Jurnal Pendidikan Multimedia
EDSENCE
Education, Science, and Creative Technology
p-ISSN:2685-2489 | e-ISSN:2685-2535
The Education University
PENDIDIKAN MULTIMEDIA
Accredited SINTA 4

LETTER OF ACCEPTANCE

p-ISSN:2685-2489 | e-ISSN:2685-2535

Dear,

Date: June 18th, 2025

MUHAMMAD AFID

Warm greeting,

It's a great pleasure inform you that, after the peer review process, your article, *"Design and Implementation of an E-Book as a Digital Learning Medium for the Computer Graphics and Animation Course Using the Flipping Book Application"* has been **ACCEPTED** and considered for publication in EDSENCE – Jurnal Pendidikan Multimedia in volume 7 no. 1, June 2025 Regular Issue.

Thank you for submitting your work to this journal, We hope you submit your articles in future.

Ayung Candra Padmasari
Editor in Chief

Jurnal Pendidikan Multimedia
(EDSENCE)

Journal homepage: https://ejournal.upi.edu/index.php/Edsence

Design and Implementation of an E-Book as a Digital Learning Medium for the Computer Graphics and Animation Course Using the Flipping Book Application

M.Afid[1], *Sarini Vita Dewi* S.T., M.Eng.[2,*]

[1] UIN Ar-Raniry, Banda Aceh
Correspondence: E-mail: email@institution.com

ABSTRACT

The purpose of this study is to replace the less effective learning methods for information technology education students, especially computer graphics and animation courses at UIN Ar-Raniry Banda Aceh. With increasingly developing digital technology, the use of smartphones can be directed to profitable activities, such as learning using e-books anywhere and anytime. This e-book is made for interactive learning media for students who lack interest in learning and this e-book is designed as well and visually appealing and user friendly so that students' interest in learning increases. This study uses the research and development (R&D) approach and involves 20 students from UIN Ar-Raniry campus as respondents. The evaluation results show that 100% of media experts consider this computer graphics and animation e-book to be very suitable as a digital learning media, while the average student response is 96% with the category "Very Good" the appearance of this computer graphics and animation e-book is very interesting and provides convenience in the learning process.

ARTICLE INFO

Article History:
Submitted/Received 00 xxx 2023
First Revised 00 xxx 2023
Accepted 00 xxx 2023
First Available online 00 xxx 2023
Publication Date 00 xxx 2023

Keyword:
digital learning media, e-books, computer graphics and animation, Research and Development (R&D).

1. INTRODUCTION

In today's digital era, technological advancements have opened up opportunities for innovation across various aspects of life, including the field of education. Information and Communication Technology (ICT)-based learning is becoming increasingly popular, as it enables a more efficient and effective transfer of knowledge. One form of technology implementation in education is the use of e-books, which are accessible digitally and support a more flexible learning process (Astini, N. 2020). An e-book, or electronic book, is a term derived from the combination of "e" meaning electronic, and "book." In simple terms, an e-book is a digital version of a printed book that has undergone a process of digitalization, making it accessible through devices such as computers, tablets, or smartphones (Carjaval, 1999, Shiratuddin, 2003). The course on computer graphics and animation covers a wide range of topics, including an introduction to computer graphics, pixel and color palettes, as well as algorithms used for drawing lines and polygons. In addition, the material includes algorithms for circles and ellipses, curve generation, and area-filling techniques. Students will also study geometric projections, transformations (such as translation and rotation), and the concepts of viewing and clipping (Fachrezi, R. R., Ramadhon, F., & Ikasari, I. H. 2024).

Computer graphics and animation is a multidisciplinary field that encompasses physics, mathematics, human perception, human-computer interaction, engineering, graphic design, and art. In practice, computer graphics apply principles of physics to model lighting and simulate animation. Mathematics is used to describe visual forms, while understanding human perception helps allocate computational resources more effectively (Pery Roybowo). Computer graphics and animation is a multidisciplinary field that encompasses physics, mathematics, human perception, human-computer interaction, engineering, graphic design, and art. In practice, computer graphics apply principles of physics to model lighting and simulate animation. Mathematics is used to describe visual forms, while understanding human perception helps allocate computational resources more effectively (Anggy Trisnadoli, & Erwin Setyo Nugroho 2023). The advancement of sophisticated technologies greatly facilitates teachers in delivering material and knowledge during the learning process. The use of advanced technology not only benefits educators but also provides significant advantages for students in capturing and comprehending lessons more easily. One example of this is the use of technological media such as e-books, or electronic books (Sari, N. P., & Wulandari, D. 2022). E-books have become a popular learning medium in recent years, largely due to strong governmental support for their use in education. E-books play an important role in the learning process because of their numerous advantages (Putri, A. R., & Santoso, B. 2021). Flipping books are digital books used by educators to deliver learning materials. Flipping book-based teaching materials can improve the quality of the learning process, increase student satisfaction, and enhance service quality. They are also considered highly appropriate as learning tools because students tend to be more interested and motivated when using digital-based teaching materials such as flipping books (Wibowo, A., & Pratiwi, S. 2018). Teaching materials come in various forms, one of which is digital content such as flipping books. A flipping book is a digital book that resembles a printed book in having pages, but it includes animations, videos, images, and audio, making it distinct from traditional printed books. The flipping book application makes teaching materials more appealing and interactive for students, and it can serve as a valuable tool for educators to deliver instructional content and achieve learning objectives. To meet these objectives, appropriate resources and learning

tools are necessary one of which is a flipping book-based teaching material (Anandari, dkk. 2019).

2. METHODS

The methodology applied in the design and implementation of an e-book as a digital learning medium for the Computer Graphics and Animation course, using the Flipping Book application, follows a research and development (R&D) approach. This research process involves several stages, including problem identification, system design, testing, analysis, results, and report writing (Apriyani, D. D., Sirait, E. D., & Ramdhan, V. 2023). The research flowchart used in this study is shown in Figure 1.

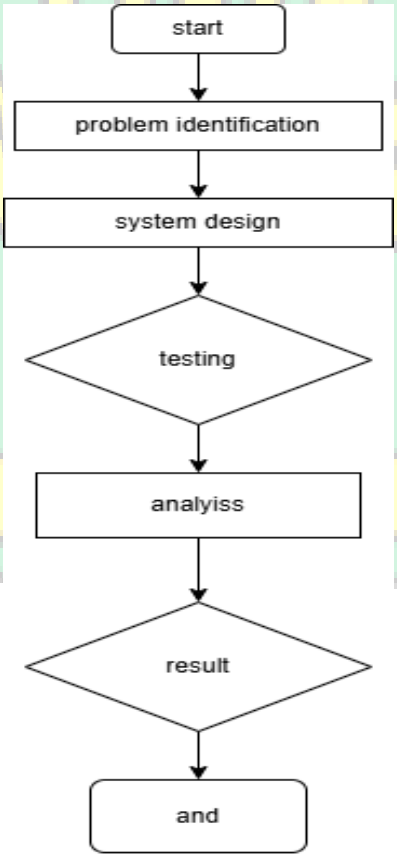


Figure 1. Flowchart.

2.1. Start

This stage marks the initial phase of the research activities, where the foundational steps of designing and developing the e-book begin. At this point, the focus is on identifying the objectives, determining the appropriate content structure, selecting the tools and platforms to be used, and outlining the overall framework of the e-book. This stage is crucial, as it sets

DOI: http://dx.doi.org/10.17509/xxxx.xxxx
p-ISSN:2685-2489 | e-ISSN:2685-2535

the direction for the entire development process and ensures that the resulting digital learning material aligns with the learning goals of the course. Through careful planning and early-stage conceptualization, this phase lays a solid groundwork for the subsequent stages of content creation, formatting, and implementation.

2.2. Problem Identification

In this stage, the research focuses on identifying the limitations of conventional learning media and addressing the need for innovative solutions. The aim is to enhance student interest and improve learning outcomes by developing an interactive e-book that aligns with student characteristics. This stage also emphasizes the importance of ensuring the validity, practicality, and effectiveness of the e-book in the learning process.

2.3. System Design

At this stage, a comprehensive design of the e-book is developed. The focus is on structuring the content, layout, multimedia integration (text, images, audio, and video), and user interface to meet the needs of both students and instructors. A well-designed system ensures that the digital learning process is efficient and engaging.

2.4. Testing

The testing phase is conducted to evaluate the functionality and usability of the e-book. It involves expert validation and user trials aimed at identifying areas for improvement. The goal is to refine the product so that it becomes more effective and aligns closely with student learning requirements.

2.5. Analysis

At this stage, the e-book development process includes the identification of problems and user needs, analysis of content and design, expert validation, effectiveness testing through pre-test and post-test, and evaluation of user responses. This analytical process aims to ensure that the developed e-book is feasible, effective, engaging, and capable of significantly improving student learning outcomes.

2.6. Results

The findings consistently demonstrate that the e-book significantly improves conceptual understanding, metacognitive skills, learning outcomes, and student motivation. Moreover, the e-book is considered highly feasible and practical for implementation in the learning process. However, it is also noted that attention must be given to potential technical barriers faced by students.

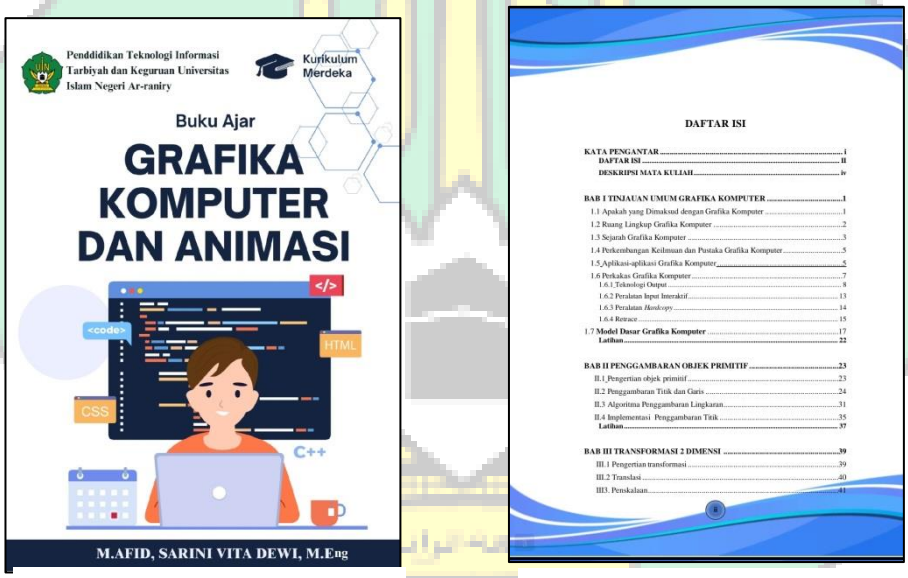
3. RESULTS AND DISCUSSION

This section presents the results and discussion, which are divided into two main aspects. The first aspect addresses the outcomes of the e-book design developed using the Flipping

Book application. The second aspect presents the findings of the research survey, which aims to evaluate the feasibility of using the application as an instructional medium.

3.1. E-Book Design Using Flipping Book

This e-book was developed using the Flipping Book application as a learning medium for the Computer Graphics and Animation course. This platform was selected due to its capability to simulate realistic page-flipping effects, support multimedia integration, and enhance user experience. The design of the e-book was adapted to the characteristics of the subject matter and the needs of the students. The following figure illustrates the interface and features of the designed e-book.

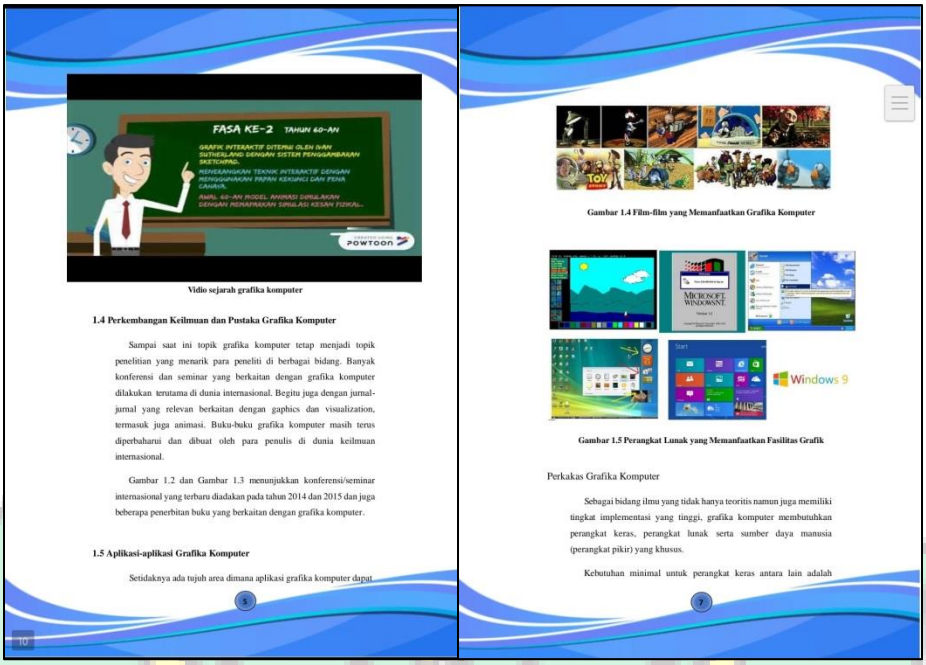


(a) (b)

Figure 2. (a) Cover, (b) Table of Contents

Figure 2(a) illustrates the cover page of the e-book, which was carefully designed and edited using the Canva application. The cover layout combines visual elements and typography that align with the overall theme of the e-book, aiming to capture the attention of the target audience while maintaining a professional and academic appearance. **Figure 2(b)** presents the table of contents, which provides a structured overview of the chapters and sections contained within the e-book, thereby facilitating efficient navigation and quick access to specific topics.

DOI: http://dx.doi.org/10.17509/xxxx.xxxx
p-ISSN:2685-2489 | e-ISSN:2685-2535



(a) (b)

Figure 3. (a) Adding a Videos, (b) Adding a Images

Figure 3(a) shows a video embedded in the e-book, which is intended to support students' understanding of the material through interactive visual content. By clicking on the video, users are directed to the original source. Additionally, **Figure 3(b)** presents images that help reinforce the learning process by providing visual support for the concepts discussed.

(a) (b)

Figure 4. (a) E-book Display When Opened, (b) Full View When E-book is Opened

Figure 4(a) display the initial view when the e-book is opened on a computer or laptop. The screen shows the book's cover page with an animated effect that resembles the motion of turning a page. This visual effect creates a realistic impression, as if opening a physical book, complete with shadows and folded corners. The interface indicates that the e-book is accessed through an interactive digital reading platform that supports dynamic and engaging visuals. **Figure 4(b)** show the e-book opened to its content pages, with two facing pages displayed side by side on a full screen. This layout mimics the appearance of a physical book laid open, offering a familiar and comfortable reading experience. The digital navigation tools remain visible at the bottom of the screen, allowing the reader to easily turn pages or adjust the display settings. This view illustrates that the e-book is designed to provide an interactive reading experience while maintaining the look and feel of a traditional printed book.

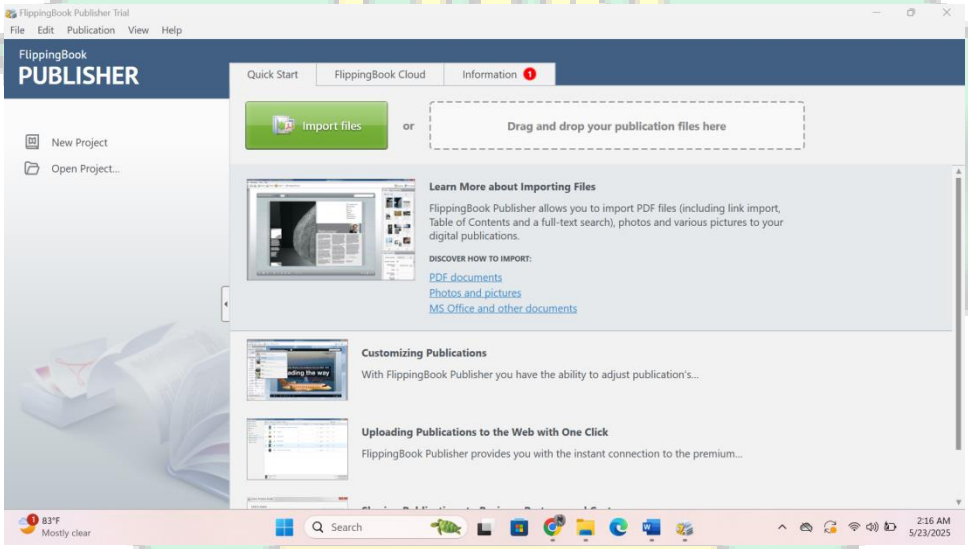


Figure 5. Flipping Book application interface

Figure 5 displays the Flipping Book application interface, which functions as a digital platform for converting static learning materials such as text documents, images, and other resources into an interactive and visually engaging e-book format. Flipping Book provides a variety of tools that allow users to design, customize, and edit the appearance and structure of the e-book. Users can adjust the layout, add multimedia elements such as videos or links, and apply visual effects like realistic page-flipping animations.

3.2. Questionnaire Analysis: E-Book Feasibility

This research focuses on the design and implementation of an e-book as a digital learning medium for the Computer Graphics and Animation course using the Flipping Book application. The respondents in this study consisted of 20 e-book readers, specifically students from UIN Ar-Raniry. A questionnaire was distributed to users to assess the feasibility of the e-book as a digital learning medium for the Computer Graphics and Animation course. The following are the results of the questionnaire used to evaluate the media's feasibility:

DOI: http://dx.doi.org/10.17509/xxxx.xxxx
p-ISSN:2685-2489 | e-ISSN:2685-2535

Table 1. Results of student response

No	Question	Amount	Percentage	Category
1	Is this e-book readily accessible and user-friendly in its digital format?	19	95%	Very Good
2	Is the visual layout of the e-book aesthetically pleasing and easy to navigate?	20	100%	Very Good
3	Is the language employed in the e-book clear and easily comprehensible?	20	100%	Very Good
4	Does the e-book systematically present the concepts of computer graphics and animation ?	19	95%	Very Good
5	Are the basic principles of computer graphics and animation well-explained in the e-book?	20	100%	Very Good
6	Is the animation topic in the e-book sufficiently clear and presented in an innovative manner?	19	95%	Very Good
7	Do the visual elements and illustrations in the e-book effectively enhance the reader's comprehension?	18	90%	Very Good
8	Do the provided exercises and quizzes effectively facilitate the mastery of the subject matter?	19	95%	Very Good
9	Are the explanations of algorithms such as DDA and Bresenham presented in a clear and comprehensible manner?	18	90%	Very Good
10	Overall, are users satisfied with the use of this e-book as a source of learning?	20	100%	Very Good
	Final Total	192	960%	Very Good
	Average	19,2	96%	

The feasibility testing showed that 100% of respondents rated this research as "excellent." Furthermore, to evaluate visitors' responses to the e-book media for digital learning in the computer graphics and animation course, 20 readers were involved in filling out questionnaires. The results obtained from the visitors indicated that 96% gave an "excellent" rating. The positive responses from user and readers demonstrate that this learning media has great potential to serve as an effective tool in supporting student learning, especially in the computer graphics and animation course.

4. CONCLUSION

Based on the results of the research and analysis conducted, it was found that the use of digital learning media such as e-books has a highly effective impact on the learning process. With an improvement in understanding and success rate of 96%, this digital learning media

not only enhanced students' comprehension of the *Computer Graphics and Animation* course, but also helped overcome the limitations of traditional learning tools such as printed textbooks. These findings indicate that digital learning media holds great potential to become a valuable educational tool that supports and improves the learning experience of students.

REFERENCES

Astini, N. (2020). Pemanfaatan Teknologi Informasi dalam Pembelajaran Tingkat Sekolah Dasar pada Masa Pandemi Covid-19. Lampuhyang, 11(2), 13-25.

Carjaval, R. (1999). The Impact of Digital E-books on Education. Journal of Educational Technology, 15(3), 45-58.

Shiratuddin, N. & Landoni, M. (2003). Children's E-Book Technology: Devices, Books, and Book Builder. Information Technology in Childhood Education Annual, 1, 105-138. AACE.

Fachrezi, R. R., Ramadhon, F., & Ikasari, I. H. (2024). Perancangan Aplikasi Komputer Grafik Dalam Pembuatan Animasi Traffic Light. *Buletin Ilmiah Ilmu Komputer dan Multimedia (BIIKMA)*, 1(5), 716-717.

Pery Roybowo. *Pengenalan Grafika Komputer* (PDF). Link: https://www.peryroybowo.com/assets/slide/grafika_komputer.pdf

Anggy Trisnadoli, & Erwin Setyo Nugroho. (2023). Pembuatan Video Animasi 3 Dimensi dengan Menggunakan Teknik Stop Motion dan Particle System. *Jurnal Literasi Informatika*,2(4).
Link: https://journal.unigha.ac.id/index.php/JLI/article/download/2591/1960

Sari, N. P., & Wulandari, D. (2022). Pemanfaatan E-Book sebagai Media Pembelajaran di Era Digital. *Jurnal Pendidikan dan Teknologi Informasi*, 8(1), 45-52.

Putri, A. R., & Santoso, B. (2021). Pengaruh Penggunaan E-Book terhadap Motivasi Belajar Siswa. *Jurnal Teknologi Pendidikan*, 10(2), 110-118

Anandari, dkk. (2019). Penggunaan Flipbook Digital sebagai Media Pembelajaran untuk Meningkatkan Motivasi Belajar. *Penerbit Deepublish*.
Link: https://penerbitdeepublish.com/kelebihan-dan-kekurangan-flipbook/

Apriyani, D. D., Sirait, E. D., & Ramdhan, V. (2023). Pengembangan E-Book dengan Aplikasi Flipbook Berbasis Mobile Learning. *Seminar Nasional Riset dan Teknologi*, Universitas Indraprasta PGRI

DOI: http://dx.doi.org/10.17509/xxxx.xxxx
p-ISSN:2685-2489 | e-ISSN:2685-2535