

# Development of Interactive Digital Book With Canva Application to Train Students' Critical Thinking Ability in Educational Research Methodology Courses

Deni Adriani <sup>1</sup>, Muhammad Andi Abdillah Triono <sup>2</sup>, Putri Kemala Dewi Lubis <sup>3</sup>

{Deni\_adriani@unimed.ac.id<sup>1</sup>, andiabdillah@unimed.ac.id<sup>2</sup>, puputdewilubis@gmail.com<sup>3</sup>}

Economic Education Program Faculty of Economics, Medan State University, Indonesia<sup>1</sup>,  
Management Study Program, Faculty of Economics, Medan State University, Indonesia <sup>2</sup>,  
Economic Education Program Faculty of Economics, Medan State University, Indonesia <sup>3</sup>

**Abstract.** Therefore, the lecturer, as the facilitator of the learning process, must immediately make changes so that the teaching materials used can actually improve student competence according to the learning outcomes imposed in each subject being taught. One effort that can be made is to develop digital-based learning media that are able to train critical thinking skills so that students can explore their knowledge according to the demands of the times. The purpose of this exploration is to produce an interactive digital book supported by the Canva operation to train scholars' creative thinking experience in the Educational Research Methodology course. In addition, it aims to determine the effectiveness of the use of media that can be entered via the internet and to determine scholar responses to the product to be developed in the Educational Research Methodology course. This development procedure consists of four D Models. "First, the definition stage, namely the stage that aims to determine and define learning needs. Second, the design stage, namely the design of learning media prototypes, Third is the development stage, which aims to produce learning media, and fourth is the dissemination stage, which is the stage of using the developed learning media. Research results show that interactive digital book development is supported by a practical Canva application with a 4D model development model. As a result of developing a digital book with categories for practical use in education research methodology classes, it is expected that the learning outcomes of students will improve.

**Keywords:** Interactive Digital Book, Canva Application, Creative Thinking.

## 1 Introduction

The rapid development of information technology is one of the factors causing major changes in all aspects of life, including the world of education. One of them is the change in learning needs that led to a digital system. This is exacerbated by the never-ending condition of the COVID pandemic, which has resulted in extraordinary changes, including in the field of education. In this case, all levels of education are directed to immediately transform and adapt drastically to carry out the learning process by utilizing various media that can be accessed using the internet network.

Meanwhile, to be able to keep pace with technological developments so that the quality of education is good, the world of education must also be able to complete everything related to these aspects. The reality is that the learning infrastructure related to technology cannot be fulfilled by educational institutions, so it is a problem. [1].

The widespread use of the internet could be a great potential in the development of learning with an online system [2]. The teaching materials available so far are still in the form of a printed version, which is still dominant in the form of plain text. This becomes an obstacle because students seem less interested in reading textbooks, which they think are boring. Therefore, it is necessary to revitalize learning tools that are more interactive to motivate students in lectures.

In this case, in addition to improving the material content, improvements are also needed in terms of design that are in accordance with current conditions. One application that can be used is Canva. This application is not only easy to use but also provides thousands of attractive templates, making it easier for lecturers to design interactive digital books.

Canva is an online-based application that provides attractive designs in the form of templates, features, and categories. With diverse and appealing designs, learning is no longer boring [3].

Based on the description above, the purpose of this research is to develop interactive digital book innovations to produce digital learning media products assisted by the Canva application as a means to train students to be able to think critically in understanding lecture material at the Medan State University Economics Education Study Program. The achievement of this research is the availability of interactive digital books, which already contain interactive digital video books that can be accessed using Android or laptops.

## **2 Theoretical Study**

Media comes from Latin and is the plural form of the word "medium," which literally means "intermediary or introduction [4]. The media itself is a communication tool to make the teaching and learning process more effective [2].

Thus, learning media is anything that can convey and distribute messages from sources in a planned manner so as to create a conducive learning environment where the recipient can carry out the learning process efficiently and effectively. Today, the development of information technology encourages transformation in the world of education, including the shift in the use of printed books to digital books that can be accessed easily by utilizing the internet network and other supporting devices.

E-books are electronic books that can be accessed on smartphones or laptops. E-books become interactive as a solution for learning media so that students are more active and interactive in participating in the learning process [5].

E-books are books in digital or electronic format that run with software that can be used as a learning resource and contain information in the form of text or images in electronic format [6]. It was further stated that electronic books with multimedia features inserted can enrich the book reading experience if used properly. Interactive electronic books are the best alternative that can contribute to improving reading comprehension and interest [7].

Based on some of the opinions above, it can be concluded that an interactive e-book is a digital learning medium that contains various interactive multimedia features that can be used using smartphones or laptops that can contribute to increasing student understanding of lecture material. In this study, the term "e-book" is used to refer to a digital book with the same intent and purpose.

Digital books can be developed with various applications, but in this research, the development of digital books is assisted by the Canva application. Canva is an online-based application that provides attractive designs in the form of templates, features, and categories. With diverse and attractive designs, it makes the learning process not boring. [3].

There are several advantages to the Canva application, including: (1) it has a variety of attractive graphic designs, animations, templates, and page numbers. (2) It can increase creativity in designing learning media because of the many features it provides, which include drag and drop features. (3) Save time when designing; (4) Have a high image resolution; and Canva media slides can be automatically printed with print size settings. Canva media can be downloaded in a variety of file formats, including pdf and jpg [8].

Thus, the use of the Canva application can produce attractive digital book designs that are equipped with images, audio, and video to train students in improving critical thinking skills. Critical thinking skills are reflective, rational thinking skills focused on deciding what to do and what to believe. Critical thinking is important for problem solving [9].

The ability to think critically is a conscious and deliberate process used to interpret and evaluate information and experience through a set of reflective abilities and attitudes that guide beliefs and wise actions. The ability to think critically guides one in taking action, thinking, working, and accurately determining the relationship between something and others [10].

Based on the above opinion, we can know that critical thinking ability is a conscious process used to interpret and evaluate information and experiences that lead to decision-making in solving problems. Furthermore, the development of interactive digital books assisted by the Canva application to train critical thinking skills referred to in this study is a series of activities for developing teaching materials in the form of textbooks that are in accordance with the revised lesson plans that contain elements of the case method and team base project. In this case, interactive digital books are designed using images, audio and video integrated into one digital textbook created using the Canva application and supported by other applications such as Flip Builder, Corel Draw, Adobe Photoshop and Camtasia.

Thus, the development of learning media in the form of interactive digital books in question is spurred by the availability of digital books that already contain information in the form of text, images, audio, and interactive videos that can be accessed online by students.

### **3. Research Methods**

The type of research is development research. A research and development (R&D) methodology is "a research methodology used to develop specific products and conduct

research to test the efficacy of those products [11]. We develop new products in the form of books supported by our online courses.

This development procedure consists of four 4-D (Four D Models) proposed by Thiagarajan [12]. "First, the definition stage, which is the stage that aims to determine and define learning needs. Second, the design stage, namely the design of learning media prototypes, The third is the development stage, which aims to produce learning media, and the fourth is the dissemination stage (disseminate).

## **4. Results and Discussion**

### **4.1 Results**

The results of this study are: (1) interactive digital books powered by the Canva application; (2) interactive digital book content or materials, language assessment and presentation expert assessment; Student reaction to digital books. (4) Class A students in the 6th semester of the economic Education Program, observing their reaction to the learning process based on the learning activities provided in the interactive digital books supported by the Canva application. After defining (defining), including the stages of initial and final analysis, student analysis, task analysis, and material analysis, as well as formulating learning objectives, researchers can begin to design and develop learning media.

In developing this medium, it is carried out using a 4D development model which includes 4 stages, namely (1) define (definition), (2) design (design), (3) develop (development), and (4) disseminate (dissemination).

#### *(1) Define*

Defining is the first stage that the researcher does in the research and development process of the 4-D model. At this stage, the researcher conducted a preliminary and final analysis; student analysis; task analysis; material analysis; and formulating learning objectives.

#### *(2) Design*

Design The product starts by determining the course material that will be made into an interactive digital book.

Based on the selected material components, I used the Canva application to create an interactive digital book. Creating an interactive digital book with the Canva application starts with looking at a pre-designed curriculum. This is the primary reference for assembling the material into a learning medium. Then move on to developing interactive digital book materials using the Canva application. It consists of 12 materials.

#### *(3) Develop*

During the development phase, we aim to create a revised digital book based on experts' opinion. The steps for this phase are: a) production stage; b) expert validation.

The following is a recap of the results of expert validation in terms of content feasibility, language feasibility, and presentation feasibility, as shown in table 1 below:

**Table 1.** Recapitulation of expert validation results

Aspect	Average score	Category
Content validation	3.92	Valid
Language validation	3.96	Valid
Presentation validation	3.92	Valid
Total average score	3.93	Valid

Based on Table 1 for expert validation, the material contained in the interactive digital book has been rated valid for the Research Methodology course with an overall total average of 3.93. This means that learning media have content validity. It features easy-to-understand language and attractive presentations and graphics.

(4) *Disseminate*

The dissemination stage is the stage of using interactive digital books that have been developed on a wider scale. At this stage, the next stage is the trial stage in the real class. The trial subjects at this stage were students of semester VI, totaling 28 people. The researcher conducted a trial use of four meetings through a virtual class, in this case using Google Classroom. After being treated through the provision of an interactive digital book, the researcher also conducted a post-test to determine student learning outcomes after students had studied using an interactive digital book assisted by the Canva application.

The following is Table 2. The results of the paired sample t test using SPSS 21 are as follows:

**Table. 2** Test Results Paired Sample T Test (Descriptive)

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Learning Outcomes before Using an assisted interactive digital book canva aplikasi application	74.50	28	6.931	1.310
	Learning Outcomes after Using an interactive digital book with the help of the Canva application	88.04	28	7.594	1.435

The table above explains that the output can be seen from the statistical summary results of the two samples, or pretest and posttest data. For the pretest scores, the average learning outcome was 74.50. Meanwhile, for the posttest score, the average learning outcome was 88.04. The number of students who were used as samples was 28.

Meanwhile, to see the difference in the average of the two samples can be seen in the following table:

**Table 3.** Paired Sample T Test Results

		<b>Paired Samples Test</b>					t	df	Sig. (2-tailed)
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Learning Outcomes before using an interactive digital book with the help of the Canva application - Learning Outcomes after using an interactive digital book with the help of the Canva application	-13.536	10.782	2.038	-17.717	-9.355	-6.643	27	.000

Based on the table above, it can be seen that through the results of the t test for two paired samples, seen from the probability value or sig. (2-tailed) 0.000 < 0.05, there is a significant difference between learning outcomes in pretest and posttest data, which means that there is an effect of using interactive digital books assisted by the Canva application for educational research methodology courses in improving student learning outcomes in research methodology courses for the sixth semester of student education for the 2021/2022 academic year.

#### 4.2 Discussion

A research methodology video draft was created in a virtual class-based research methodology course using the Canva application to create an initial draft of an interactive digital book. Furthermore, the draft interactive digital book assisted by the Canva application was validated by 2 education experts.

Expert validation was done in three aspects: material content validation, language validation, and interactive digital book viewing supported by the Canva application. The content feasibility rating overall score is 3.92 in the valid categories. For the verbal feasibility verification, the total score for the evaluation is 3.96 for the valid categories, and for the media presentation feasibility verification evaluation, the total score is 3.92 for the valid categories. The overall learning media draft was declared suitable for use with an overall average grade of 3.93. This means that the material content, language, and media presentation scores are within valid categories for use in revisions proposed by validators.

The next level was an interactive digital book design using the Canva application, given to 5 students as a limited trial. Powered by the Canva application, this interactive digital book design was evaluated using criteria included in the evaluation questionnaire and student responses, for a total of three evaluation criteria. As a result of the evaluation by 5 students, the average score of the practical skill was 84.11 points. Based on student comments and suggestions, researchers did not make many revisions, as most students made comments that tended to be positive for the learning media. This is consistent with [11] that product revisions are made when testing finds errors or defects. With reference to the student survey results, this video does not need to be revised again and can be used for the next level of testing.

The next stage is the draft of an interactive digital book with the help of the Canva application, which has been piloted in the real world. The trial was carried out on semester VI (six) students of TA.2020 and 2021 with a total of 28 students. The trial was conducted in four meetings. Learning activities use interactive digital books with the help of the Canva application. In this interactive digital book assisted by the Canva application, students are invited to learn to write, especially in research proposals that are as interesting as possible so that they are easy to remember. As a result, students must be more enthusiastic and engaged in lectures.

Based on the results of the study, the data obtained for the average pretest score of the learning outcomes was 74.50. Meanwhile, for the posttest score, the average learning outcome was 88.04. The number of students who were used as samples was 28. Furthermore, the results of the t-test for two paired samples seen from the probability value or sig. (2-tailed) 0.000 0.05, then there is a significant difference between learning outcomes in pretest and posttest data, which means that there is an influence on the use of learning media in the form of interactive digital books assisted by Canva applications in educational research methodology courses in improving student learning outcomes in research methodology courses for semester VI students in the odd semester for the 2020/2021 academic year. The test results show that the interactive digital book assisted by the Canva application developed has a positive influence on student learning outcomes.

This study is in line with that conducted by [13] The T-test is used as a calculation to determine the effectiveness of using interactive e-books. From the calculation using the Wilcoxon test, it was found that the probability value (p) obtained was 0.0001 (p 0.05). This means that the achievement of student learning outcomes in the experimental class is better than that of the students in the control class. These findings are also supported by the results of the questionnaire, which state that students who study in the experimental class have a better learning experience than those in the control class.

E-books are electronic books that can be accessed on smartphones or laptops. E-books become interactive as a solution for learning media so that students are more active and interactive in participating in the learning process [5].

Based on the research data, which is also supported by the expert opinion above, we can understand that the use of interactive digital books, assisted by the Canva application, which can be accessed online, helps students in the learning process. In addition, interactive digital books assisted by the Canva application have their own charm, so that students are enthusiastic about attending lectures even though they are carried out online.

## 5. Conclusion

Based on the results of research and development, several conclusions can be drawn as follows: (1) creation of an interactive digital book with the help of a virtual class-based research methodology application based on the Four-D model. It is obtained that students need interactive digital books assisted by Canva applications that can help students learn independently. Design, obtained the results of learning media that are in accordance with the needs of students in the form of interactive digital books assisted by virtual class-based research canvamethodology applications. developed, validated by experts with an average total score of 4.29 in the valid category and revised according to material expert suggestions, as well as limited trials on some sixth semester students with an average total score of 84.03 in the practical category. Disseminate, the distribution of interactive digital books assisted by the Canva application, has been carried out to 28 semester VI students in the 2021/2022 academic year.

**Acknowledgments.** The author would like to thank Mr. Khairuddin and Mrs. Mica Siar Meiriza for their contribution as validators of the digital book developed during the research. The author also extends the gratitude to Lembaga Penelitian dan Pengabdian Masyarakat (LPPM) Universitas Negeri Medan. This article has followed the guidelines

## References

- [1] Sukiyasa, K., & Sukoco, S. (2013). Pengaruh media animasi terhadap hasil belajar dan motivasi belajar siswa materi sistem kelistrikan otomotif. *Jurnal Pendidikan Vokasi*, 3(1).
- [2] Sohibun, A. (2017). Pengembangan Media Pembelajaran Berbasis Virtual Class Berbantuan Google Drive. *Jurnal Keguruan dan Ilmu Tarbiyah*, Volume 02 Nomor 2.
- [3] Pelangi, G. (2020). Pemanfaatan aplikasi Canva sebagai Media Pembelajaran Bahasa dan Sastra Jenjang SMA/MA. *Jurnal Sasindo Unpam*, Vol. 8 No.2.
- [4] Sardiman. (2011). *Media Pendidikan: Pengertian, Pengembangan, dan Pemanfaatannya*. Jakarta: Raja Grafindo Persada.
- [5] Aflich Yusnita Fitrianna, N. P. (2021). Pengembangan Model E-Book Interaktif Berbasis Pembelajaran Induktif . *Pengembangan Model E-Book Interaktif Berbasis Pembelajaran Induktif* , Volume 05, No. 02, Juli 2021, pp. 1562-1577.
- [6] Susilo, F. A. (2021). Pengembangan Bahan Ajar E-Book Interaktif Berbantuan Media Pembelajaran Smartphone pada Mata Pelajaran Kearsipan Kompetensi Dasar Menerapkan Prosedur Pemeliharaan Arsip Kelas X APK SMK Muhammadiyah 1 Lamongan. *Journal of Office Administration: Education and Practice*, Volume 1 Issue 2, 179-195 (2021) .
- [7] Komang Redy Winatha, d. (2018). Pengembangan E-Modul Interaktif Berbasis Proyek Mata Pelajaran Simulasi Digital. *Jurnal Pendidikan Teknologi dan Kejuruan*, Vol. 15, No. 2, Juli 2018, Hal :188 P-ISSN : 0216-3241 ; E-ISSN : 2541-0652.
- [8] Faiza, R. E. (2019). Canva sebagai Media Pembelajaran pada Mata Pelajaran Dasar Listrik dan Elektronika. *Jurnal Vokasional Teknik Elektronika dan Informatika*, Vol. 7, No. 2, Juni E - ISSN: 2302-3295.
- [9] Widodo dkk, S. (2019). Analisis Kemampuan Berpikir Kritis Mahasiswa Pendidikan Matematika pada Pemecahan Masalah Analisis Real. *Jurnal Pendidikan Matematika Raflesia*, Vol. 04 No. 02, Desember E ISSN 2615-8752.

- 10] Rasiman. (2013). Meningkatkan Kemampuan Berpikir Kritis Melalui Pembelajaran Matematika dengan Pendekatan Matematika Realistik. *Jurnal Matematika dan Pendidikan Matematika*, Vol 4 No.2 ISSN 2579-7646 .
- [11] Sugiyono. (2011). *Metodologi Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- [12] Trianto. (2012). *Model Pembelajaran Terpadu*. Jakarta: PT.Bumi Aksara.
- [13] Kusumastuti, F. A. (2020). Pengaruh Integrasi E-Book Interaktif Pada Kegiatan Belajar Mengajar Sains. *JURNAL BECOSS*, Vol.2 No.1 January 2020: 83-88 e-ISSN: 2686-2557.