The use of interactive multimedia to build awareness against animal exploitation in environmental conservation education for children

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Abstract. Many people do not realize that actions involving animals often involve violence to the animals. Some of these actions are influenced by the regional cultural traditions such as Topeng Monyet, which for the most part of them are a lot watched by children and unfortunately this situation become a common things. Therefore, it is necessary to have an ideal education about preservation of biological resources, flora, fauna, and the environments for children’s, that can be obtained from appropriate activities through environmental conservation education. In the development of digital-based media today, interactive multimedia combined with fun learning is relevant to deliver information and to educate the children as early as possible. The purpose of this study is to analyse the usefulness of interactive multimedia as learning resource in the environmental conservation education, especially against animal exploitation for children. The research design employed the following steps: (1) designing the interactive multimedia; (2) produce interactive multimedia; (3) implementing interactive multimedia for elementary students as a learning resource; and (4) evaluating the result and learning process. The research subjects are 32 students from SDIT Mutiara Hati, Semarang who are studying the theme of learning about caring for the environment. The results showed that, by using interactive multimedia as a learning resource, student’s ability to know, understand, and mention what activities can be done as an environmental conservation activities against animal exploitation has increased. Therefore, it can be concluded that interactive multimedia becomes the right strategy to deliver information as an effort to build awareness against animal exploitation in environmental conservation education for children’s.

1. Introduction
Engaging people, especially children to have awareness about the preservation of biological resources, flora, fauna and the environment, is a very challenging task. Why is it challenging? Because today, children are born in the digital technology era. They become more familiar with gadgets like smartphones and tablets in their daily activities [1]. Since television and computers became widely available to a broad public, researchers have examined their effects on children's development [2]. The research shows that both of these
media have given rise to concerns based on assumptions or evidence of their negative influence on children's development [3,4]. However, other research, focusing on the educational impact of media, suggests that well-designed and age-appropriate educative media can impart knowledge [5]. Along with that, the development of digital technology that drives the emergence of various multimedia innovations has become attractive to young learners, because of their high involvement in all forms of digital media [6].

Most people in Indonesia are still lacking in conservation attitudes and behaviour. Inadequate integration between rapid technological progress and current environmental needs in Indonesia, are demonstrated in a number of ways including damage to agricultural land, unplanned urban development, loss of open space and increasing danger of extinction of animals and plants life. Frequently, many people in Indonesia also do not realize that their actions involving animals often involve violence to the animals. Some of these actions are influenced by regional cultural traditions such as Adu Bagong, Sabung Ayam, and Topeng Monyet, which for the most part of them are a lot watched by children and unfortunately this situation become a common things. Topeng Monyet is one of the traditional entertainment for the people in Indonesia, especially in Java. Topeng Monyet already existed in the early 1980’s [7], consisted of a monkey, a handler who guides a monkey and is accompanied by traditional music. The monkey imitate human activities such as riding motorbikes, shopping at markets, wearing clothes, and other human activities. The species of monkey that is usually chosen is the long-tailed monkey (Macaca Fascicularis), that are separated from their natural habitat since childhood, then traded in markets where not hygiene, trained very cruelly, chained, and forced to perform activities like humans when performing attractions by the handler. The monkeys are exploited and treated not according to animal welfare.

In Semarang, the audience of the Topeng Monyet attraction are mostly children. A child’s brain is like a sponge, it soaks up all the information it receives [8]. Watching Topeng Monyet can make a child accustomed to animal exploitation and torture. If children are accustomed to seeing people in their environment torturing animals, they will imitate and remember the behaviour and consider these activities as a common thing until they are adults. Based on this phenomenon, it is necessary to have an action to provide information and persuade children to have awareness against animal exploitation as early as possible. Children also need an ideal education about preservation of biological resources, flora, fauna, and the environments for the community that can be obtained from appropriate activities through environmental conservation education. In the 4th grade elementary school curriculum, there are themes related to caring for living things. This is a good opportunity to use, because earlier they learn about the environment, the more they will care about protecting it. So we need a right strategy to cultivate environmental awareness for children.

Along with the development of technology and children's interest in using gadgets and computers, the process of delivering information, which is usually only explained verbally can also be done using the application, so interactive multimedia was created as a strategy to support this activities. The advantage of interactive multimedia is opportunities for interaction between users and the media [9]. This interactive multimedia is also equipped with animation, music and visualization that are interesting for young children. By inviting children to interact, the process of delivering information can be done very efficiently, practical, affordable, and can be used anytime and anywhere [10]. Based on this background, this study discusses the product and the usefulness of interactive multimedia as learning resource for children to build awareness against animal exploitation in the environmental conservation.

2. Research methods
The result of this research conducted using research and development method [11] with a mixed analysis from descriptive data and simple statistics. This study uses controlled observations by involving information from surrounding environment and from student participation in the context to develop media for conservation education which is carried out on the theme of learning about protection of living things 4th
grade elementary school curriculum. This research was conducted on students in the 4th grade at SDIT Mutiara Hati Semarang. The research design employed the following steps: (1) designing the interactive multimedia; (2) produce interactive multimedia; (3) implementing interactive multimedia for elementary students as a learning resource; and (4) evaluating the result and learning process. Research subjects were 32 students who were studying the theme of learning about protection of living things. Data was collected using controlled observation techniques, interviews, and tests.

3. Results and discussion

There are several steps that taken in this study, first is pre-production, second is production, and third is post-production. These are the chart of following steps:

![Interactive multimedia scheme](image1)

**Figure 1.** Interactive multimedia scheme.

3.1. Result

3.1.1. Pre-production step. The design of this interactive multimedia content sequence scheme is created by flowchart on the figure 2, it is starting with the opening page, materials, and games as follow.

![Interactive multimedia content design](image2)

**Figure 2.** Interactive multimedia content design.

The pre-production is an initial step that must be passed before the creative production begins. In pre-production step, ideas are the basic things. The process of finding ideas is done by observing phenomena in the community. From the results of observation, it was found that there were several problems that became the background of why it was necessary to develop this interactive multimedia. After the process of finding
ideas, then determined the title of this interactive multimedia is "Protect Sarimin the Monkey". Target of Interactive multimedia is intended for children with families with middle to upper economic levels who have electronic device facilities such as computers, laptops, and devices that make it easy for children to use on their daily life.

3.1.2. Production step. The production process is the main process in the series of steps of making interactive multimedia. After creating interactive multimedia content scheme, the next step is to design the content. Based on content scheme on the figure 2, its shows that the first page that appears when an interactive multimedia application is opening page (see figure 3).

By pressing the start button the user will enter the main menu page which has four page branches (see figure 4), there are:

- **Material page**, in this material page (see figure 5) there will be four other page branches. Each branch contains of negative impacts, the understanding of *Topeng Monyet*, Indonesian campaign free of *Topeng Monyet*, and video documentation.

- **Game explanation page**, on this page as shown on figure 6 there is only one branch that is connected to the game collecting garbage.

- **Quiz page**, is a page as shown on figure 7, users can answer multiple choice questions that have been provided. Quiz page is a page for working on 10 questions, some of the material is taken from interactive multimedia.

- **The settings page**, is a page where users can set the sound and return button to the main menu page.
This interactive multimedia is also equipped with animation, music and visualization that are interesting for young children. For the visualization, a character designed for this interactive multimedia was a monkey mascot named Sarimin. Sarimin can also be called Imin is a mascot with the characteristic of a *Topeng Monyet* that has chain attached to the neck of a monkey, standing on both feet, and wearing a shirt and pants (see figure 8).

The cartoon style was chosen, considering that it would be more suitable to be applied in interactive multimedia for children as the primary target audience. Visual style inspired by the style of one animation studio in Japan, the Sanrio studio.

After the production process done, the next step is testing phase. The testing phase is the stage where the media is tested for eligibility and looks for various errors in the media. At this stage, testing is carried out by more than one expert and tested to a limited number of students. From the results of testing, obtained good results so it is feasible to be applied to the public.

3.1.3. Post-production step. This interactive multimedia is applied to 32 students from the 4th grade in SDIT Mutiara Hati that learning themes related to caring for living things, Semarang in one learning meeting. Preconditions that must be done are to prepare computers or gadgets for each child so that they can use and explore the media freely, therefore, learning activities are carried out in the multimedia room. During learning, students learn the material about the protection of monkeys in cases of exploitation at *Topeng Monyet*. Students get information that comes from interactive multimedia, while the teacher directs its operation. During the learning process, students look happy and interested to the media. Students carry out each teacher's instructions carefully as shown on figure 9. At the time of quiz students also looked very enthusiastic.
3.2. Discussion
As an evaluation to find out the increase in student knowledge, the data conducted with observations, interviews, and calculation of quiz scores and oral Q&A between teachers and students. Q&A activities carried out by giving several questions about the material they have learned. Students look very enthusiastic in providing responses to questions given by the teacher. In addition to the results of the Q&A, the quiz game results are also collected to find out the level of understanding of information that has been achieved by students. The 32 students has opportunity to answer the question, and the result are almost student can answer the question correctly. The result of quiz, shows on figure 10 as follow:

To find out how the use of multimedia is for students, questions and answers regarding student’s responses based on oral questions distributed in the chart below:
The question and answer responses, describe as follows: 1) Is this media easy to operate?, 31 students answered yes. 2) Does this media provide a new learning experience?, 32 students answer yes. 3) Whether this media makes it easier for students to learn about environmental conservation activities?, 30 students answer yes. 4) Does this media can increase a sense of care for living things especially animals?, 30 students answered yes. 5) Whether this media can help students to care about the environment, animals and plants in daily life?, 30 students answer yes. 6) Does this media make students feel happier in learning about the environment?, 31 students answer yes. 7) Whether this media can build an awareness of loving and preserving plants and animals?, 31 students answered yes. 8) Whether this media can build an awareness against animal exploitation? 32 students answered yes.

In general, from observations, students were happy and accustomed to applying the media. That's why, researcher emphasized that this learning media in the form of interactive multimedia can be used in a fun and interactive manner. The media is appropriate to improve student's awareness against animal exploitation in conservation education. This interactive multimedia that used as interactive learning has the main characteristics, there are existence of a relationship between stimulus and response, so it can be an inspiration and increase an interest [12]. The use of interactive media can certainly promote active communication between students and learning resources [13,14]. Finally, the results showed that by using interactive multimedia as a learning resource, student’s ability to know, understand, and mention what activities can be done as an environmental conservation activities against animal exploitation has increased.

4. Conclusion
Interactive multimedia that has been created, then implemented and can make students more enthusiastic in learning. So that the ability of 4th grade students of SDIT Mutiara Hati, Semarang in understanding animal exploitation in conservation education has increased. The results of observations, obtained data that can finally be used as a reference for developing media that is in accordance with needs. Therefore, it can be concluded that interactive multimedia becomes the right strategy to deliver information as an effort to build awareness against animal exploitation in environmental conservation education for children’s.

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