Adventure*
2. *Riry Rabbit's Dream Holiday*
3. *Follow Me*
4. *At the Airport*
5. *On the Road*

With the completion of this stage, the Bilingual Big Book prototype based on storytelling was ready for validation by content and media experts. The product successfully integrates visual art, language learning, character education, and sustainability messages into a cohesive, engaging, and educational medium for elementary school students.

The validation stage aimed to ensure that the *Bilingual Big Book based on storytelling* met the standards of content accuracy, pedagogical appropriateness, and design feasibility before implementation. Two expert judges evaluated the product using a structured validation rubric. This rubric consisted of three major components (1) Relevance to the English syllabus, (2) Criteria of a good Big Book (Karges-Bone, 2009), and (3) Integration of character education. Each component was rated on a five-point scale (from *very inappropriate* to *very appropriate*), accompanied by qualitative comments and suggestions for improvement.

Chart 5 Expert Judgement Results of Bilingual Big Book Validation



The validation results demonstrate that the Bilingual Big Book is a high-quality, feasible, and pedagogically sound learning medium. Experts emphasized its strong alignment with curriculum standards, appealing visual design, and integration of storytelling with SDG-based character values. The media not only supports English literacy and vocabulary acquisition but also fosters empathy, responsibility, and environmental awareness in a child-friendly and interactive way. Minor revisions in diction, grammar, and rhyme can further refine the product before large-scale implementation. Thus, the expert validation confirmed the Bilingual Big Book as an innovative, contextually relevant, and effective educational tool that bridge English language learning with sustainability and global citizenship education for elementary students.

The ideal mean (Mi) was 99, and the standard deviation (Sdi) was 33. These scores indicate that the media falls within the Good to Excellent range, showing strong validity across all evaluation dimensions. The validation confirmed that the Bilingual Big Book prototype is a valid, engaging, and pedagogically sound learning medium. Both experts praised its creativity, clarity, and relevance to young learners. Strengths include Effective integration of SDG-based moral lessons, Balanced bilingual text that supports contextual language understanding, and Appealing visual storytelling design aligned with local and global contexts. Minor revisions were advised regarding grammar accuracy, word choice, and inclusion of teacher guidance for classroom activities. Overall, the product demonstrates high readiness for implementation and potential to enhance English literacy and sustainability awareness among elementary students.

## 5. DISCUSSION

The findings of this research, which focused on the Development of a Bilingual Big Book Based on Storytelling Integrating Sustainable Development Goals (SDGs) for fourth-grade English learning, reveal that the final product responds directly to the pedagogical needs

identified during the preliminary study. The discussion is organized around four key aspects, needs analysis and potential identification, design and prototype development, integration of character and sustainability values, and validation and pedagogical implications, to demonstrate the coherence and progression of the development process.

The initial investigation revealed a strong foundation for developing innovative media in elementary English learning. Observations, questionnaires, and interviews consistently showed that classroom instruction was dominated by textbook-based learning. Teachers primarily relied on course books and blackboards, with minimal use of visual or interactive media such as pictures, realia, or digital tools. The learning process, therefore, became highly text-oriented and teacher-centered, which suppressed students' engagement and imagination. Classroom data showed that 61.30% of students stated that learning English is fun and a further 19.35% stated that it is very fun to learn English. On the other hand, many students also said that English lessons just repeat textbook reading and explanation. Other than that, they also stated that there were not many varied learning media as well as activities. This implies that students liked the subject in general. However, their involvement in the process was not sufficient when the classroom instruction relied solely on text-based routines. It lacked visuals, interactivity, or a story. The finding was additionally supported by teacher interviews which revealed that although students were excited at the start of the English lesson, the excitement disappeared when they were required to work with a long passage and the materials did not have anything contextual or storytelling. Young learners tend to show strong motivation and sustained attention when the lessons are presented in multimedia and stories rather than in print media (more recent studies). According to research findings, Storytelling techniques (involves uses of plays, role plays and drama) helps increase the emotional involvement, participative, contributing and retaining vocabulary among young English learners while use of interactive media dramatically helps students to increasing focus level, confidence as well as enjoy classroom teaching learning process (Dumiat et al. 2025; Noerdjanah 2025; Siregar et al. 2026). Similarly, research has indicated that the combination of story, image, and interaction made for more meaningful learning experiences and greater engagement than text-based approaches.

Teachers expressed a strong need for bilingual storytelling media that could enhance comprehension, sustain motivation, and make English learning more meaningful. They also underlined the importance of integrating character education and environmental awareness within learning materials. These insights provided a clear rationale for developing a Bilingual Big Book that combines visual storytelling, bilingual texts, and SDG values to create a more

engaging and globally relevant learning experience.

The design of the instructional materials was informed by Hall and O'Connor (2006), where large text, bright visuals, short repetitive sentences, and familiar daily-life contexts were incorporated. According to more recent Big Book study findings and multimodal literacy studies, young learners are more likely to make sense of a text when there is print combined with other visual supports, repetition of patterns and shared reading routines. Recent scholarship shows that the use of multimodal information helps children link the language of writing, images, gestures, and prior knowledge, thereby enhancing attention, comprehension, and meaning making in elementary classrooms (Serafini & Gee, 2021; Walsh, 2022).

By using bilingual structure, meaning could connect between both language texts. English was written on the left and the Indonesian version is on the right. This is in accordance with Cummins' (2000) interdependence hypothesis. According to this hypothesis having a command of one language aids literacy in another language. The design is supported by recent research on bilingual scaffolding and multilingual literacy, which shows that the use of the students' home language as part of instruction alongside the target language can support their participation, confidence, vocabulary learning and conceptual understanding. For instance, a recent classroom research study reported that bilingual scaffolding in a multilingual classroom setting facilitated literacy development using visuals, gestures and first-language mediation. Research of translanguaging pedagogy also confirms that allowing children to move across languages can lead to deeper understanding and more active engagement with academic content (García & Kleyn, 2020; Schall-Leckrone, 2022).

All of the stories were supplemented with reflection activities and an SDG Message Page that encouraged students to think about a global sense of responsibility and took their reflection forward with questions such as what can we do to protect our Earth? This feature takes earlier Big Book models as a point of departure, often focused more on reading fluency and comprehension, to highlight the importance of inquiry, ethical reflection, and action in literacy. The created Bilingual Big Book reflects the Bilingual Big Book which is helpful not only for language acquisition, but it also reflects the latest understanding of multiliteracies i.e. children learn through multiple languages and multiple modes and socially meaningful content (Cope & Kalantzis, 2021)

This bilingual and visual design makes the Big Book not only an English learning tool but also a character-building instrument. The layout consistency, use of child-friendly fonts, and integration of QR codes for audio storytelling and SDG videos offer multimodal learning

experiences that align with Mayer's (2009) *Cognitive Theory of Multimedia Learning*, where verbal and visual information work together to enhance comprehension and retention.

The prototype development resulted in five bilingual storybooks: *Bibbie's Seasons Adventure*, *Riry Rabbit's Dream Holiday*, *Follow Me*, *At the Airport*, and *On the Road*. Each story integrates character values derived from the 18 national character principles, contextualized with SDG content. For example, *Bibbie's Seasons Adventure* promotes curiosity, friendliness, and environmental care (SDG 13 & 15), while *Riry Rabbit's Dream Holiday* teaches discipline and responsibility (SDG 12 & 14). The stories are not moralistic but experiential children learn values naturally through the characters' action and challenges. This aligns with *Input Hypothesis*, which states that language acquisition is most effective when learners are immersed in meaningful and comprehensible input.

The collaboration with art education students ensured that all illustrations were original, culturally contextualized, and emotionally expressive. The use of both manual watercolor and digital design provided vibrant visuals that reflect Balinese culture while promoting universal themes. These illustrations play a crucial role in enhancing emotional engagement and comprehension, resonating with Paivio's (1990) *Dual Coding Theory* that visual and verbal stimuli together enhance learning and memory.

The expert validation phase confirmed that the Bilingual Big Book is a valid, feasible, and pedagogically effective instructional medium. Two expert judges evaluated the product based on three criteria, alignment with the syllabus, adherence to good Big Book principles, and integration of character values. The total validation scores classified the product within the Good to Excellent range (Expert 1: 147 = Good; Expert 2: 157 = Excellent), demonstrating strong agreement across evaluative dimensions. Experts commended the product's creative design, balanced bilingual layout, and effective incorporation of SDG-based moral lessons. They highlighted that the media supports language learning while cultivating empathy, environmental awareness, and global responsibility, key elements of Education for Sustainable Development (ESD) as endorsed by UNESCO (2017). Minor revisions were suggested for grammar refinement, dictions, and inclusion of clearer activity guidance for teachers. The results of the validation indicate that the Bilingual Big Book can provide learning of the English language and education of sustainability in a linked, age-appropriate manner. Teachers can utilize it for shared reading to teach vocabulary and reading, speaking, and discussion of SDG values in the same lesson. This is best suited for elementary classrooms in which students require visual support, guided reading, and interactive storytelling, particularly learners with

limited English proficiency as the bilingual design provides scaffolding for comprehension. The product can be used by schools as additional material for literacy programs, reading corners or thematic learning. For curriculum designers, it provides a practical model for integrating English competencies and values of sustainability consistent with the Ministry of Education, Culture, Research and Technology of Indonesia Merdeka Curriculum and the Pancasila Student Profile Pancasila Student Profile. Classrooms that encourage talking, doing, and learning in context make this media most effective. This condition aligns with Content and Language Integrated Learning CLIL, where students learn language and subject content simultaneously through meaningful communication (Coyle et al., 2010). More recent studies continue to support this principle, showing that CLIL-based instruction can improve students' language achievement, learning interest, and content understanding when lessons are interactive and context-driven. For example, Gao et al. (2025) found that CLIL significantly enhanced primary students' English ability and motivation, while Lee et al. (2025) reported positive overall effects of CLIL at the primary level through a multi-level meta-analysis. Recent reviews have also emphasized that successful integrated-content learning depends on active participation, clear learning goals, and teacher support (Hu et al., 2023; Ruiz de Zarobe, 2025). Therefore, the Bilingual Big Book is particularly suitable for communicative classrooms where students engage with stories, discuss ideas, and connect language learning with real-world sustainability themes.

The findings highlight that the Bilingual Big Book based on storytelling integrating SDGs effectively meets the needs of elementary English learning in Indonesia. It addresses existing gaps in media diversity, enhances students' motivation through storytelling and visuals, and embeds global citizenship education within language learning. The study demonstrates that young learners benefit from contextual, visual, and moral learning experiences, where language serves as a medium for developing both communicative competence and sustainable values. The integration of SDG principles not only enriches the linguistic dimension but also fosters responsible, empathetic, and environmental conscious learners—preparing them to become globally minded citizens of the future.

## 6. CONCLUSION

The Bilingual Big Book Based on Storytelling Integrating Sustainable Development Goals (SDGs) for fourth-grade English learning have been created successfully as per the pedagogical analysis in the first phase of the research. According to the results, the English instruction in elementary schools was still largely dominated by textbook-based practice with

limited visual, contextual, and activity-based opportunities. As such, this study produced a series of bilingual storybooks that included content in English language on the SDGs and character education values using large illustrations and simple repetitive language and the use of text presentation bilingual. The product was assessed by experts and confirmed to be feasible, creative, and pedagogically appropriate. This means it can work as an effective tool for integrating language learning, literacy development, and sustainability awareness in primary classrooms.

Through making language learning more meaningful, fun and value-based, the Bilingual Big Book is a resourceful contribution to elementary English education. Under the current curricular aims, it represents a model of integrating literacy teaching with global citizenship and environmental education. In the future, we may conduct wider classroom trials, adapt this for digital use and explore the long-term impact on students' language achievement and sustainable attitudes.

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### **Declaration of Generative AI**

During the preparation of this manuscript, the authors used generative artificial intelligence (AI) and AI-assisted tools, including Scispace, ChatGPT, Grammarly, and QuillBot, to assist with language refinement, grammar correction, sentence restructuring, paraphrasing, and improving the overall clarity and readability of the text. These tools were used solely to support the writing and editing process and were not employed for data analysis, interpretation of results, or generation of original scientific conclusions. All content produced or suggested by these tools was carefully reviewed, verified, and revised by the authors to ensure accuracy, appropriateness, and consistency with the intended meaning. The authors accept full responsibility for the final content of this manuscript, including its originality, integrity, and scholarly validity.

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