The design of electronic book for batik learning

Y Achdiani, I Widiaty*, R Ilahi, M P Ningsih and S R Mubaroq
Universitas Pendidikan Indonesia, Bandung Indonesia

*isma@upi.edu

Abstract. This study aims to design an electronic book (e-book) used in batik learning in a Vocational High School. The design of the e-book is made on the web based application platform. The design of the e-book applies the Software Development Life Cycle (SDLC) method. The interaction model developed in the application is a user interface in the form of a frontend. The e-book User Interface in the form of a Codeigniter framework is based on the Hypertext Pre-processor (PHP). All content and databases are stored in the server. The results of the design include digital application of borrow-read-return procedures. In content, material about West Java Batik is accessible in three features, namely the pages of digital book room, audio book room, and video book room. The consequences of designing this e-book indicate the need for adequate internet network availability and the need for special administrator to constantly update the contents.

1. Introduction
The use of Electronic Book (e-book) in learning nowadays is a necessity and an alternative to the practical digital learning media [1]. E-books are electronic books consisting of two characteristics, namely page fidelity and reflowable. Page fidelity is static in the form of pdf files, while reflowable means the e-books are interactive because they are equipped with multimedia [2]. E-books in the context of learning can be in the form of individual digital media and available in libraries [3] or integrated in learning applications created in the form of digital libraries with multiplatform settings [4,5].

E-books are alternative learning media by using digital materials that can facilitate students' learning independence [6] and create more meaningful learning [7]. Learning strategies using digital media can be useful in providing focus on students with the mindfulness education principle [8]. Learning by using e-books on a digital library platform can be a service of distance learning [9]. This condition is very possible for students to access information from anywhere and anytime. Teachers and students can still communicate although they are not in real classrooms or so called "so near while apart" [10].

This study aims to design an e-book integrated in the digital library as an application used in learning batik in the Vocational High School. The developed e-book platform was in the form of a web based application. This application was made with consideration of the lack of printed learning resources about batik, so it is necessary to develop the digital learning resources with the opportunity to have various content in a more interactive form. This application is expected to be accessed by students through various devices, namely desktop, android, smartphone, or tablet, which are generally owned by students.

2. Methods
The design of e-book on West Java Batik is made integrated in the digital library format which is used as a learning tool in the Batik Program of Vocational School. The design of the e-book is made on a
A web-based application platform with a view to making it easier for students to access information on various devices.

The design method used is the Software Development Life Cycle (SDLC) method which consists of several stages namely system engineering, analysis, design, coding/implementation, testing, and maintenance. The interaction model developed in the application is a user interface in the form of a frontend. The e-book User Interface in the form of a Codeigniter framework is based on the Hypertext Pre-processor (PHP). All contents and databases are stored on the server.

3. Results and discussion
Digital library applications that have been made basically contain information about West Java Batik which is presented in the form of an integrated e-book in library management settings. Like a common library, the management aspects are the same as a manual library which is only managed digitally. The most striking difference is seen in digital features available to access information through the pages of digital book, audio book and video book.

The initial appearance as a rule for using the digital library e-book application is shown in Figure 1a-1d.

Figure 1.a. Books ever read.  
Figure 1.b. Favorite book.  
Figure 1.c. Latest book info.  
Figure 1.d. Book search history.

Figure 1a - 1d shows the initial appearance of the digital library application, especially related to batik e-books starting from books that have been read, the favorite books, the latest books, and the book search history about batik. Figure 1.a. describes the reading history page contained in the personal page menu.
which contains a list of books, audio and video that have been selected by the user. Every selected book, audio, and video will appear in the reading history. Figure 1.6 explains the favorite book pages contained in the personal page menu which contains a list of books, audio, video that are frequently chosen by users. Every book, audio, and video viewed by the user will be saved in the list of favorite books. Figure 1.c explains the latest book page contained in the personal page menu which contains information about the book the user has just read. Each book, audio, or video that the user has just read will be saved in the latest book list. Figure 1.d explains the search history page contained in the personal page menu which contains the user's search history. Each book, audio, or video that is searched will be saved in the search history list.

The developed digital library management has the same procedure as the manual library, namely the menus to borrow books, read books (download books), and return books. Users (students) can digitally access all the menus. In particular, the design of e-books integrated in the digital library requires regular maintenance and updates. There are at least three principles that need to be considered in managing digital libraries in order to keep on updating and continuously providing information, namely the need for data archive control and application infrastructure as well as harmonization in information system [11].

In general, the main features found in the digital library, especially the "book room" consists of three features, namely digital pages, audio, and video book rooms. The three characteristics of developed e-books have their own peculiarities. Digital page book room contains a collection of batik books in pdf format that can be read by students through downloading. The contents of the book describe various patterns and philosophical values of batik from various regions in West Java. They are named after the particular region, for example Batik Banjar, Batik Ciamis, and Batik Tasikmalaya (Figure 2).

![Figure 2. Digital page book room.](image)

Figure 3 explains the audio book room page which contains almost the same information about the philosophical value of batik in the form of audio listening for students. This audio book room page provides information in a more dynamic and varied form because information about the philosophical value of batik is heard from batik experts and also recorded from batik craftsmen as batik designers and creators in their respective regions.
Another form of e-book application facility that has been created is the video book room page. This page contains more information in the form of video. Students get more various and interactive information about the details of batik from various regions in West Java. The book room video page also contains impressions on how to make batik. Besides, it makes students feel like visiting the batik industry virtually (figure 4).

The design of digital library applications in the form of e-book requires a separate strategy in the learning process, so that there is optimization of learning outcomes. The most important factor to consider is the need for interactive learning environment that is conducive to a user-friendly human-computer interface [12]. Navigation for the finding information process and students behavior in capturing information from the digital library needs to pay attention to entertainment aspect as the necessity of students in the context of fun-searching of information [13].
4. Conclusion

The design of an e-book application for batik learning is made by utilizing advances in information technology. In addition, this application can provide digital learning resources that can be accessed by students not only in real classrooms, but also in virtual classrooms anywhere and anytime. This application can also provide alternative learning resources that can be accessed by students via desktop, android, or tablet with the adequate internet access. The e-book application integrated in the digital library has the advantage of being more dynamic and interactive compared to regular static books.

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References

[1] Lee B, Fenoff R and Paek S Y 2019 Correlates of participation in e-book piracy on campus J. Acad. Librariansh. 45 3 299–304
[2] Liu Y, Chou P L and Lee B O 2020 Effect of an interactive e-book on nursing students’ electrocardiogram-related learning achievement: A quasi-experimental design Nurse Educ. Today 90 100 104427
[3] Zhang M 2020 Rational actions or institutional actions: A study on the rationality in academic librarians’ decision-making processes when purchasing e-book products Libr. Inf. Sci. Res. 42 2 101018
[4] Widiati I, Riza L S, Ana A, Abdullah A G, Abdullah M and Mubaroq S R 2019 Web-based digital learning application of iconic batik in batik learning at vocational high school J. Eng. Sci. Technol. 14 5 2475–2484
[5] Widiati I, Ana A, Riza L S, Abdullah A G and Mubaroq S R 2020 Multiplatform application technology – based heutagogy on learning batik: A curriculum development framework Indones. J. Sci. Technol. 5 1 45–61
[6] Dore R A, Hassinger-Das B, Brezack N, Valladares T L, Paller A, Vu L and Hirsh-Pasek K 2018 The parent advantage in fostering children’s e-book comprehension Early Childhood Research Quarterly 44 24-33
[7] Korat O, Graister T and Altman C 2019 Contribution of reading an e-book with a dictionary to word learning: Comparison between kindergarteners with and without SLI J. Commun. Disord. 79 90–102
[8] Damico N and Krutka D G 2018 Social media diaries and fasts: Educating for digital mindfulness with pre-service teachers Teach. Teach. Educ. 73 109–119
[9] Owusu-Ansah C M, Rodrigues A D S and Van Der Walt T 2018 Going the full distance: Strategic support for digital libraries in distance education at the University of Education, Winneba in Ghana J. Librariansh. Inf. Sci.
[10] Giannetti F 2019 So near while apart’: Correspondence Editions as Critical Library Pedagogy and Digital Humanities Methodology J. Acad. Librariansh. 45 5 102033
[11] Kováčik J 2018 The national project Digital Library and Digital Archives Alexandria J. Natl. Int. Libr. Inf. Issues 27 3 163–174
[12] Chen C M and Lin S T 2014 Assessing effects of information architecture of digital libraries on supporting E-learning: A case study on the Digital Library of Nature & Culture Comput. Educ. 75 92–102
[13] Wu K C 2015 Affective surfing in the visualized interface of a digital library for children Inf. Process. Manag. 51 4 373–390