Research Paper

OPEN ACCESS

Development of Canva-Based Interactive E-Book and Book Creator using the Radec Learning Model to Support Creative Thinking Skills

Via Prastyana[1*], Subuh Anggoro' [2*], Dian Eis Prisilawati [3], Aliyatun Nazirah [4], Cyril Nelson[5]

[1*, 3,, 4] Elementary Teacher Education, Universitas Muhammadiyah Purwokerto, INDONESIA
[2,] Basic Education, Universitas Muhammadiyah Purwokerto, INDONESIA
[5] Pondok Upeh Secondary School, Penang Malaysia

ABSTRACT

The involvement of technology in 21st century learning is indispensable at every level of education. Teachers can involve digital learning media to support the process of teaching and learning activities. Digital-based learning media such as interactive e-books can be used as learning media that can be used in 21st century learning. In addition to digital-based learning media, the learning model that can be applied is an innovative learning model. The RADEC learning model is one of the learning models that can be applied in current learning. This study aims to develop an interactive e-book through the RADEC learning model and determine the feasibility of an interactive e-book through the RADEC learning model. This research is a research and development or Research and Development ADDIE model. This study obtained the feasibility results from the validation of material experts, validation of linguists, and validation of media experts. The results of the validation of material experts, linguists, and media experts get scores in the very valid category for use. The results of student responses regarding product trials get scores in the very interesting category for students to use in the learning process. The results of the group creativity assessment are very interesting and can increase the creativity of students. Based on these results, it can be concluded that interactive e-books through the RADEC learning model are very valid and feasible to be used in learning and can increase students' creativity.

Keywords: interactive e-book, RADEC learning models, creativity thinking skill.

INTRODUCTION

The use of e-books in learning can help teachers improve teaching methods in their classes [1]. Electronic media used in education can be an effective visual aid [2]. As technology advances, e-books will no longer be limited to one-way text and images but will also develop into interactive media capable of combining audio, video, animation and simulation. According to Kouis and Konstantinou, e-books which started with simplified versions in PDF format integrated with audio, video, animation, and simulation, have begun to be adopted in traditional classroom teaching, distance education, online learning, or e-books. Learning [3].

Unfortunately, because they only provide text and pictures, the Teacher's Book and Student's Book issued by the government have not been able to become interactive media. This means that the e-book remains static and is identical to the printed books used by students [4]. Although the use of e-books can overcome the limitations of print book

✉ subuhanggoro@ump.ac.id **(Correspondence)**

portability, this does not necessarily indicate student satisfaction with them [5][6]. Aprilianti were stated that the benefit of *e-books* is that it makes it easier for users to store them because the format of *the e-book* itself is small, easy to carry anywhere, and can be accessed anywhere, anytime, and by anyone [7]. Interactive e -*book* development will be combined with *Book Creator* application. The use of interactive *e-books* with the *Book Creator application* can make online learning more interesting and not boring. According to the APAS Guide in Aprilianti that *a book creator* is an application that users use to create, read, and share digital books online. *Book creator* developed in 2011 which supports reading development [7].

The development of *e-books* for class V SD UMP is a type of interactive *e-book* using the RADEC learning model. The RADEC learning model is an innovative learning model. The RADEC model requires students to develop student expertise and be able to master the concepts of the material provided [8]. The RADEC model was first introduced by Sopandi at an international conference in Kuala Lumpur, Malaysia [9]. The RADEC learning model is a learning model that uses the learning stages as the name of the learning model itself. RADEC stands for *Read* which means reading, *Answer* which means reading means answer, *Discuss* the means to discuss, *Explain* which means explain as well as *Create* that means to create or create [10]. According to Friani in Andini the RADEC model is one of the learning models that is accurately applied to the process of teaching and learning activities in K13 integrated thematic learning [8].

Based on this description, the author wants to develop *an e-book* interactive combined with the RADEC learning model. The RADEC learning model is also an alternative to innovative learning models based on the Indonesian education system, namely students are required to understand various scientific concepts within a limited time [9]. So, the RADEC learning model can be used as an alternative to current learning combined with interactive *e-books* as an innovative learning medium.

MATERIAL AND METHODS

Research method were used by researchers is *Research & Development* (RnD). Researchers use the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation) proposed by Branch [11]. The ADDIE model is a suitable model for the product development process.

ADDIE Model Procedure

Analyzing the conditions of students at school, analyzing the mapping of basic competencies, learning themes, learning sub-themes, learning materials as well as learning indicators and learning objectives. Design the form and appearance of interactive *e-books* . Interactive *e-book* designed using the Canva application. After it is designed, it is then put into the *book creator application* so that it becomes an e-book . The e-book contains audio, links to access games on the wordwall application, links to access videos on YouTube, and links to access the liveworksheet application. Create and modify interactive e-books. The development of this interactive *e-book* media is based on the existing media designs in the design stage. The implementation phase is the product trial stage for students. Product trials were carried out in class V Elementary School. The evaluation stage is the final stage of the

ADDIE development model. The evaluation stage will determine the value and *feedback* from the development of the learning media.

Data collection technique

This study used to collect data from 10 grade 4th students at UMP Elementary School, Banyumas Regency. Data was collected through interviews, documentation, questionnaires, and rating scales.

Data analysis technique

According to Riduwan, the data that has been collected can be calculated using the following formula [11]:

$$X = \frac{\sum x_i}{n}$$

Information:
X   = average value
$\sum x_i$ = total value of each data
n = amount of data

According to Sudijono, to calculate the final percentage results can use the following formula [12]:

$$P = \frac{f}{N} \times 100\%$$

Information:
P   = Percentage
f = Total score of data collection results
N = Maximum score

The percentage results that have been obtained are entered into the criteria in the following table:

Table 1. Assessment Criteria

Percentage	Criteria
0 – 20	Not attractive
21–40	Less attractive
41–60	Enough
61–80	Interesting
81–100	Very interesting

Source: Riduwan [13]

RESULTS AND DISCUSSION

Analysis

The purpose of the analysis phase is to obtain data on aspects of learning media needs analysis. The media needs analysis aspect is presented in Appendix 1.

Design

E-book contains cover pages, table of contents, preface, core competencies, basic competencies, instructions for use, greetings from the developer, core material, bibliography, and developer profile. The *e-book* contains audio, links to access *games* on the wordwall application, links to access videos on YouTube, and links to access the liveworksheet application. The e-book was designed using the Canva application and the Book Creator.

Development
Product Development

Product development is carried out according to the design at the analysis and design stages. The following is a display of interactive e-book development results.

Figure 1. Display of *the E-book Cover*

Figure 2. Display *Read* stage page

Figure 3. Display *Answer* stage page

Figure 4. Display *Discuss* stage page

Figure 5. Display *Explain* stage page

Figure 6. Display *Create* stage page

Expert Validation Results

Expert validation aims to obtain a feasibility value for the product being developed and to obtain suggestions and input for the product. The following are the validation results of the 3 validators.

Table 3. Expert Validation Results

No.	Expert Validation	Assessment indicators	Total Score Obtained	Percentage
1.	Material expert validation	Compatibility of Material with Basic Competency	44	88%
		Compatibility of Material with Learning Model		
2.	Linguist validation	straightforward	44	88%
		Communicative		
		Conformity with the rules of language		
		Use of terms, symbols, or *icons*		
3.	Media expert validation	Display design	50	100%
		E-book content design		
		Interactive multimedia		

Table 3 shows the validation results of interactive e-books based on Canva and Book Creator. Based on the table, it can be concluded that the *e-book* is very suitable for use in learning the Environmental Theme of Our Friends, with the Sub-theme of Humans and the Environment.

Implementation

The product is implemented to students according to the RADEC learning model stage. The first stage is the let's read stage, in an interactive *e-book* containing student activities. Student activities at this stage are reading passages with the title "For Clean Water, Waborobo Residents Willing to Walk 15 Kilometers". At this stage students read well.

Figure 7. Activities in the Let's Read Stage

The second stage is the let's answer stage, this stage presents several questions that are presented through online games. At the let's answer stage the students were very enthusiastic about the questions in the form of online games and each group was active in working on the questions in the this game. These activities can be seen in the following figure:

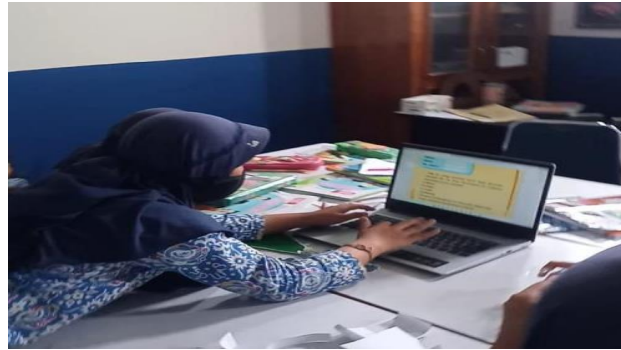
Figure 8. Activities in the Let's Answer Stage

The third stage is the let's discuss stage, at this stage students discuss the questions that appear in the interactive *e-book* then each group representative submits the answers orally. At the let's discuss stage, students pay close attention to the instructions in the e-book. In this stage students watch a video sourced from YouTube about the water cycle material which lasts 2 minutes. The following is a picture of the activity let's discuss.

Figure 9. Activities in the Let's Discuss Stage

The fourth stage is the let's explain stage, at this stage students fill in the questions that have been packaged in the liveworksheet application which is presented online. On the this sheet, students explain the water cycle material in writing according to the material that has been studied. These activities can be seen in Figure 10.

Figure 10. Activities in the Let's Explain Stage

Then the fifth or final stage, namely the let's be creative stage, at this stage students make a water cycle diorama *project with paper.* The teacher distributes printed patterns, then students cut out the patterns and arrange them according to the creativity of each group. These activities can be seen in Figure 10.

Figure 11. Activities in the Let's Get Creative Stage

Each group makes a diorama of the water cycle according to the creativity of each group. The following is the result of making a water cycle diorama.

Figure 12. Results of Making the Water Cycle Diorama

Based on the results of learning observations using interactive e-books, it was seen that the participants were very enthusiastic and participated at every stage of learning. With the results of this analysis, interactive *e-book* products on theme 8 sub-themes 1 learning 1 through the RADEC learning model can be implemented properly for students [.

Evaluation

Evaluation stage, assessing the results of making water cycle dioramas that have been made by each group. This assessment is based on the creativity of students in making water cycle dioramas. Following are the results of the assessment of making water cycle dioramas from 4 groups.

Table 5. Students' Creative Thinking Skills in Making a Water Cycle Diorama

No.	Group name	Indicators					Total score	Average Score
		Fluency	*Flexibility*	*Originality*	*Elaboration*	*Evaluation*		
1.	Group 1	15	8	6	6	5	40	4.0
2.	Group 2	14	9	10	6	5	44	4,4
3.	Group 3	15	9	6	6	5	41	4,1
4.	Group 4	15	10	2	7	5	39	3,9

Table 5 describes the level of students' thinking skills in making a water cycle diorama. The table indicates that students' creative thinking skills are in the high category. Thus it can be concluded that through making water cycle dioramas it supports students' creative thinking skills. An interactive e-book based on *Canva* and *Book Creator* on the RADEC learning model on the Environmental Theme Our Friends, Humans and the Environment Sub-theme has been declared valid by expert validators and can support students' creative thinking skills. This is supported by the opinions of Aprilianti, Kouis & Kontantinou, and Pratama et al. [3][7][15]. The development of the e-book can also overcome the problems raised by several researchers [4][5][6][16].

CONCLUSIONS

Based on the results of developing an interactive *e-book* on theme 8, sub-theme 1, learning 1 through the RADEC learning model, it can be concluded that the development of an interactive *e-book* on theme 8 sub-theme 1 learning 1 through the RADEC learning model is suitable for use in learning, it can be proven on the results of expert validation. The validation results of interactive interactive e-books on theme 8 sub-themes 1 learning 1 through the RADEC learning model show that the validation results of material experts are 88%, the validation results of linguists are 88%, and the validation results of media experts are 100%. The three product validation results fall into the "Very Valid or Very Eligible" category.

The implementation of product development carried out at SD UMP is expected to be an example of innovative learning media in digital form. Interactive *e-books* through the RADEC learning model are expected to be *role models* for other developers, especially in the aspect of developing *e-books* in thematic learning.

REFERENCES

[1] Embong, AM, Azelin, MN, Mohd Hashim, H., & H Shaari, Z. (2012). E-Books as Textbooks in the Classroom. *Procedia - Social and Behavioral Sciences* , 47, 1802 – 1809

[2] Areerachakul, S. (2015). Using Electronic Medias for Science Mathematics and English in School under Office of the Basic Education Commission, Thailand. *Procedia-Social and Behavioral Sciences* , *197* , 1558-1563.

[3] Kouis, D., & Konstantinou, N. (2014). Electronic textbooks advantages and challenges for the Hellenic higher education and publishing community. *Library Review* , 63(6/7), 531-543.

[4] Irawan, Z., Sari, ME, Setyoningrum, MU (2011). Analysis of the Implementation of the Electronic School Book Policy (BSE) of the Ministry of National Education in Yogyakarta City Senior High Schools. *Pelita-Journal of Student Research* UNY, 6(1), 1-13.

[5] Hasbiyati, H., & Khusnah, L. (2017). Application of E-Book Media with the Epub Extension to Increase Middle School Students' Interest and Learning Outcomes in Science Subjects. *Journal of Science Pen* , 4(1), 16-21.

[6] Astuti, D., & Santosa, D. (2017, October). E-Book for problem based learning to improve student learning outcomes. In *International Conference on Teacher Training and Education 2017 (ICTTE 2017)* (pp. 403-410). AtlantisPress.

[7] Aprillianti, P., & Wiratsiwi, W. (2021). PENGEMBANGAN E-BOOK DENGAN APLIKASI BOOK CREATOR PADA MATERI BANGUN RUANG UNTUK SISWA KELAS V SEKOLAH DASAR: Studi kasus di SD Negeri Sugihan 01 Kelas V. *Prosiding SNasPPM*, *6*(1), 80-88.

[8] Andini, SR, Fitria, Y. 2021 . The Effect of the RADEC Model on Thematic Learning on Learning Outcomes of Elementary School Students. *BASICDU journal* . 5(3), 1435 – 1443

[9] Sopandi, W. (2017). the Quality Improvement of Learning Processes and Achievements Through the Read-Answer-Discuss-Explain-and Create Learning Model Implementation. Proceedings of the 8th pedagogy international Seminar 2017, 8, 132-139.

[10] Sopandi, W., Pratama, YES, & Handayani, H. (2019). Socialization and Workshop on the Implementation of the RADEC Learning Model for Elementary and Secondary Education Teachers, *Pedagogy : Journal of Education* , 8 (1), 19-34

[11] Branch, RM 2009). *Instructional Design-The ADDIE Approach* . New York: Springer

[12] Sudijono, A. 2008. *Introduction to Educational Statistics* . Jakarta: Raja Grafindo Persada

[13] Riduwan. (2011). *Basics of Statistics* . Bandung: Alphabet

[14] Pratama, YES, Sopandi, W., Hidayah, Y. 2019. RADEC Learning Model (Read- Answer-Discuss-Explain And Create): The Importance of Building Critical Thinking Skille in Indonesian Context, *International Journal for Educational and Vocational Studies* , 1(2), 109–115

[15] Pratama, YES, Sopandi, W., Hidayah, Y., Trihastuti, M. (2020). The Influence of the RADEC Learning Model on Higher Level Thinking Skills of Elementary School Students, *JINoP State University of Malang* , 6 (2), 191 - 203

[16] Fatimah, Shah Ahmad, Hasliana Lili. 2021 . Picture Paper Learning Media (TWIN) as Learning Media Innovation During the Pandemic, *SIPISSANGNGI Journal of Community Service* , 1 (1), 71 - 75

http://jurnalnasional.ump.ac.id/index.php/Dinamika