

# Development of Desktop Application with Three Dimensional (3D) Pageflip Professional Based on Network Design and Construction Class XI TKJ

Ayu Hidayati\*, Dedy Irfan, Asrul Huda

Fakultas Teknik, Program Pasca Sarjana, Universitas Negeri Padang, Padang, Indonesia

Email: 1\*ayuhidayati28@gmail.com

Email Penulis Korespondensi: ayuhidayati28@gmail.com

Submitted: 29/06/2022; Accepted: 30/09/2022; Published: 30/09/2022

**Abstrak**—Penelitian dan pengembangan ini bertujuan untuk menghasilkan produk berupa aplikasi desktop dengan model E-Modul atau modul elektronik G JARINGAN DAN BANGUNAN (RBJ) Kelas XI Teknik Komputer dan Jaringan (TKJ) di SMK Negeri 2 Padang. Setelah dilakukan uji validitas oleh para ahli, maka secara keseluruhan penilaian uji validator pada aplikasi desktopl berbasis tiga dimensi (3d) Pageflip Professional pada mata kuliah DESAIN JARINGAN DAN BANGUNAN (RBJ) adalah 89,94%, sehingga tingkat validitas dapat diartikan sebagai valid. Hasil penilaian uji kepraktisan secara keseluruhan E-applicationberbasis 3d Pageflip Professional pada NETWORK DESIGN AND BUILDING (RBJ) Eye adalah 89,50%, sehingga tingkat kepraktisan dapat diartikan sangat praktis untuk digunakan. Hasil penilaian uji keefektifan secara keseluruhan terhadap keefektifan E-Modul 3d Pageflip Professional berbasis mata pelajaran NETWORK DESIGN AND BUILDING (RBJ) adalah 90,63%, sehingga tingkat keefektifannya dapat diartikan sangat efektif untuk digunakan.

**Kata Kunci:** Aplikasi Desktop; 3D Pageflip Profesional; Rancang Bangun Jaringan

**Abstract**—This research and development aims to produce products in the form of E-Modules or electronic modules based on three dimensions (3d) Pageflip Professional in NETWORK DESIGN AND BUILDING Subjects (RBJ) Class XI Computer and Network Engineering (TKJ) at SMK Negeri 2 Padang. After the validity test has been carried out by the experts, the overall assessment of the validator test on the E-Modul or electronic applicationbased on three dimensions (3d) Pageflip Professional in the NETWORK DESIGN AND BUILDING (RBJ) Subject is 89.94%, so that the level of validity can be interpreted as valid. . The results of the overall practicality test assessment of the E-applicationbased on 3d Pageflip Professional in the NETWORK DESIGN AND BUILDING (RBJ) Eye is 89.50%, so that the practicality level can be interpreted as very practical to use. The results of the overall effectiveness test assessment of the effectiveness of the 3d Pageflip Professional-based E-Modul in NETWORK DESIGN AND BUILDING (RBJ) subjects are 90.63%, so that the level of effectiveness can be interpreted as very effective to use.

**Keywords:** Desktop Application; 3D Pageflip Profesional; Network Design and Building

## 1. INTRODUCTION

Along with the development of the times and modern technology in the era of globalization, media is needed to advance an education and provide innovation in the learning process. The use of electronic modules as a tool in learning is expected to help students increase motivation, understand and understand the material presented[1]–[3].

The e-applicationin this study will be compiled and developed into a Desktop Application where the desktop application itself is an application that can operate offline, but we have to install it ourselves on a laptop or computer. Web application is a web-based application that can operate if there is a network/internet connection. so that later the model of a book page that can be animated is like a book that is turned over for each page that contains related material[4]–[6].

Based on the observations of researchers in Class XI TKJ of SMK Negeri 2 Padang, the learning outcomes obtained by class XI students of TKJ SMK Negeri 2 Padang in the subject of NETWORK DESIGN (RBJ) are still much below the Minimum Completeness Criteria (KKM). The cause of the low student learning outcomes is the lack of understanding and mastery of basic concepts in the NETWORK DESIGN AND BUILDING (RBJ) subject because students are lazy to carry and read textbooks on the grounds that they are heavy and bored with reading books that look static so that learning is still focused on teacher.

With this interactive electronic learning module, it is hoped that it will motivate students to learn, because it can display the presentation of material in an interesting and innovative way. By using this learning module, it is hoped that the learning process will be more active and students will be more skilled in solving the problems they face. Based on these problems, the authors feel it is important to develop modules with modules in this.

## 2. RESEARCH METHODOLOGY

This study uses the Research and Development (R&D) method, according to development research is a research method used to produce certain products and test the effectiveness of these products. Development research is not research that is intended to produce theory but to produce certain products, using the learning media development

model used which refers to the type of development of four-D models which consists of 4 stages, namely Define (defining), Design (design), Develop (development) and Dessiminate (spread)[7]–[9].

The research method used in this research is the R&D method (Research and Development). Research and development methods or inResearch and Development in English is a research method that used to produce a specific product, and test the effectiveness of the product. According to Amile and Reesnes (2015:297), Research and Development (R&D) is a research method used to produce a particular product, and test the effectiveness of the product. Based on the above definition can be explained that the R&D method is a research method used to produce certain products and to improve a product that is in accordance with the references and criteria of the products made so as to produce products that are through various stages and validation or testing. Researchers do research in advance to collect the required amount of data[10]–[13].

Next, system development is carried out and testing and evaluation of the system created. The flow of the development of Desktop Application with PageFlip Professional's three-dimensional (3D) based on productive subjects of TKJ RANCANG BANGUN NETWORK with a four-D model.

### 3. RESULTS AND DISCUSSION

#### 3.1 Display Design Results

##### A. Intro Page

The Intro Page is the start page when running the application. The display can be seen in the following image:



**Figure 1.** Intro Page Display

##### B. Cover Page

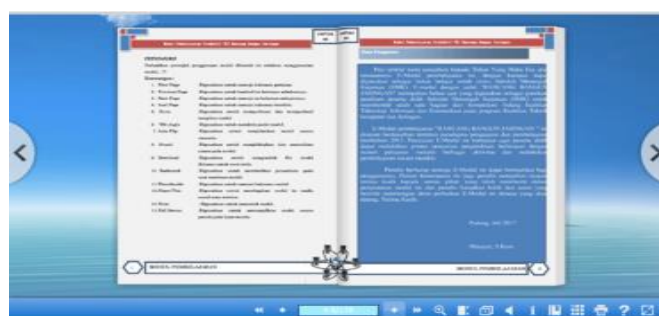
The cover page is the front cover of the E-Modul application. The cover display can be seen in the following image:



**Figure 2.** Cover Page Display

##### C. Instructions for use Page

The instruction display is an overview of the steps given to run the process on the application. The results of the instruction display can be seen below:



**Figure 3.** Instructions for use Page Page

**D. List Of Contents Page**

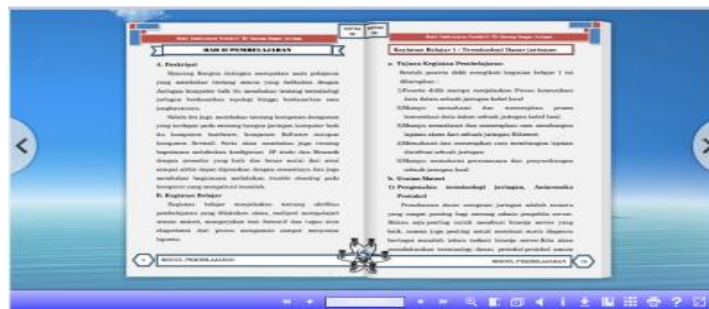
The table of contents view displays the discussion chapter page of the module. The table of contents can be seen below:



**Figure 4.** List Of Contents Page Display

**E. Study Activity Page**

The page is an activity in the discussion, discussing the discussion about the desired learning. The display results can be seen below:



**Figure 5.** Study Activity Page Display

**F. Material Video Page**

The learning video display is used to display video discussions related to each chapter provided. The results of the video display can be seen in the following:



**Figure 6.** Material Video Page Display

The output on the desktop application with pageflip produces displays that can be accessed on a desktop computer or PC so that later the display of animation and content that appears will be able to come out properly and be seen clearly by the students that using this desktop application 3D Pageflip animation. dan juga tidak hanya itu, untuk konten yang disusun pun sudah disusun agar user friendly terhadap perangkat desktop seperti laptop ataupun PC yang nantinya aplikasi ini selain jelas juga dapat menarik bagi para pengguna yang menggunakan aplikasi desktop dengan 3D pageflip ini

**3.3 Discussion**

**3.1.2 Validity Testing**

For testing this validity, the assessment is carried out by validators, namely lecturers and teachers. in terms of (1) applicationcontent: 92.00%; (2) Language component: 84.44%; (3) Components of presentation: 90.00% ; (4) Graphic component: 93.33%; Overall, the validator test assessment of the E-applicationor three-dimensional (3D)

PageFlip Professional based electronic application in the RANCANG BANGUN NETWORK (RBJ) Eye is 89.94%, so the level of validity can be interpreted. Valid is used.

### 3.1.3 Practicality Testing

The results of the practicality test assessment are viewed from the aspects: (1) ease of use: 89,00%; (2) conformity with time: 89.32%; (3) Attractiveness: 90.18%. Overall, the practicality assessment of PageFlip Professional's E-Modul or electronic application based on three dimensions (3D) in NETWORK DESIGN AND BUILDING Subjects (RBJ) is 89.50%, so the practicality level can be interpreted as Very Practical to use.

### 3.1.4 Effectiveness Testing

Effectiveness is the impact after the use of 3D PageFlip Professional-based E-Modules in NETWORK DESIGN AND BUILDING (RBJ) subjects in the learning process as indicated by an increase in student activity and motivation. The results of the effectiveness test assessment in terms of aspects (1) happy to learn: 91.96%; (2) the existence of interesting teaching materials in learning: 89.30%. Overall, the effectiveness assessment of the Desktop Application with 3D PageFlip Professional-based in NETWORK DESIGN AND BUILDING (RBJ) subjects is 90.63%, so the effectiveness level can be interpreted as Very Effective in use.

## 4. KESIMPULAN

The level of validity with the results of the validator test on the Desktop Application with three-dimensional (3D) PageFlip Professional-based in the NETWORK DESIGN AND BUILDING Subject is 89.94%, then it can be declared valid to be used. The level of practicality of Desktop Application with PageFlip Professional's three-dimensional (3D) based in NETWORK DESIGN AND BUILDING subjects is 89.50%, so it is very practical to use. The effectiveness level of Desktop Application PageFlip Professional's three-dimensional (3D) based in NETWORK DESIGN AND CONSTRUCTION subjects is 90.63%, and can be stated to be very effective in use.

## REFERENCES

- [1] A. Afrida, H. Harizon, A. Bakar, and A. Sanova, "Pelatihan Pengembangan Media Pembelajaran Interaktif Berbasis Multimedia Sebagai Upaya Meningkatkan Kompetensi Profesionalisme dan Kreativitas Guru-Guru SMA Muaro Jambi," *J. Karya Abdi Masy.*, vol. 2, no. 1, pp. 15–22, 2018, doi: 10.22437/jkam.v2i1.5426.
- [2] E. Anggereini, "Pengembangan E- Modul Pembelajaran Lingkungan Hidup Terintegrasi Nilai-Nilai Perilaku Pro Environmental dengan Aplikasi 3D Pageflip Profesional untuk Siswa SMA Sebagai Upaya Menjaga Lingkungan Hidup Berkelanjutan (Sustainable Environment)," *Biodik*, vol. 3, no. 2, pp. 81–91, 2017, doi: 10.22437/bio.v3i2.5499.
- [3] Erin, I. F. Dyas, Nabilah, and T. Haryanti, "Bahan Ajar 3D Pageflip Berbasis Representasi Matematis Pada Materi Sistem Persamaan Linear Dua Variabel," pp. 411–420, 2016.
- [4] Y. Rahmi, A. Johari, and A. Sadikin, "Pengembangan Multimedia Interaktif Menggunakan 3D Pageflip Profesional pada Materi Penentuan Jenis Kelamin Serangga untuk Kelas XII SMA," *Biodik*, vol. 8, no. 1, pp. 72–79, 2022, doi: 10.22437/bio.v8i1.16151.
- [5] F. Ailiyah, E. Supriana, and N. Hidayat, "Pengembangan Modul Digital Interaktif Berbasis 3D Pageflip Profesional dengan Pendekatan Contextual Teaching and Learning (CTL) untuk Membantu Siswa ...," *Semin. Nas. Fis. dan ...*, pp. 11–17, 2019, [Online]. Available: <http://conference.um.ac.id/index.php/fis/article/view/497>.
- [6] N. A. Muthmainnah, F. C. Pujiyanto, and Z. Z. Zardhani, "Moduling : Modul 3 Dimensi pada Topik Gerak Melingkar Berbasis 3D Page Flip Professional," in *SEMINAR NASIONAL HASIL RISET DAN PENGABDIAN*, 2022, no. April, pp. 471–478.
- [7] A. Sholihah, "PENGEMBANGAN BAHAN AJAR 3D FLIPBOOK DENGAN MODEL IBMR (INVESTIGATION BASED MULTIPLE REPRESENTATION) PADA MATERI TURUNAN FUNGSI ALJABAR," UNIVERSITAS ISLAM NEGERI SYARIF HIDAYATULLAH JAKARTA, 2022.
- [8] A. Mufida, "PENGEMBANGAN BAHAN AJAR 3D FLIPBOOK BERBASIS HYPERMEDIA PADA MATERI DIMENSI TIGA SKRIPSI," UNIVERSITAS ISLAM NEGERI SYARIF HIDAYATULLAH JAKARTA, 2020.
- [9] L. ANGGRIANI, "PENGEMBANGAN MODUL FISIKA BERBASIS HIGHER ORDER THINKING SKILLS (HOTS) DENGAN MENGGUNAKAN 3D PAGEFLIP PROFESSIONAL," UNIVERSITAS ISLAM NEGERI RADEN INTAN LAMPUNG, 2019.
- [10] Sugiyono, *Metode Penelitian Pendidikan*. Bandung: Alfabeta, 2014.
- [11] W. Sari, Jufrida, and H. Pathoni, "Pengembangan Modul Elektronik Berbasis 3D Pageflip Profesional pada Materi Konsep Dasar Fisika Inti dan Struktur Inti Mata Kuliah Fisika Atom dan Inti Mahasiswa," *J. EduFisika*, vol. 02, no. 01, 2017, [Online]. Available: <http://nugraha167.blogspot.com>.
- [12] E. R. Malika, S. Sarwanto, and R. Budiharti, "Pengembangan Modul Elektronik Berbasis Multirepresentasi Menggunakan 3D Pageflip Profesional Materi Momentum dan Impuls untuk Kelas X," *J. Mater. dan Pembelajaran Fis.*, vol. 12, no. 1, p. 29, 2022, doi: 10.20961/jmpf.v12i1.60916.
- [13] R. Wulan Darii, S. Purwaningsih, and D. Darmaji, "Pengembangan Penuntun Praktikum Fisika SMA/MA Berbasis KPS menggunakan 3D Pageflip Profesional pada Materi Pengukuran," *J. Pembelajaran Inov.*, vol. 4, no. 2, pp. 09–20, 2021, doi: 10.21009/jpi.042.02.