

CHAPTER I

INTRODUCTION

1.1 Research Background

In the 21st century, digital technology, such as smartphones and the internet, has become an inseparable part of human life (Joshi et al., 2022). Communication tools such as smartphones are now widely used not only by adults but also by children, including those under 12 (ACT for Youth, 2024). The high use of gadgets is unavoidable for students in this digital era, where screens offer visual experiences and provide quick access to information. During screen time, students indirectly learn and gain new knowledge. Despite this, gadgets also stimulate students' curiosity and imagination, and train their intelligence by engaging with pictures, writing, and numbers, which develop creativity, counting, and reading skills (Handrianto, 2013, as cited in Putri et al., 2024).

Digital technology has also increased the need for reading, as people now have more access to text than ever before (Alneyadi et al., 2023). Plenty of information is available simply by turning on a device, leading people to read more frequently, not only for pleasure, but also for learning, work, or daily life. Reading itself is one of the most essential skills and serves as the foundation for individuals to learn about everything around them. It is a complex cognitive process that involves decoding symbols to derive meaning, making it a form of language processing; success in this process is reflected in reading comprehension (Grigoryan, 2020).

Reading comprehension, as defined by Frans et al. (2023), is the ability to understand and express the meaning of a text, either directly or indirectly. In line with this, Syafitri and Mansurdin (2020) emphasize that reading comprehension includes understanding meaning and content, as well as clarifying and evaluating a text. These abilities are crucial for students' academic progress, as strong reading comprehension forms the foundation of content-area learning in all subjects (Smith et al., 2021) .

Despite its importance, Indonesia continues to face significant challenges in reading literacy. The 2022 PISA assessment reported Indonesia's reading score reached 359 points, which is lower than the OECD average of 476 points. Similar trends were seen in other subjects, with scores of 366 in mathematics (OECD average: 472) and 383 points in Science (OECD average: 485) (OECD, 2023). Only about 25% of students in Indonesia achieved Level 2 or above in reading, while the OECD average was 74%. At this level, students are at the very least able to identify main ideas in moderately long texts, discover information based on explicit but sometimes complex criteria, and reflect on the purpose and structure of texts when given clear guidance (OECD, 2023). At the highest proficiency level (Level 5 or above), almost no students in Indonesia achieved this standard, whereas the OECD average was 7%. Students at this advanced level can understand long and complex texts, handle abstract or counterintuitive concepts, and distinguish fact and opinion based on implicit content cues (OECD, 2023).

While this international assessment reveals broader issues, looking closely at local primary schools reveals the same problem. To gain specific data on

elementary students' reading conditions, the researcher conducted a comparative analysis of primary school literacy across the province using the *Rapor Pendidikan Provinsi Bali* (2022). According to a report by Pemerintah Provinsi Bali (2022), the average elementary literacy competency rate (*Rata-rata Kemampuan Literasi SD*) in Kabupaten Buleleng was only 52.93%. When compared to other regions in Bali, Buleleng ranks near the bottom, placing 7th out of 9 regencies/cities. It lags significantly behind more developed areas such as Kota Denpasar (62.35%), Kabupaten Badung (59.52%), and Kabupaten Gianyar (59.47%). Buleleng only slightly outperforms Kabupaten Bangli (52.74%) and Kabupaten Karangasem (52.37%). This clear cross-regional disparity demonstrates that elementary students in Buleleng experience a significant literacy gap, confirming that foundational reading skills in this region remain low compared to the majority of other regencies in Bali. The long-term consequences of this condition are evident in later schooling stages; according to a report by Pemerintah Kabupaten Buleleng (2025), around 375 students in junior high schools in Buleleng, Bali, have been reported to face difficulties in reading. This literacy challenge originates directly from the primary level, where students in grades 4-6 often struggle with basic reading and writing skills.

To gain a clearer picture of how these reading issues appear in classroom practice, a preliminary interview was conducted with a fifth-grade homeroom teacher, who also serves as the English teacher at SD Negeri 1 Tukadmungga. According to the teacher, the students face immediate challenges when interacting with English texts. During the preliminary interview, the teacher

explicitly noted that only a few children could comprehend the overall content of a short reading passage, while the majority still struggled to understand the meaning of individual words. The teacher further explained that this problem was mainly due to students' limited vocabulary. This foundational vocabulary limitation was clearly evident during a classroom observation conducted during a fifth-grade English lesson focusing on comparative adjectives. When the teacher asked the class to identify or define basic adjectives, only a small group of approximately four to five students dominated the classroom participation. The majority of the students appeared passive and required a significant amount of time to recall or process basic word meanings; often, the teacher had to point to the illustrations in the textbook so the students could infer the meanings from the visual context. This lack of lexical word recognition in daily lessons directly explains why students struggle with English reading comprehension, as a strong vocabulary foundation is essential for grasping the overall message of a text.

As an essential component of language development, the importance of reading comprehension is unquestionable, especially when it is introduced from an early age (Surmanov & Azimova, 2021). Early exposure to reading comprehension helps children build foundational language skills such as vocabulary, grammar, and background knowledge, which later support their overall literacy and academic achievement. In today's interconnected world, mastering these skills in English is highly valuable, as it allows primary school students to successfully engage with foreign texts and process the information they encounter. More importantly, being critical in a global language not only enhances their academic performance but also

helps them recognize and understand global issues that they might not have been aware of before. In the context of primary education in developing countries, one of the most pressing global issues affecting students' development and readiness to learn is hunger and malnutrition.

One of the global issues that is widespread and impacts health, education, and overall quality of life is hunger. To address this, the United Nations initiated Sustainable Development Goal 2 (Zero Hunger), which aims to end malnutrition and ensure all people have access to safe, sufficient, and nutritious food by 2030. Raising awareness about this issue from an early age is especially urgent in Indonesia, a country still grappling with a triple burden of malnutrition, where 1 in 3 children aged under 5 years is stunted, and 1 in 10 children is wasted. At the same time, a further 8% are overweight (Rah et al., 2021). In response, the Indonesian government launched the Free Nutritious Meal (MBG) program to improve child nutrition by providing schoolchildren with balanced portions of carbohydrates, proteins, fats, vitamins, and minerals.

However, achieving Zero Hunger in schools faces a behavioral challenge: students often do not finish their meals, thereby wasting the very nutrients meant to prevent malnutrition. Research by Fitriani and Linda (2023) indicates that in the MBG tray, vegetables are the most commonly left unfinished due to factors such as low appetite, a lack of home vegetable consumption habits, and inadequate understanding of the importance of eating vegetables for health. The same problem was also revealed during interviews with the fifth-grade homeroom teacher in this study, who indicated that highly nutritious items like vegetables, tempeh, and tofu

are the most commonly left unfinished and thrown into the garbage. When students discard these foods because they dislike the taste or feel full, they waste vital nutrients essential for their growth. Since Indonesia already ranks among the countries with the highest food waste rates in Southeast Asia (Dina et al., 2026), changing this behavior at the consumer level is important. Therefore, teaching elementary students to appreciate food and reduce waste is not just about clean plates, it is a direct, actionable strategy to maximize their nutritional intake, protect their health, and actively participate in achieving the goal of Zero Hunger.



Following the importance of reading comprehension for young learners to be critical and aware of global issues like malnutrition and food waste, there is a need to develop a medium that can support students' reading comprehension while also embedding values such as Zero Hunger. To maximize the impact of this medium, it must adapt to the reality of the 21st century, where the use of digital tools like smartphones, laptops, and gadgets has grown rapidly. Because the future will rely heavily on technology, there is a need to develop digital learning media so that educators can learn how to operate, navigate, and master these digital tools today. Preparing teaching methods for the future is essential; by creating digital media, teachers are given a practical opportunity to upgrade their skills and become proficient in using technology, ensuring they are not left behind in this digital era.

One digital learning medium that has been proven effective in teaching literacy skills, particularly reading comprehension, to elementary students is the use of digital comics. Educational comics serve as a tool to present teaching materials through illustrated stories that combine images, text, and dialogue (Khotimah &

Hidayat, 2022). Given that the fifth-grade students at SD Negeri 1 Tukadmungga rely heavily on the illustrations in their current textbook, comics provide a highly suitable medium to facilitate English learning and reading comprehension. In terms of format, these comics are presented electronically, meaning that they are accessible through devices like smartphones or computers (Kusmajid et al., 2024).

Although students in this study are not allowed to use mobile phones at school and the availability of LCD projectors is limited at school, the development of digital comics is still considered a relevant and necessary solution. This is because the use of digital comics does not always require students to have their personal devices. Digital comics can be implemented through a shared LCD when available. Moreover, digital comics can be accessed at home with parental supervision. This digital comic is designed to provide an educational alternative to the purely entertainment-focused content that students frequently consume on their smartphones. This approach allows students to engage with purposeful English reading materials during their out-of-school hours, and this digital format also supports the goals of 21st-century education.

Empirically, several studies confirmed that the use of digital comics as media can serve as a supportive tool for teaching reading comprehension (Damanik & Devianty, 2024; Gojali et al., 2024; Kusmajid et al., 2024). First, a study by Damanik and Devianty (2024) aimed to develop and evaluate comics, specifically designed to support the reading comprehension skills of third-grade students at MIS Hubbul Wathon. The results showed that the digital comics assisted grade 3 students in their reading comprehension. Although the developed comics were used to teach

reading comprehension, they were implemented in a thematic subject rather than English. Similarly, Gojali et al. (2024) conducted research to develop an e-comic based on the folklore of Berian Tinggi village to support reading comprehension. The results revealed that the developed e-comic contributed to the reading comprehension of fourth-grade students at SD Negeri 44 Kaur in the Bahasa Indonesia Subject. Finally, Kusmajid et al. (2024) conducted a study to analyze the need for developing digital comics based on local wisdom as a learning medium to facilitate elementary students' reading comprehension and reading interest. Their findings indicated that the developed digital comic facilitated students' reading comprehension, with students finding the medium engaging and flexible.

Following those studies, there is still limited research focusing on facilitating elementary students' reading comprehension in English. Additionally, there are no previous studies that have incorporated one of the Sustainable Development Goals, particularly the Zero Hunger value. As an initial step, this research aims to develop a digital comic as a medium for teaching English reading comprehension to elementary school students. The novelty of this research lies in its integration of the Zero Hunger value, which is one of the core values of the Sustainable Development Goals (SDGs). Through the storyline and characters presented in the digital comic, students are expected not only to practice their reading comprehension skills but also to develop empathy, social responsibility, and an understanding of real-world issues related to hunger and food sustainability.

To develop a digital comic, students' needs in reading media should be analyzed first. Findings from the preliminary interview showed that students often

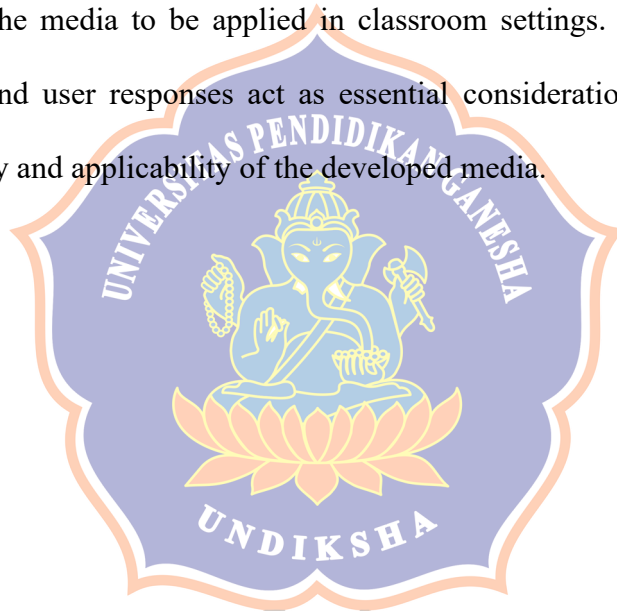
struggled to understand text due to limited vocabulary. In addition, the preliminary interview revealed that while the current textbook provides interesting materials and visuals, the availability of English reading text remains limited in terms of quantity.

Furthermore, a preliminary interview with two random students in grade five revealed a strong interest in fiction. The students expressed a preference for reading materials that can be accessed via their smartphones, as they reported spending a significant amount of time using these devices at home. One student specifically noted a fondness for reading *manga* on their phone, indicating that digital comics would align with their daily habits. However, according to the teacher, the available fictional stories in their English textbook are brief and limited in quantity, which prevents students from having enough context to practice their reading skills.

As a solution for this condition, the development of digital comics provides a more immersive fictional context and supportive visual elements. These needs are aligned with Mayer and Moreno's (1998) Cognitive Theory of Multimedia Learning, which emphasizes that students learn more effectively from a combination of words and visuals rather than from words alone. By integrating text with supportive images, digital comics can increase motivation and support comprehension. Therefore, developing digital comics as a learning medium is considered an appropriate response to students' needs and the demands of 21st-century education.

In addition, expert judgment was conducted to evaluate the overall validity, appropriateness, and instructional quality of the digital comic before its field implementation. Furthermore, this current study also gathered students' and

teacher's responses toward the developed media. In educational research, "responses" often refer to perception, attitudes, and feedback from learners and educators with respect to a material or intervention, as these constructs are commonly used to evaluate the acceptability and usability of learning tools (Walker et al., 2020). Students' responses are important to determine whether the media is engaging, motivating, and supportive of their comprehension development. Teachers' responses, on the other hand, reflect the practicality, relevance, and potential of the media to be applied in classroom settings. Overall, both expert evaluations and user responses act as essential considerations in evaluating the overall quality and applicability of the developed media.



1.2 Problem Identification

Before developing a learning medium, it is important to identify the problems students encounter in English reading comprehension. Therefore, a preliminary interview was conducted with the grade 5 homeroom teacher at SDN 1 Tukadmungga, who also serves as the English teacher, to identify the specific challenges students face in reading. The interview revealed that, while students can read aloud, they struggle to understand what they read. Several factors hinder the development of their reading comprehension, such as limited vocabulary, word recognition difficulties, and inadequate reading media. The teacher noted that most fifth-grade students have extremely limited vocabulary and sometimes even struggle to name objects around them.

Despite these obstacles, students reported having a strong interest in reading, particularly fictional stories. Two students, one of whom is considered the least proficient and one the most proficient, expressed a preference for short fictional stories with engaging pictures and large fonts, with one student preferring stories that are accessible through a smartphone. Their preferences and needs for reading media were used as supporting preliminary data for the further need analysis phase before developing a suitable reading medium.

Since fictional stories are engaging for students, this study aimed to develop a digital comic that can be displayed via an LCD projector in the classroom and can be accessed via mobile phones at home to facilitate students' reading comprehension. Additionally, the developed digital comics incorporated the Zero

Hunger value, one of the United Nations' Sustainable Development Goals (SDGs). Introducing this value to elementary students is essential to developing their global awareness and empathy. Therefore, the researcher aimed to develop a digital comic that not only supports reading comprehension but also promotes the Zero Hunger values for fifth-grade students.

1.3 Research Limitation

The scope of this study includes developing a digital comic medium to support reading comprehension and promote Zero Hunger values among fifth-grade students at SDN 1 Tukadmungga. The developed digital comic is intended for elementary school students, specifically at the fifth-grade level, and therefore may not be suitable for learners at other educational levels. In addition, the value integrated into the digital comic is limited to the Zero Hunger theme. Furthermore, this study focuses solely on the development and the quality of the digital comic as a learning medium for teaching reading; it does not aim to examine its effectiveness or long-term impact on students' learning outcomes.

1.4 Research Questions

Based on the explanation in the research background above, the research questions would be as follows:

1. What are the needs of students in reading media to support their reading comprehension and awareness of the Zero Hunger issue?
2. How is the development of a digital comic as a reading medium to support students' reading comprehension and awareness of the Zero Hunger issue?
3. How is the quality of the developed digital comic in supporting students' reading

comprehension and awareness of the Zero Hunger issue?

4. What are the students' and teacher's responses to the developed digital comic as a reading medium for supporting reading comprehension and awareness of the Zero Hunger issue?

1.5 Research Objectives

The objectives of this study include:

1. To analyze the needs of students in reading media to support their reading comprehension and awareness of the Zero Hunger issue.
2. To develop a digital comic to support students' reading comprehension and awareness of the Zero Hunger issue.
3. To evaluate the quality of the developed digital comic in supporting students' reading comprehension and awareness of the Zero Hunger issue.
4. To describe the students' and teacher's responses to the developed digital comic as a reading medium for supporting reading comprehension and awareness of the Zero Hunger issue.

1.6 Research Significance

There are theoretical and practical significances of this study, including:

1. Theoretical significance

This study makes theoretical contributions to three main areas. First, it enriches the theory of reading comprehension by providing insights into how digital comics can facilitate students' understanding of texts while simultaneously increasing their

reading motivation. Second, it adds to the theoretical discussion on innovative media in education, particularly on how digital comics serve as an engaging and innovative medium for elementary students. Third, it supports the conceptual framework of Education for Sustainable Development (ESD) by demonstrating how the integration of SDG 2: Zero Hunger values into learning materials can promote students' awareness of global issues through reading activities.

2. Practical Significance

This study is intended to provide advantageous benefits for improving learning media in education:

1. For the researcher, this study serves as an early stage in developing educational technology and learning media. The presented findings and processes can provide valuable insights for researchers seeking to create or improve technology-based teaching and learning tools. Further, this research can contribute to the area of knowledge in teaching media development, especially for language learning contexts.
2. For teachers, the developed digital comics offer an innovative medium that enriches students' learning experiences, particularly in reading. The combination of storyline and eye-catching illustrations presented in educational content, this media can make reading activities more appealing and assist teachers in introducing topics more simply. To add, the comic format also aids teachers in encouraging students' interest and motivation in learning.

3. For students, the attractive format and engaging self-learning materials provided by digital comics can support students' reading comprehension. Students will better understand the context of reading due to the combination of text and illustrations. In addition, the focus on the Zero Hunger issue motivates students to be more aware of global challenges.
4. For the education field, this study presents an innovation in developing technology-based media in line with the needs and demands of the present era. It illustrates how digital tools can be effectively applied to reading instruction and value-based education, and introduces a model that can be adapted by other educators and institutions within their contexts.
5. For future researchers, this study can be a reference for conducting similar studies on the development of digital comics for reading comprehension. It lays the groundwork for future improvements, such as adding new features or adapting the medium for different subjects. It also opens opportunities for future studies on how Sustainable Development Goals (SDGs), especially Zero Hunger, can be integrated into educational media.