



## DEVELOPING LIBRARIKA BASED DIGITAL LIBRARY TO EASE EFL STUDENT ACCESS TO LEARNING RESOURCES DURING THE COVID-19 PANDEMIC

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Received: August 22, 2022

Accepted: Oct 14, 2022

Published: Nov 28, 2022

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### Abstract

This study aims at developing a digital library that makes it easier for students majoring in English Education to access learning resources. This study adapts 7 of the 10 steps of the Research and Development (R&D) design by Borg and Gall (1983). The steps involve research and information gathering, planning, developing the initial product, preliminary field testing, major product revisions, main field testing, and revision of operational products. Data are collected using questionnaires, observation, and expert validation. The study shows (1) the feasibility of digital library products as validated by the experts is in the average score of 3.54 criteria which indicates very good; (2) the registration, cataloging, charging, and discharging tasks are achieved within the average time spent 207 seconds, 192 seconds, and 34 seconds signifying the simplicity and efficiency of the template; (3) the users' response on the attractiveness and convenience use of digital libraries shows that 85.39% of respondents state that the product is very interesting and easy to use. Conclusions from the results of validation, trials, and responses prove that the Librarika-Based digital library is feasible to use and can assist students in supporting lectures, ease the access to catalogs of library collections available at the English Department library, and for sure avoid direct physical contact between members and librarian during the Covid-19 pandemic.

**Keywords:** *Covid-19 pandemic, digital library, Librarika*

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### INTRODUCTION

A library is in charge of managing library materials, both in the form of books and non-book materials that can be used as a source of information by every user (Arif, 2003). Libraries as service providers to users or visitors require fast, easy, and efficient service methods. Library services that are still manual in nature cause various obstacles in service delivery, such as slow service, difficulty in finding collections, and inaccuracy of archived data.

Advances in information technology and computers offer enormous opportunities to support tasks in various aspects of life run smoothly, including the library service. The library as an information management institution is one of the areas of application of information technology that is growing swiftly. One of the features that can be developed in the library sector is a web-based digital library. The use of a website provide convenience for faster access to information both from inside and outside the library.

The access of students majoring in English Education of Teachers Training and Education Faculty of Sultan Ageng Tirtayasa University to the library was initially offline, which was facilitated by the department. Library services in the English Education Department are one of the facilities provided by the department to students and lecturers. The availability of reference books and journals in the department's library is the responsibility of the department in providing and managing them. Currently, the English education department library already has more than 600 titles of textbooks, 5000 e-books, and 50 collections of journals and e-journals that are available and accessible to the students of English education majors.

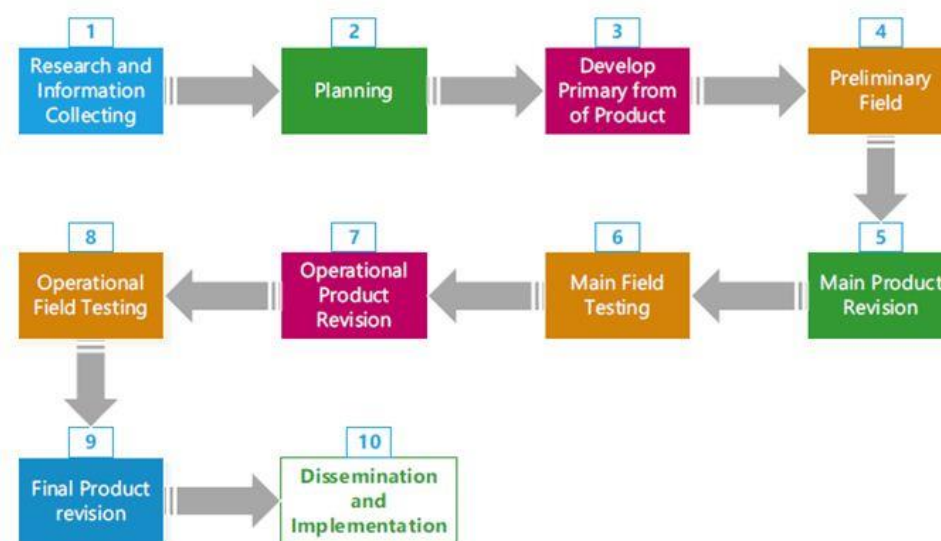
However, the Covid-19 pandemic forced students to study online, including UNTIRTA's English Education Department students. This online learning has various impacts, both on students and lecturers. One of the impacts of online learning for students is their reduced access to learning resources that were originally offline. Managing a library is not easy, especially during the current COVID-19 pandemic. The task of managing a library is not only to tidy up books and serve readers or library collection borrowers, but also to attract readers to be interested and willing to read and borrow books in the library. In addition, during this COVID-19 pandemic, all services that are physical or can cause crowds and have an impact on the spread of the COVID-19 virus are temporarily closed for an indefinite period of time.

Digital libraries are crucial in this pandemic era to support student online learning. Several studies in various parts of the world have discussed how university libraries have responded to the pandemic (Rafiq, et. al., 2020; Mehta and Wang, 2020; Tsekea and Chigwada, 2020). Their research reports on how university libraries are transforming into digital libraries to help students access learning resources. However, in Indonesia, there are not many studies that report how the development of digital libraries is specifically implemented to support learning in a department by considering the various characteristics of students in that department. In this study, the researchers intend to develop a digital catalog from the library collection of the English Education Department and prepare online library services for students. Therefore, some research questions are addressed as follow: (1) how is the feasibility of Librarika-based digital library (2) finding out the quality of Librarika-based digital library to facilitate student access to learning resources during the Covid-19 pandemic; and (3) finding out student responses to online services through Librarika-based digital library during the COVID-19 pandemic.

## **METHOD**

Research and Development (R&D) is applied as the research design. It is the process used to develop and validate educational product which consists of 10 steps, namely: (1) research and information collecting; (2) planning; (3) developing preliminary form of product; (4) preliminary field testing; (5) main product revision; (6) main field testing; (7) operational product revision; (8) operational field testing; (9) final product revision; and (10) dissemination and implementation (Borg and Gall, 2003). The procedure is described in the following figure:

Figure 1. The Procedure of Research and Development



This present study decide to adapt those steps by combining, reducing and modifying some steps. The decision is supported by statement of Akker, et al (1999) that the researchers are permitted to reduce unnecessary steps in designing and developing the research, and modify the steps in achieving the purposes of the research. Therefore, after reviewing various stages in R&D, the researchers decide to modify the research steps and apply 7 out of 10 steps above, namely (1) Research and information gathering (needs analysis). At this stage, students' initial needs for digital libraries are be identified and analyzed carefully; (2) Planning, based on the initial needs analysis, a plan for digitizing the department's library was made; (3). Develop the initial form of the product, Librarika-based initial catalogue development is developed based on the characteristics of students majoring in English Education; (4). Preliminary field testing. The digital library is launched for the first time for limited access by students and some experts to be tested at an early stage; (5) Major product revision, digital library product revised on a limited trial basis; (6) Main field testing, digital library launched for all students to access for field trials; (7) Operational product revision, the product is revised based on the main field trial.

The data in this study are collected through a questionnaire, observation, and expert validation. A questionnaire is used to obtain initial data in the form of analyzing student needs for digital libraries. Then, observation is done to see how library-based digital library services are. Next, a validation instrument sheet is required to test the development product of this digital library.

Preliminary field testing is done to measure the feasibility of library development digital according to users' candidate assessment This user (student) is based on the number of scores obtained later divided by the total number of ideal scores and the result is multiplied by 100%.

$$\text{Assessment score} = \frac{\text{obtained score}}{\text{ideal score}} \times 100\%$$

Then, the score is converted into some categories as seen on the following table:

Table 1. Category of the library quality based on user

<b>Rating scale</b>	<b>Classification</b>
90%-100%	Very interesting
70%-89%	Interesting
50%-69%	Quite interesting
0%-49%	Less interesting

Data obtained from media experts and librarian experts to measure feasibility of digital library product, as well as product trial results are then calculated quantitatively in the form of a rating scale of 1-4 then the value criteria are converted on a scale of 5. While the results of the questionnaire in the form of suggestions and recommendations from the experts are revised for product improvement.

a) Conversion of the ideal score on a scale of 5 can be seen in table 2

Table 2. Category of Product Feasibility (Widoyoko, 2011)

<b>Interval</b>	<b>Criteria</b>
$X > X + 1,8sd$	Very good
$X + 0,6sd < X \leq X + 1,8sd$	Good
$X - 0,6sd < X \leq X + 0,6sd$	Good enough
$X - 1,8sd < X \leq X - 0,6sd$	Fair
$X \leq X - 1,8sd$	Poor

Notes:

$X$  = Total score from validators

$\bar{X}$  = average of ideal score

$$= \frac{1}{2} (\text{maximum ideal score} + \text{minimum ideal score})$$

$sd$  = ideal standard deviation

$$= \frac{1}{6} (\text{maximum ideal score} - \text{minimum ideal score}).$$

b) Percentage calculation of rating scale (Sugiyono, 2011)

$$P = \frac{\text{Collected score}}{\text{Criterium score}} \times 100$$

Note:

$P$  = Percentage of criterium score = highest score x items number x respondents' number

The next test main field testing, it consists of efficiency and attractiveness of the digital library. Measuring efficiency of digital library use is done by seeing time spent in information searching. Based on the test, the ratio from comparison of the time provided (time used based on planning) with time spent by students is obtained. If the ratio of the time spent is more than 1 then the efficiency is high. Attractiveness is obtained from field tests on students as users. Questionnaire response to product is used with a graded scale which has 4 answer choices. Furthermore, attractiveness is classified to be very attractive, attractive, quite attractive, and less attractive.

## RESULTS AND DISCUSSIONS

The first step in developing a *Librarika-based digital library* is need analysis. This step was done to search for information on how important is the product that will be developed. In this stage, the researchers did the needs analysis to determine the specifications of the digital library to be made. The needs analysis was carried out using a questionnaire regarding the needs of English Department students to the learning resources during online learning. From the result of the questionnaire, it is found that the characteristics of prospective users of this digital library are students in semester 4 to semester 8.

The second stage is planning. In this stage, the researchers plan the activities to be carried out. They plan what will be done and its goals. Things to do to formulate plans, objectives, and develop instruments. At this stage, the researchers look for books for the library collections, analyze the students' needs and prepare validation instruments. The researchers also chose a local host for installation and purchased a hosting and website domain on Librarika.

The third stage is developing preliminary form of the digital library. At this stage, the researchers plan what kind of digital library will be developed based on the need analysis that has been initially done. Then it is necessary to clarify information about the designed digital library specifications, so that the product conforms the requirements. In designing digital library first of all prepare collections such as books, journals, magazines, articles, e-journals and e-books to be loaded to the digital library. Collect all materials from various reference sources and use as the basis in developing digital library design. Both administrator and user or member access the digital library through <https://engdept.librarika.com/>. When accessing the library, users will be directed to home page where they can find information about the library and log in menu.

Figure 2. The library home page

English Department Library of UNTIRTA

Home Catalog Search Catalog Database A-Z Top Collections New Collections My Account Ask a Librarian?

English Department Library of UNTIRTA is using Librarika, the free Integrated Library System (ILS) for managing its library online. You can also leverage this wonderful library information platform to manage your organization's library, family library or even your own personal library online.

View All Features Create Free Library

**Member Login**

Username  
labbahasauntirta@gmail.com

Password  
\*\*\*\*\*

Login

**Search Catalog**

Keyword  
[Input Field]

Media Type  
All

Search

**Library Resources**

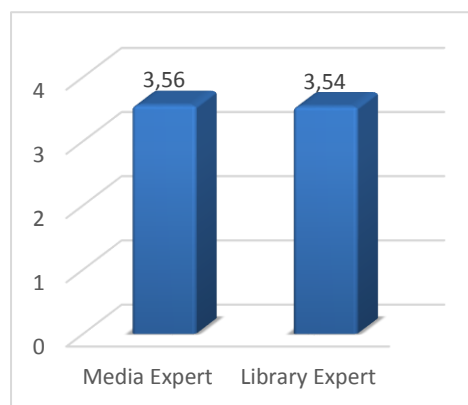
- Database A-Z
- Top Collections
- New Arrivals
- Ask a Librarian
- Librarika

The developed library the reviewed and revised based on suggestions product improvement recommendations. Done product validation by media experts and library expert and then carry out product trials developed for students as digital library users.

The next stage is preliminary field testing of the digital library. The aim of the preliminary field testing is to obtain an initial qualitative evaluation of the library. The field testing or trials consisted of a small group in order to determine the feasibility and appropriateness of the library. The Implementation of digital library involves: (1) explaining how to use digital library for students; (2) inviting students to use digital library as learning resources; (3) after the implementation of the digital library to students completed, then students fill out the questionnaire about the library trial that will be used as the basis for final stage digital library revision.

Validation by the experts is also carried out in this stage. Based on the calculation of validator evaluation and response, it is revealed that average score from the media expert is 3.56 and the library expert is 3.53. Then it is concluded that the final average score is 3.54 which means the digital library is very good.

Diagram 1. The average score of expert validation



The fifth stage is major product revision, the digital library is revised based on a limited trial basis. Product evaluation is always involved as one of the stages in every R&D. It necessary to establish field sites similar to those in which the product will be used when it is fully developed. After the preliminary field testing of the digital library, all data were compiled and analyzed. Accordingly, researchers re-plan the site and then went on making the revision as suggested.

The sixth stage is main field testing. The major aim of the main field testing in R&D cycle is to determine whether the product being developed meets its objectives to be performed. It consists of efficiency and attractiveness of the digital library. Assessment of information search efficiency refers to the use of time needed to find the required information. Tasks that consist of cataloguing and circulation were performed by the participants. ISO 9241-11 (1998) and Misfud (2015) rating scale, task accomplishment performance metrics, time taken for accomplishing the task (task completion time) were used as indicators to measure the usability of cataloguing and circulation of the Librarika collections. As standard for acceptability region, the classification of System Usability Scale (SUS) modified by Farrahi et al (2019) was adapted. 300 seconds (maximum) are given to the participants for cataloguing tasks, 180 seconds for tasks registration, 40 seconds for charging and

discharging. Each participant performed users testing of Librarika, then questionnaire was distributed to the participants to have their responses.

Diagram 2. Participants task accomplishment efficiency of cataloguing and circulation of Librarika

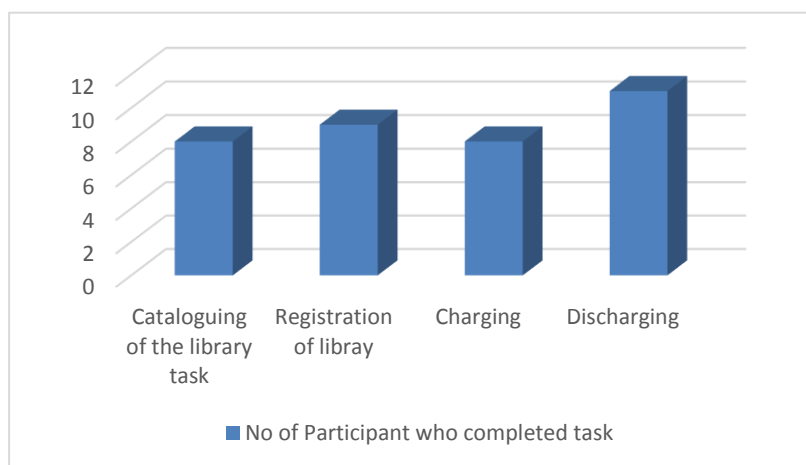


Diagram 2 showed that 8 participants successfully completed task on cataloguing within the given time. A careful observation figured out that some participants who could not accomplish the task get confused and thought it was difficult to navigate from one cell to another. This might probably happen due to the errors committed by the participants when they were entering bibliographic information of the books (Wirasasmiaka and Uska, 2018). Difficulties in task performing signifies the issue of digital library usability. The diagram also showed that 9 participants have completed task on registration. The inability of the participants to complete registration task could be related to unstable or poor internet service and the speed of typing. Moreover, the diagram showed that 11 participants finished the task within the time limit given to them. Similar result on the efficiency of the digital library for educational purpose also reported by Soewardi and Perdana (2019).

The ease of use is contributed by the single nature of charging and discharging templates with only needed information. The classification of system usability scale (SUS) as modified by Farrahi et al (2019) and adapted for acceptability region of Librarika efficiency suggest the classification as: (1) 25%-37.5% is considered poor; (2) 37.6%-52.9% is considered fair; (3) 53%-67.4% is ok; (4) 67.5%-74.5% is good; (5) 75%-85% is excellent and (6) 85.5%-100% is considered best. Charging task was achieved with 80.50% and discharging task 91.50% completion indicates the template simplicity. These findings suggest that Librarika registration templates falls into good criteria, charging template is considered excellent and the discharging template meets best criteria and therefore, circulation module is used efficiently. A similar finding was reported by Thuseenthan et al (2015) that digital library developed for educational program purpose was effectively developed.

A careful observation of users' time spent indicated that library books are catalogued by the participants at different times. This could be caused by participants typing skills and their navigation ability through steps and templates when inputting bibliographic information of an item (s). Too many steps and templates could have also caused the inability of some participants to quickly complete cataloguing task. These of course can affect the librarian productivity as they catalogued and classified library collections. The result also showed that the lowest time of 171 seconds is needed by the participant to accomplish the task and

the highest time of 219 second to accomplish the same task. Additionally, it revealed that the lowest time of 159 seconds and spent the highest time of 201 seconds is needed to accomplish registration task. The difference in the length of time needed by the librarian to register library users could be caused by the different number of data elements required to be filled, number of templates, the participants typing speed and the quality of internet connection. This indicates that librarians who are inputting users' data in slow rate would spend more time to complete registering library users, thus affecting the library circulation productivity and the library users are likely need to spend much time waiting to be registered. Another finding is obtained on the time spent in charging and discharging library collections. The findings showed that the highest time of 52 seconds is needed by the participant to finish charging an item and the lowest time of 27 seconds. A careful observation indicated that not all participants can perform charging task within the given time limit but all participants achieved discharging within the limit of time. This suggest that the templates of charging and discharging on Librarika have minimal data elements to be filled and easy to use, so that the library user can be served efficiently without taking too much time. The result of this observation is similar to Soewardi and Perdana (2019) and R Ilahi et al. (2019) who reported that digital library developed for educational learning program systems has to be efficiently designed and developed.

To find out the attractiveness, the questionnaire was distributed to respondents. Questionnaire used refer to proposed attractiveness criteria by Reigeluth (2009:77), namely the extent to which students enjoy instruction and how much it can motivate students to repeat lessons to achieve the expected condition. Product from a research and development must be in accordance with the needs user and fulfil or achieve the goal of its development. On appraisal aspects of attractiveness and convenience use of digital libraries shows that 85.39% respondents stated that the product is very interesting easy for use.

## **CONCLUSION**

The process of developing Librarika-based digital library at the English Department of FKIP UNTIRTA has gone through various stages in the R & D design. Each stage has been done very carefully so that the product quality will be maintained. This development pays attention to every detail of each stage of the model. the product was validated by at least two experts, namely media experts and library experts. In preliminary field-testing stage and it is revealed that final average score is 3.54 which means the digital library is very good. The efficiency of collections cataloguing was achieved at different times which also affected the productivity. The issues of usability were also identified in cataloguing module since participants identified cataloguing module as burdensome to use with many elements to fill.

The circulation was also considered to be effective: registration is acceptable at level of good, charging template is excellent and discharging template is best. The participants were satisfied with the overall interaction with Librarika even though the efficiency of circulation was achieved at different times. The study has concluded that the digital library of the English Department of FKIP UNTIRTA has good criteria to be used as a learning resource and is expected to help increase students' motivation and interest in the process of finding sources and lecture materials during Covid-19 pandemic.

For further development, it is better to think further about the availability of the following: (1) Web server, namely a server that will serve requests for Digital Library services from students; (2) Database server, which is the heart of a digital library because this is where the entire collection is stored; (6) Proxy server, which is for setting the security of internet usage



from unauthorized users and can also be used to restrict to unauthorized sites. In addition to the availability of the system, it is also advisable that the human resources needed in this information system in the form of a digital library are (1) database administrator, namely the person in charge of the smooth running of the database, (2) network administrator, namely the person in charge of the smooth operation of the computer network; (3) system administrator, namely the person in charge of anyone who has the right to access the system; (4) web master, which is the guardian so that the digital library and all the pages in it can continue to operate so that they can be accessed by students; and (5) web designer, who is in charge of designing the digital library display as well as controlling the contents of the digital library.

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