“Plants and their functions” e-module based on flip book

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Abstract. The purpose of this research was to describe the development of E-module based on flip book. This research and development used ADDIE (analysis, design, development, implementation, and evaluation) Model. However, the researcher stopped at the development stage. The result of this developmental research is producing an e-module using the Ncesoft flip book Maker application. According to the evaluation from the material and language experts, the developed e-module obtained an average score of 80% and from the media expert, it obtained 84%. Thus, the developed media was considered “Valid”. The development of e-module based on Ncesoft flip book Maker can help children to learn Plants and their functions.

1. Introduction
Alignment between soft skills and hard skills is needed in technological advancements and the development of the current era [1]. These developments make changes in children's habits in learning. Changes in traditional learning toward a more modern [2]. There are 4 aspects that need to be developed in children in every learning, namely religious, attitudes, skills, and knowledge [3]. These aspects must be present in every lesson conducted by the teacher despite changes in the curriculum and the age that continues to occur.

The results of initial observation show the limited innovative instructional material that is integrated with the current technology contributes to the discouragement of student’s critical and logical thinking [4]. The oversimplified and insubstantial explanation of the teacher, moreover, is partly responsible for the insufficient acquisition of the concept by the students.

In the conventional definition, module is one kind of instructional media that is systematically designed for the smallest learning elements and it aims at encouraging independent learning. Module commonly consists of learning topics, method of learning, limitation of learning, and evaluation procedures that are systematically and attractively designed to achieve the desired learning competencies and based on the level of learning complexity [5]. On the other hand, e-module is an electronic book consisting of additional learning components which are not found in the conventional module. In addition, this e-module is downloadable, accessible, effective, attractive to children, and increase reading motivation [6,7].

Various studies have been carried out in developing this e-module. E-module can help educators to develop learning that is versatile and can support other needs [8-11]. However, students' needs are not only on the cognitive aspect but also the affective aspects need to be developed [12].

Therefore, according to the explanation above, the researchers were intrigued and interested to develop innovative instructional media and are able to develop affective aspects of children that utilize and integrate the current technology in the form of e-module. E-module is developed since it enables children to acquire more information when it is presented in the various [13]. This module is designed
with various learning activities that are tailored to the abilities and habituation of characters that need to be developed by children aged 10-11 years and packaged in the form of a flip book.

The development of an e-module in this research used different programs and content. The e-module was designed in the form of a flip book that habituates positive characters in children and encourages independent learning. Religious aspect constitutes a devotional attitude and behaviour to the religion teaching and values. It also encourages children to be able to respect people with other religion and live in harmony among religion believers [14]. At the same time, independency constitutes an attitude and behaviour that does not easily rely on the assistance of other people in completing the task and responsibility given [15]. Ncesoft flip book is a software that can change the presentation of typical PDF file into an attractive presentation; a book-alike presentation in the form of digital media. Furthermore, the development of the e-module in the form of flip book could offer an opportunity to habituate children aged 10-11 years regarding positive characters.

2. Research methodology
The methodology that used for this research is descriptive research. Perspective Take (PT) in qualitative. This research was a development research. The research model employed in the development of e-module based on flip book was an ADDIE (analysis, design, development, implementation, and evaluation) development model [16]. The following Figure 1 illustrates the stages used in this research.

![Figure 1. Research steps.](image)

According to the Figure 1 above, the procedures taken in the development were: 1) a need and children’s character analysis, 2) curriculum analysis, 3) designing module, 4) instrument development, 5) product validation. The instrument of data collection in this development used questionnaires, product validation sheet, and documentation.

3. Result and discussion
Based on the ADDIE stages model conducted in this research, the first findings was the results of analysis stage. According to the findings, children’s need upon the innovation on the instructional media was high. However, in fact, an innovative instructional media based on the recent technology was lacking. This condition indeed discourages student’s active involvement and does not promote sufficient understanding during the learning process. Currently, the curriculum used for elementary school teaching is the 2013 Curriculum. This curriculum focuses on the habituation of students regarding positive characters. In addition, the findings showed that the independency of students
during the learning process was insufficient. They tended to rely on teacher’s explanation during the learning process.

The development of the e-module in this research was an attempt to develop a recent instructional media based on current technology that contains an attractive content and feature, as well as effective and relevant to the children’s [17]. This e-learning design is able to influence the interest and ability of children’s [18,19]. Hence, the research expected that the development of this product could meet the learning demand of children.

The following stage was a product design. During this stage, the researcher composed a design of the instructional media based on the recent technology which consists of lesson materials, items of lesson exercise, answer keys, and the whole design of the media. Additionally, the researchers arranged the research instruments such as validation sheets of the product for content, language, and media experts. This development of media took the science plants and their functions materials. Initially, the lesson materials and research instruments were prepared by using word processing software; Microsoft Word. It was used since the software is accessible and easy to be used. Afterwards, the designed instructional media was converted into a PDF file in order to support Ncesoft flip book maker software. The procedure process using Ncesoft flip book Maker is presented in Figure 2.

![Figure 2. The flow chart of e-module development by using Ncesoft flip book maker.](image)

The upcoming stage was the making of e-module by using Ncesoft flip book maker software. In this stage, the researchers aimed at making an attractive e-module which is different from the conventional one. It intended to make the digital module could have a book-alike transition when the student open or read the next page, but it is in the form of digital one. It could be accessed through computer, laptop, or mobile phone. The software was also able to insert special effect and presentation in the e-module.

The first step is inserting the module file. In the Ncesoft flip book Maker application, click the add photo / PDF / FLV menu. Select the file to upload.

The next step is to choose a style. Click style on the top menu section of the Ncesoft flip book Maker application. In the style menu, there are two sub-menus (style and effect). Style menu to create a display design and effect to give effect to each display. The procedure is presented in figure 3. Moreover, this digital module is provided with a QR Code and Links in every lesson content to facilitate student to obtain an additional detailed material. The additional detailed materials were in the
form of text or instructional video. This digital module also provides an instruction about a habit and character related to religious aspect and independency in every lesson. The procedure is presented in figure 4.

![Figure 3](image1.png)  ![Figure 4](image2.png)

**Figure 3.** Selection of ‘style’ and ‘effect’.

**Figure 4.** Display of the e-module before publishing.

During the stage of development, the developed e-module obtained a validation score of 84%; it was seen from five aspects such as module layout, colour, images, cover, and font used. Then, the results of validation from the language and content experts obtained a score of 80%; it was seen from contents, material presentation, language structure, and grammatical structure. Thus, based on the validity obtained, the developed e-module is feasible to be used [20,21]. The development of digital module from the printed module as one innovation of the instructional media has several benefits. This digital module promotes a straightforward and easy digital content access for children, uncomplicated distribution to children, simple and manageable backup process, multi-sensory experiences, establishing logical connections between knowledge points and compatible to be used in different platform of devices [22,23].

4. **Conclusion**

Based on the results obtained in this research, the development of e-module based on flip book is considered feasible to be applied. The developed digital module based on flip book was employed ADDIE development models that consisted of Analysis, Design, and Development. According to the validity assessment obtained from content, media, and language experts, the developed e-module based on flip book is suitable.

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