

## DESIGN OF ILLUSTRATION BOOK ON WASTE MANAGEMENT EDUCATION FOR CHILDREN

### PERANCANGAN BUKU ILUSTRASI TENTANG EDUKASI PENGELOLAAN SAMPAH PADA ANAK

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**Abstract :** Improper waste management results in environmental contamination, affecting land, water, and air quality. This contamination fosters disease-spreading animals like rats, cockroaches, and mosquitoes. Indonesia ranks as the world's second-largest plastic waste contributor, generating 14.96 million tons annually with 6.8 million tons unprocessed due to low awareness and weak regulations. The habit of littering of adults can be passed onto their children, highlighting the importance of teaching waste management to young children for environmental care and discipline. This research aims to raise awareness using qualitative and quantitative data to produce an educational illustration book to instil waste management principles in children and shape their character.

**Keywords:** Children, Education, Illustration Book, Waste Management

**Abstrak :** Pengelolaan sampah yang tidak tepat mengakibatkan pencemaran lingkungan, mempengaruhi kualitas tanah, air, dan udara. Kontaminasi ini menumbuhkan hewan penyebar penyakit seperti tikus, kecoa, dan nyamuk. Indonesia menempati urutan kedua penyumbang sampah plastik terbesar di dunia, menghasilkan 14,96 juta ton per tahun dengan 6,8 juta ton tidak terolah karena rendahnya kesadaran dan lemahnya regulasi. Kebiasaan membuang sampah sembarangan pada orang dewasa dapat diturunkan kepada anak-anak mereka, menyoroti pentingnya mengajarkan pengelolaan sampah kepada anak-anak kecil untuk menjaga lingkungan dan disiplin. Penelitian ini bertujuan untuk meningkatkan kesadaran dengan menggunakan data kualitatif dan kuantitatif untuk menghasilkan buku ilustrasi untuk menanamkan prinsip-prinsip pengelolaan sampah pada anak-anak dan membentuk karakter mereka.

**Kata kunci:** Anak-Anak, Edukasi, Buku Ilustrasi, Pengelolaan Sampah

## INTRODUCTION

Waste has long been a global concern due to its excessive production. This poses a threat to the environment, especially since plastic takes over 50 years to decompose (Müller et al., 2001). Contaminated landfills and waters become breeding grounds for harmful creatures and diseases affecting animals, plants, humans, and biodiversity. These germs can cause bacterial diseases, viral diseases, and parasites; where young children are more vulnerable (Prüss-Üstün et al., 2016).

Jakarta, Bandung, Yogyakarta, and Surabaya are Indonesia's main waste contributors, producing waste such as food packaging, plastic bags, and food scraps (Kejar Mimpi, n.d.). In 2019, Indonesia's recycling rate was only 14.58%, indicating limited sorting and recycling practices (AHK Indonesien, 2021). Improper waste disposal has caused flooding in several areas due to heavy rains and trash accumulation from garbage dumping (Muliaty, 2021).

Teaching waste management to children develops character traits of environmental care, discipline, and responsibility as education can also shape good character during the golden age (Ismail, 2021; Rustini, 2012). Children imitate their parents and surrounding adults, which relates to the behavior of littering (Kollmuss & Agyeman, 2002). Parental education on waste management also significantly influences the behavior of proper waste disposal (Herdiansyah et al., 2021).

Storybooks serves as both educational tool and cognitive enhancers. Research by Ratnasari & Zubaidah (2019) highlights how picture books significantly influence the speaking ability of 4–5-year-olds. According to interview done by the author, interactive activities can further enhance their education. Hence, creating an interactive illustration book that revolves around the various types of waste and consequences of littering can effectively educate children on proper waste disposal.

## RESEARCH METHOD

The research method involves a mixed-method approach. Qualitative research involves analysing social phenomena based on personal experiences, while quantitative

research analyses data by numeric patterns (Ahmad et al., 2019). The methods are literature studies, interview, observation, and questionnaire.

## **THEORIES**

### **Visual Communication Design**

Visual Communication Design is a field centred on exploring communication concepts and creative expressions across diverse media (Kusrianto, 2007). It is a problem-solving tool by addressing social issues through study, where pictures and text is used to persuade by conveying messages through attractive and appropriate visuals (Soewardikoen, 2019:5).

### **Typography**

Typography refers to the skill of arranging letters for visual communication purposes in both print and digital media (Kusrianto, 2007). It can convey emotions and messages through readable and visually-pleasing text.

### **Layout**

Rustan (2009) defines layout as the arrangement of visual components within a certain media, to communicate specific messages or concepts in a design. There are different types of layouts: balance, rhythmic, proportional, unity and contrasting layout.

### **Color**

Colour is a design element that is highly subjective in its application (Darmaprawira W.A., 2002). Children associate bright colours with positive emotions, while dark colours evoke negative emotions (Boyatzis & Varghese, 1994).

### **Illustration**

Illustration are visual representations that can convey messages of complex ideas and stories (Kusrianto, 2007). Illustrations can attract and maintain the reader's attention, aiding early literacy for young readers, and conveying emotions within the narrative and characters.

### **Storybook**

A storybook is an educational tool for learning purposes (Crowther, 1995). Children of ages 0-6 years are drawn to storybooks that feature attractive images that

helps in the development of socio-emotional, cognitive, language, and moral aspects (Hartati, 2005). Books with illustrations can effectively communicate information using visuals and text, and it is also easily accessible to the target audience (Sabira et al., 2022).

### **Waste Management**

Waste refers to items that are no longer utilized and should be disposed (Azwar, 1990). The waste management principles known as the 4R approach consist of reducing, recycling, reusing, and replacing (Kartikawan, 2009).

### **Littering Phenomena in Indonesia**

The behaviour of littering is a major problem in Indonesia due to the lack of awareness, education, and weak environmental regulations. Reversing this behaviour is difficult as it has become a routine habit for decades, in addition to them being desensitized to 'Don't Litter' warning signs. They are not provided with the knowledge, alternative methods, services, facilities, and proper enforcements from the government (Suwarno & Nurhayati, 2021).

## **DESIGN CONCEPT**

### **Message Concept**

According to the theories and study cases, it can be deduced that a successful waste management system is when citizens actively participate in trash sorting, and when there is proper education through formal or non-formal institutions. The author opts to design an educational illustrated storybook for 3-6 years old, that introduces the types of waste and the effects of improper waste disposal. This book also incorporates interactive games related to the waste types.

### **Creative Concept**

The primary medium is an illustrated storybook with a cartoon style, vibrant colors and textured-shading technique. The color scheme comprises mainly of greens and oranges. The book's title uses the font 'Comichate', while the body text uses 'Papernotes', both chosen for its legibility and handwritten style that reflects the children concept.



Figure 4.1 Color Palette & Fonts  
(Source: Farah Fahira Julana, 2023)

The images below were used as references in coming up with the art style, environments, and objects that exists in the book.



Figure 4.2 Illustration References  
(Source: Official Website of Behance by Denise M., Cheng B., & Carrie, 2023)



Figure 4.3 Environment References  
(Source: Official Website of MataKepri, SINDOnews, FloresPos, Republika, 2023)



Figure 4.4 Recyclable Objects References  
(Source: Official Website of Google, 2023)

### Media Concept

The main medium is an illustrated storybook, which includes interactive games to enhance educational learning experience. The book uses a format of 20 x 20 cm, hardcover with glossy lamination, uses artpaper 310gr with 26 pages. Supporting media includes posters, stickers, flashcards, x-banner, and totebag.

### DESIGN RESULTS

#### Illustrated Storybook

This storybook talks about how littering and improper trash disposal affects our environment such as plants, animals, and human health. It also educates children on the five types of recyclables and processable waste.



Figure 5.1 Let's Separate Trash! Book Contents  
 (Source: Farah Fahira Julana, 2023)



Figure 5.2 Let's Separate Trash! Mockup  
(Source: Farah Fahira Julana, 2023)

## Poster

There are three posters which have different purposes: promoting the book, attracting consumers, and educating or reminding the children on the different types of waste.



Figure 5.3 Poster  
(Source: Farah Fahira Julana, 2023)

## Sticker

Each sticker set includes two sticker packs that are promoted as merchandise, containing illustrations of recyclable objects and the characters within the storybook.





*Figure 5.6 X-banner  
(Source: Farah Fahira Julana, 2023)*

### **Totebag**

It can be used as a substitute for plastic shopping bags, to promote eco-conscious habits.



*Figure 5.7 Totebag  
(Source: Farah Fahira Julana, 2023)*

### **CONCLUSION & SUGGESTION**

Based on the comparison of various cases in different countries, effective waste management involves active citizen participation through the proper handling of household waste. This includes collecting, sorting, and disposing of recyclable materials. By processing this waste, it gets converted to reusable materials and new products

which reduces the amount of waste that goes to landfills. The case studies of Germany, Finland, and Japan were considered as an insight in regards to the way they teach children where they used various media that can be in the form of books, stickers, and posters; that were also implemented into the design of this project. Through interviews, observations, and questionnaires, the researcher identified a common issue in both parental and school settings: the use of uncategorized waste bins. This suggests a lack of education from parents and teachers regarding waste sorting. The case studies and questionnaires also concluded that a significant number of citizens dispose their waste into a single bin, indicating a deficiency in understanding the advantages of waste sorting. This practice does not promote and educate proper recycling. To instill the practice of waste sorting, an illustrated book that targets children aged 3-6 is used to introduce waste management. The use of an illustrated storybook is beneficial, as it effectively communicates information through engaging visuals and text.

However, a valid concern arises regarding the potential mishandling of separated waste that has led to doubts among parents and teachers about the value of teaching waste separation. In this case, not only should children be educated, but responsible parents and individuals within the waste management sector should also receive proper education and resources. The researcher proposes a different approach where awareness is raised among parents, teachers, and waste management professionals; by exploring different media that targets teachers and parents. Responsible adults should take initiative and have persistence in their efforts, as children's education on waste management is still important despite limited facilities.

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