Efforts to instill green behavior to the phi generation using illustration book

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Abstract. The definition of environmentally friendly behavior has changed from generation to generation. This is due to the development of technology and media. Being close to the digital technology, the Phi generation tends to abandon the analog technology which is more environmentally friendly. This study aimed to create a media that can introduce green behavior to the Phi generation and make them implement it in their daily lives. This study used the ADDIE method to create a product in the form of an illustration book prototype. The book design contains a description of green behavior of using analog technology with a visual illustration approach. The illustration book is expected to foster the desire of the Phi generation to use analog technology.

1. Introduction

Some of the global problems and issues of the 21st century are related to the environment. The environment is the entire elements or components that surround an individual and affect the individual’s life and development [1]. The environment can also be considered as an access for human to achieve prosperity. The surrounding environment is not only a living space, but also a place where each individual productivity happens and coexists with other elements of the ecosystem. Thus, an individual behavior might affect the nature and ecosystem where the individual lives.

Green Behavior is a form of environmentally friendly lifestyle that preserves the nature. Green Behavior is human behavior that protects and maintains the environment in their immediate surroundings [2]. Lifestyle habits such as throwing garbage in its place, turning off electricity or water when not in use, and other similar actions are individual daily actions that bring good impacts on the surrounding environment [3]. Either being implemented consciously or not, these simple actions are the examples of green behavior implementation in the society.

Millennials are the generation born between 1982 and 2004 in Indonesia [4]. They are those who have reached the age of 17 to 39 years in 2021. The classification of generations in Indonesia is different from the classification of generations in other countries. In America, Generation Y (Millennials) are those born in 1980 to 2000. In general, Millennials can be categorized as those born in the early 1980s to the 1990s.

Humans basically have a sense of belonging and love to nature where they live [5]. In the era of the millennial generation, from the 1980s to the early 2000s, green behavior had been applied by the
community. Either being done consciously or not, this behavior helped preserve the surrounding environment.

The younger generations born after the millennials are categorized into several generations of Alpha or Neo – generation (born 2010 until now) and Generation Z (born in the early 2000s to 2010) [5]. These younger generations show a lack of responsibility in terms of environmental conservation [6]. For example, there are many walls or fences being vandalized without clear purposes. And because the Alpha generation was born in an era when technology had been so advanced, most of this generation members are addicted to technology and information. This has made them care less about their surrounding environment. Such behaviors can already be considered as actions that damage the environment and are not in accordance with green behavior. Each generation should take care of the environment they are living in.

There are differences in the behaviors of each generation that help preserve the environment. One example can be seen in the field of transportation. In the millennial generation era, motorized vehicles were rarely used to go to school. Many children in the millennial generation era used bicycles or public transportation. Many of them even walked to school. In today's era, the use of motorized vehicles by minors is increasing every year. Many victims of motored vehicle accidents are school-age children. Up to 2021, 80,641 victims who died in motored vehicle accidents were senior high school students, 17,699 were junior high school students, and 12,557 were elementary school students [7]. The number of underage motorized vehicle users shows that green behavior in terms of transportation has not been widely applied by the current generation. Not only endangering the children themselves, the use of motorized vehicles by underage students has a negative impact such as air pollution to the surrounding environment.

Based on the above description, a means to instill green behavior from the millennial generation to the younger generation is needed. To answer this problem, the researchers designed a visual media in the form of an illustration book about green behavior in the millennial era. To persuade the younger generation to implement green behavior, strategic steps are needed in the designing process of the illustration book.

2. Research methods
The target of this illustration book media design is the Phi generation, the generation in Indonesia who underwent adolescence in the early 21st century. The attitudes of the phi generation tend to be passionate, creative, pluralist, communal, alienated, and sensitive [4]. This study used ADDIE design method (Analysis, Design, Development/Production, Implementation, and Evaluation) [8–13] to create the illustration book design in the following stages:

2.1. Analysis
At this stage, the researcher conducted an analysis of the types of green behavior to be presented in the illustration book. The behaviors selected are those that existed in the millennial generation era and could be applied by the Phi generation. The data were obtained using several data collection methods such as interviews, observations and questionnaires. Before asking about green behavior in the millennial generation era, the researcher explained the meaning of green behavior concept to the informants. The data obtained were then processed as a basis for designing the illustration book.

2.2. Design
The second stage in the ADDIE method is the design stage. At this stage, the researcher began to design an illustration book according to the results of the previous analysis. The design stage was begun by making a rough sketch of illustration and presentation plan for the illustration book. In designing this book, the researcher took several references from the internet and other media. The illustrations in this book were made manually and the final process was done using special design software.
2.3. Development/production
The development stage is the stage where the design was realized into an illustration book. In creating the book, the researchers consulted the supervising lecturers or respective experts for some suggestions. This was done to ensure whether the illustration book design was in accordance with the data and elements obtained in the previous stages. The results of the product development are shown in Figure 1 which includes (a) the cover of the book; (b) and (c) samples of the book's content pages.

![Figure 1. (a) (b) (c) sample visualization of the “Green Millennials” illustration book](image)

2.4. Implementation
In the fourth stage, implementation was carried out to obtain feedback on the products being developed. In this study, the product was given to several teenagers aged 13-20 years. The respondents were selected using random sampling. The feedback found was only in terms of layout arrangement and visual aesthetics. There was no feedback in terms of content.

2.5. Evaluation
At this stage, the researcher evaluated the shortcomings in the illustration book based on the feedback from the respondents selected to test the product. The improvement results are shown in Figure 1.

3. Discussion
3.1. Illustration book media and green behaviour
Green behaviour. Green spirit and behavior in the Millennial generation era in the illustration book design can be classified into six green metrics, namely:

3.1.1. Setting and infrastructure. The use of public telephones that can save electricity and money is an example of a green setting and infrastructure. Moreover, in the era of the millennial generation, not many people have personal cell phones.
3.1.2. Energy and climate change. The use of anglo (traditional clay furnaces) and charcoal instead of gas stoves and petroleum fuels is an example of implementing green energy.

3.1.3. Toxic Waste Recycling. Turning unused waste into toys is an example of recycling implementation. An example of this action is making toy boats or toy cars from Balinese orange peels to be played or sold.

3.1.4. Water Conservation. The use of bucket wells to collect reusable rainwater is an example of implementing water conservation. People in the millennial era used to collect rainwater to be used for watering plants and other needs.

3.1.5. Transportation. In the era of the millennial generation, not many community members had private motorized vehicles. Instead, they use traditional transportation such as andhong (horse drawn cart) and becak (Pedi cab). Children also used bicycles or walked to go to school.

3.1.6. Education. The teaching of not littering and preserving nature had been taught since the old times. Especially in the era of the millennial generation, students at school were required to do community service and other healthy activities such as physical exercise and planting ornamental plants and hydroponics in the school yard.

3.2. Illustration book visual standard

3.2.1. Illustration. Based on data obtained from a short questionnaire given to ten teenagers aged 15-16 years, half of the respondents preferred Naela Ali’s illustration style (Figure 2). The process of making illustrations was begun by making sketches and colouring them. After the illustration was complete, the next process was scanning and editing the illustration using Corel Draw X6 software.

![Figure 2. Survey result diagram of illustration style choices](image)

3.2.2. Typography. Based on the data obtained from a short questionnaire given to ten teenagers aged 15-16 years, 30% of the respondents prefer the centaur type font as the main font in the design of illustration books (Figure 3). This type of font is used for short narratives in the illustration book. Another font used in the book is Berlin Sans FB Demi font for the title or headline. These fonts were chosen to make the writing on the book look livelier.

![Figure 3. Survey result diagram of typographic font choices](image)
3.2.3. Colors. Based on the data obtained from a short questionnaire given to ten teenagers aged 15-16 years, 40% of respondents prefer cold colors such as gradations of blue, green and purple as the color palettes in the illustration books (Figure 4). However, the researchers also included other color palettes according to the types of illustration to make the book contents more varied.

Figure 4. survey result diagram of color choices

3.2.4. Layout. The layout generally sets the illustration space larger than the narrative space. Illustrations are located in the middle, right or left of the page, and the narration is written lengthwise, horizontally, and placed next to the illustration. Since this is an illustration book, the narration given is not more than the illustrations. The narration only explains the illustration briefly. This is done so that the audience does not feel bored quickly when reading this book.

3.3. The view of phi generation towards the environment

The phi generation is the generation that grew up when information technology from all over the world began to enter Indonesia. This is in contrast to the millennial generation era where information technology was not so common to the public because the price was not affordable [14]. Because the phi generation live in modern times that are highly facilitated by technology, the youth of this generation care less about the surrounding environment. One of reasons behind this phenomenon is the addiction to gadgets and other information technologies. Further, another big difference is the use of private motorized vehicles which are currently increasing when compared to the millennial generation era. The excessive use of technology and motorized vehicles are not in favor of environmental preservation. For this reason, a medium that can be used to educate the youth of the phi generation is needed. The developed illustration book is expected to inspire the phi generation to care more about environmental preservation.

3.4. Changing era and green behavior

Changes in time are inevitable. Many aspects of life such as humans and technology will also change according to the changing era. The changes in human aspect include the way people produce and consume products and services. People create various artifact that trigger changes in the form of technology. In addition to producing physical artifacts, people also produce non-physical elements that contribute to changes such as customs and behaviors.

The technology is usually created according to certain behaviors. However, under certain conditions, technology plays a role in creating behaviors. Green behavior began from ancient interactions between humans and nature that produce positive synergies. In the past, there was less or no attempt to damage and destroy in the interaction between human and nature. It was limited to utilizing a part of the potential and natural resources for survival. When pressure occurred at a certain period of time, humans started to demand more than what nature has provided. Humans will then tend to ignore the damage they make to get what they want.

4. Conclusion

Green behaviour is an environmentally friendly lifestyle that help preserve the environment. Implementing green behaviour today is essential to reduce the existing environmental problems. The younger generation or the phi generation has a different behaviour from the millennial generation who
mostly apply green behaviour in their era. A visual media that can be used to invite the younger generation is needed to instil green behaviour from the millennial generation era. The illustration book created in this study is aimed at the phi generation. This illustration book can be mass-produced and distributed in bookstores and online as an effort to help preserve the environment.

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