Development Design Technology Comic Literacy Android Based E-book

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Abstract. This study aims to develop pictorial story literacy valid and practical based on android e-book on the theme of love plant and animals, sub two the benefits of plants of human life, especially in third-class of elementary school in Terangmas Undaan Kudus. This study is a Research and Development study using Borg & Gall's. The development steps are: (1) analyze the needs of learning in primary school; (2) develop the design of initial products; (3) validation and revisions; (4) small group test; (5) large group test; and (6) diseminations. The research method used was a questionnaire and interview in SD Terangmas and SD 1 Glagahwaru. Data was collected using questionnaire of respon students and teachers. The learning is valid looking by the scores obtain from 4 validators, which are 52, 27, 21, and 51 with criteria of valid score. The percentage of positive responses given by the teacher and students respectively is 93.33% and 95% of the minimum criteria 75.01%.

1. Introduction

Learning is a fundamental process that we instill in students in learning literacy which includes: read, write and count. In Law Number 3 of 2017 concerning the Bookkeeping system in article 4 point c, said that the objective of the bookkeeping system is to foster a literacy culture of all Indonesian citizens. In this case, it is expected that literacy culture is applied to elementary schools which is the basis for the initial learning process, especially in the early grades.[1]

Education in this global era is a very decisive need for a person's future. Without going through a good educational process, it is difficult for a person to finally be able to adjust to current developments. Even education is not only important for the lives of individuals but also very important for the life around us. In the 21st century, basic literacy (science, mathematics, reading and technology) must be mastered. Likewise skills in communication reading collaboration in the environment around us.

Currently the Kudus Regency government through the Education Office is launching the School Literacy Movement (GLS) by holding a routine school library competition every year through sub-district level selection, with this competition it is hoped that students at the primary school level will have an interest in reading, but it has not been implemented in its entirety because it is only attended by show schools that have complete libraries. The real conditions faced by the Undaan Subdistrict Education Unit also held a holy culture storytelling competition. It was hoped that students would know about the culture in Kudus. As well as at Terangmas Elementary School, there was also a reading movement for 15 minutes of non-text books before the lesson was also part of the school
literacy movement, but students do not make good use of these activities have to wait for the teacher to instruct students to read. This is what makes students less aware of and interested in reading. These activities refer to the 2020/2021 school year school program. In accordance with the Regulation of the Minister of Education and Culture Number 23 of 2015, it requires students to read books at least 15 minutes before carrying out teaching and learning activities at school every day.[2]

The low level of literacy in Indonesia is due to many reasons. One of them is the unwise use of technology. Many Indonesian people are complacent about the sophistication of today's technology. In fact, reading activities can also be carried out through gadgets with the e-book technology. Low reading interest is a serious problem for the Indonesian nation, because through books we can find various information and train the brain to think critically so that it can give birth to an intelligent society. Given how low interest in reading is in Indonesia, it is our responsibility to change it. Reading habits arise from the education of the closest environment, namely the family environment. Parents should allocate special time to read consistently so that children get used to reading.

Seeing such conditions, it is necessary to design a pictorial story literacy media so that students are more interested in reading interest. In this case, a pictorial story literacy media design based on the android e-book was developed.

2. literature review
2.1 Digital literacy
Describes literacy as the ability to read and write. Literacy is more comprehensive as follows: Literacy is the use of socially, historically, and culturally-situated practices of creating and interpreting meaning through texts. It entails at least a tacit awareness of the relationship between textual conventions and their contexts of use and, ideally, the ability to reflect critically on those relationships. Because it is purposesensitive, literacy is dynamic—not static—and variable across and within discourse communities and cultures. It draws on a wide range of cognitive abilities, on knowledge of written and spoken language, on knowledge of genres, and on cultural knowledge. [3] [4] The efforts of the school literacy movement are a form of support to the government in an effort to instill character from basic education. In instilling character, it is necessary to insert values in reading that can be used as lessons and lessons learned by students as learning objects.

Explained in international journals that Media is literacy has been defined as the ability to access, analyze, evaluate, and communicate messages in a wide variety of forms. Media literacy is a concept whose broad definition and range of applications lead to diverse approaches, creating some intriguing conflicts and tensions. In literacy through the media it is hoped that it can attract students' interest in reading and students are more fond of reading. [5]

Digital literacy is essential for achieving digital competence, the confident and critical use of information and communication technology for work, leisure, learning and communication. The use of digital technology is also a means of achieving success in student learning. Boredom in learning will also disappear when students use digital technology media. [6] [7]

Picture storybooks are books in which the picture and text are tightly intertwined. Neither the pictures nor the words are self-sufficient; they need each other to tell the story. The story in picture stories is made more interesting according to the age of the child, especially in the lower grades of elementary school. The digital formats are mainly pdf-les and word-les. It is important to give the teachers access also to more advanced tools for producing course literature in digital form. [8] [9]

2.2. E-book Android
E-books for children garner attention from many academic fields such as education, human computer interaction, and media studies. One of the ways that LIS research positions itself in relation to children’s e-books is to help classify and differentiate the many emerging types. For example, Barker organizes e-books into ten basic types, three of which apply to children’s e-books: picture books, audio books, and multimedia books. [10]
The electronic media used must be balanced with adequate competence, so it is necessary to practice and deepen knowledge related to electronic media in this case e-books (electronic books) as a cross-curricular world. The use of electronic media as a cross-curricular activity also provides students with new knowledge in experimenting and adds insights that attract attention. [11]

Suggest that an e-book is an electronic version of a traditional printed book that can be read using a personal computer or by using other information technology tools. E-book reading tool can be a software application for use on a computer, for example Read from Microsoft which can be downloaded for free or on a smartphone. Through interactive e-book learning students can learn actively and can be presented simultaneously to understand learning that refers to the 2013 curriculum. [12] [13] [14] Based on the theory of using e-books, it can be concluded that e-books are one of the interactive media that students can use as a learning resource and play an important role in convenience and benefits that are more practical and efficient.

2.3. Media Design Development

2.3.1. Power Point. Features on Power Point in the form of slides containing design, inserts, animation, and slide shows. The design feature is used to select a slide design. [15] [16] [17] The following shows the Powerpoint start page menu in Figure 1.

![Figure 1. Powerpoint Home Menu Display](image1)

2.3.2. Ispring Suite 8. Ispring Suite 8 is a software that can easily convert Powerpoint files into flash. This application is integrated with Powerpoint to create various quizzes, insert video, audio, or import YouTube videos. [18] [19] Following is the page menu display on Ispring Suite 8 as illustrated in Figure 2.

![Figure 2. Ispring Suite Page Menu 8](image2)
2.3.3. Website 2 APK Builder. Website 2 APK Builder is software that allows users to easily convert files into android applications. The feature on Website 2 APK Builder contains local Html web that developers can fill in to make Powerpoint files and Ispringe Suite 8 into APK format. The advantages of Website 2 APK Builder: (1) the Website 2 APK Builder application is very responsive on Html 5, (2) Website 2 APK Builder can convert Powerpoint and Ispringing files to APK format, (3) easy to operate on android, (4) before installing the Website 2 APK Builder tool, it is enough to install Java first, (5) can be used offline. [20] Menu display of Website 2 APK Builder page in Figure 3.

![Image](image_url)

**Figure 3. Menu Page Website 2 APK Builder**

3. Research Method

The design used is Research and Development (R&D) or it can be called research and development design. According to Borg & Gall in Budiarti [21] This research will be conducted in ten stages of research and development is research and information collecting, planning, developing preliminary form of product, preliminary field testing, main product revision, main field testing, operational product revision, operational field testing, final product revision, dan dissemination and implementation. This research was conducted in two different schools for the 2020/2021 academic year starting from July 20, 2020 to August 12, 2020. The experiment group are 40 students in SD Terangmas and SD 1 Glagahwaru.

The data collection technique used by researchers was to use teacher response questionnaires and student responses to the experimental class. The instrument grid. The instrument validation indicator for the media expert validation sheet is described in Table 1.

| Table 1. Media Expert Validation Indicators |
|---|---|
| Aspek | Indikator |
| Cover design | A harmonious, proportional and attractive cover layout |
| | The suitability between the cover design and the android media content |
| Content design | The layout makes it easier for students to learn the content of the material |
| | Clarity of writing and images |
| | Presentation of text, tables and figures accompanied by reference sources |
| Presentation of Learning | Conceptual order |
| | The suitability of thematic learning based on android e-books to increase students' reading interest |
Indicators of Success Research media based on e-book android developed and used in learning meet the eligibility criteria according to the results of validation from experts and practitioners.

4. Results and Discussion

4.1. Results

This study tested the product design on 40 students in the experimental class to determine the results to be achieved. The material taught in this research is theme 2 loving plants and animals, sub-theme 1, the benefits of plants for human life. In implementing learning, the experimental class was given treatment in the form of developing a comic literacy design based on the android e-book. The design of the android e-book based comic literacy learning model is in Figure 4.

![Figure 4. Design of a Cergam Literacy Learning Model based on the Android e-book.]

Following are the results of the assessment given by the validators to the products developed in Table 2 below.

| Validator   | The total score of the assessment results | Maximum score | criteria     |
|-------------|------------------------------------------|---------------|--------------|
| Validator I | 55                                       | 56            | Very good    |
| Validator II| 27                                       | 28            | Very good    |
| Validator III| 21                                       | 24            | Very good    |
| Validator IV| 51                                       | 56            | Very good    |

The score of the results of the assessment given by the validators I, II, III, and IV, respectively 55, 27, 21, and 51 with very good categories.

The practicality of the Android e-book comic literacy learning media based on student responses is presented in table 3.
### Table 3 Recapitulation of Student Response Data on Cergam Literacy Learning Based on the Android e-book.

| Num | Question                                                                 | Number of students who answered |
|-----|--------------------------------------------------------------------------|--------------------------------|
| 1   | Was today's learning activity interesting?                               | 40 yes 0 no                    |
| 2   | Are you happy with the activities you are doing?                        | 40 yes 0 no                    |
| 3   | Is the learning theme interesting?                                       | 37 yes 3 no                    |
| 4   | Are you happy with the media used?                                       | 40 yes 0 no                    |
| 5   | Can you use android or comic literacy learning tablets based on android e-books? | 38 yes 2 no                   |
| 6   | Can you understand comic literacy learning materials based on android e-books? | 38 yes 2 no                   |
| 7   | Can you understand the contents of the pictorial story using Android e-book based comic literacy learning media? | 39 yes 1 no                   |
| 8   | Can you use comic literacy learning media based on android e-books without the help of the teacher? | 35 yes 5 no                   |
| 9   | Can you use comic literacy learning media based on android e-books individually? | 37 yes 3 no                   |
| 10  | Can you use comic book literacy media based on android e-books to study with friends in groups? | 36 yes 4 no                   |

Number of student positive responses: 380
Percentage of student positive responses: 95%
Student response categories: Very good

The practicality of the Android e-book comic literacy learning media based on the teacher's response is presented in table 4.

### Table 4. Results of the Recapitulation of Teacher Responses to Learning Cergam Literacy Based on the Android e-book

| Num. | Question                                                                 | Number of students who answered |
|------|--------------------------------------------------------------------------|--------------------------------|
| 1    | Is the media easy to use in learning?                                    | 5 yes 0 no                     |
| 2    | Is the media suitable for the learning environment in SD?                | 5 yes 0 no                     |
| 3    | Can the media be used in learning?                                       | 5 yes 0 no                     |
| 4    | Whether the media can be used in learning literacy to increase students' reading interest? | 5 yes 0 no                     |
| 5    | Can the media be used to introduce Interesting picture story?            | 5 yes 0 no                     |
| 6    | Can the comic literacy learning delivered by the teacher increase students' reading interest? | 4 yes 1 no                     |
| 7    | Can the media be used to introduce students' reading literacy?           | 5 yes 0 no                     |
| 8    | Is the media in accordance with the characteristics of elementary students (ages 9-10 years)? | 4 yes 1 no                     |
| 9    | Can the media motivate children to be active in learning activities on the theme of class III? | 4 yes 1 no                     |
10. Whether the media can stimulate children to be active and explore independently? 4 1
11. Is the number of media equal to the number of students using it? 4 1
12. Does comic literacy learning make learning activities fun? 5 0
13. Do thematic learning make activities learning to be meaningful? 5 0
14. Is the media durable for multiple uses? 5 0
15. Are learning, literacy varied and interesting? 5 0

| Number of student positive responses | 70 |
|-------------------------------------|----|
| Percentage of student positive responses | 93.33% |
| Student response categories | Very good |

4.2. Discussion
In the limited face-to-face learning activities, the activities carried out in the experimental class at SD Terangmas and SD Glagahwaru. Learning begins with praying together then the teacher makes presence and apperception so that students are enthusiastic in learning and convey the goals and benefits of learning. Motivating students to be ready to accept learning in limited classes that the teacher has grouped according to the time shift group. The teacher began distributing tablets to students and gave directions for their use. After that all the students began: (1) reading the pictorial stories on the tablet, they started reading, (2) after reading the pictorial stories the students played games related to the pictorial stories playing the puzzle. With games interspersed, students become happy and take initiative and care. (3) practice questions are carried out in accordance with the pictorial story that has been read intended to recall the storyline. (4) evaluating questions in accordance with the existing subject matter content. The results of student work will go directly to the teacher's email to recap their grades. At the end of the lesson the teacher closes by praying together. The following is a display of student and teacher activities in pictorial story literacy learning using an android ebook. Figure 5 and 6.

![Figure 5. Teacher and student activities in research](image1)

![Figure 6. Student learning activities using android media comic literacy](image2)

After conducting research on the activities of students and teachers in the classroom using Android-based comic book literacy media, it shows that students' interest in reading and learning has increased.
The teacher's response shows the need to use android ebook-based media to facilitate the learning process.

The product developed is the development of comic literacy learning media based on the android e-book for grade III elementary school students. The development carried out is by using pictorial story media combined with animation based on android e-books using software including: (1) online software namely remove.bg, vectorstock.com, and (2) offline software, namely powerpoint, photoshop, ispring suit 8 pros, cool edit pro, camtasi 7, andaired, and web-web apk. Images are created by designing their own drawings through shape edit then edit points. The pictorial story character assets by online taking are taking pictures according to the storyline, then we download, we edit the file with the online application, namely remove.bg, this application can be used to remove the background so that it becomes transparent and can restore deleted files. The edited file is then downloaded and input into PowerPoint slides which are then given animation and sound effects.[22]

5 Conclusion

Instructional media design attracts students' interest and provides new knowledge to students about interesting and fun learning innovations. The android e-book based comic literacy learning is proven valid because the number of scores obtained from 4 validators respectively 55, 27, 21, and 51 score criteria are valid. The percentage of positive responses given by teachers and students were 93.33% and 95%, respectively, of the minimum criteria of 75.01%.

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