



Development of a Web-based Physical Education Digital Library

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Abstract

The research titled The Development of Digital-based Library in Improving Educative Knowledge of Students Majoring in Physical Education Study Program at Universitas Sriwijaya aimed to 1) establish a web-based digital library for first-semester Physical Education students at Universitas Sriwijaya and 2) determine the validity, practicality, and effectiveness of web-based digital library for first-semester Physical Education students at Universitas Sriwijaya. The method used in this research was R&D, which described a product in the form of a web-based digital library for first-semester Physical Education students at Universitas Sriwijaya. The research results were material validation, resulting in a validity of 90%, language validation of 75% and media validation of 95%. The main trial resulted in a practicality of 91.63%, and in the operational trial, the practicality resulted in 86.8%, and the effectiveness of the media was included in the "effective" category with a percentage of 83.5%. From the research results, it can be concluded that developing a web-based digital library was valid, practical, and effective. It also can be used as a digital library for first-semester Physical Education students at Universitas Sriwijaya.

How to Cite

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INTRODUCTION

Advancements affect technology and information as a means of education, where learning can be conducted and provided online (Victorian et al., 2021). Interestingly, there are more efforts to advance technology than trying to understand the needs and learning styles of each learner and how they learn. Libraries are expected to be the center of activities to develop interest in reading and reading habits. The development of science and technology in sports has progressed in this era of globalization (Hartati et al., 2019). The technological phenomenon that is currently rife is the use of the internet. The internet stands for interconnected networking, which means a computer network that is interconnected between one computer and another that forms a computer network throughout the world so that they can interact, communicate, exchange information, or exchange data.

A library, according to (Susanti, 2017), is a work unit that stores various kinds of collections of library materials, both printed and non-printed, which are arranged systematically so that users can utilize them as a source of information. In higher education, the library is the «heart» of the university. The library is part of an educational institution that is expected to provide all information in the field of science, both in educational institutions and society (Tabrani & Sopandi, 2022). Libraries can also be interpreted as a form of organization engaged in organizing recorded information in order to meet the needs of the user community (Wince, 2018). A library is a building or room that stores collections of library materials (books or monographs, serial publications, brochures, pamphlets, and non-library materials (Manaf, 2022). According to (Wardani et al., 2023), the library's purpose as an information resource is to provide information to library visitors, either on request or automatically. Libraries are often used as a source of general information and information related to the daily work of users. In addition, the library aims to provide literary information services to the community (Mair, 2022). The collection of library materials in a library is used by users (users and readers), not for sale; that is the library in the old paradigm. According to (Aditya et al., 2023), conventional libraries have weaknesses in their services, such as being limited in physical form so that when the document wants to be used, it is mandatory to enter the library and take it on the other hand the

document if it is being used by someone else then in a limited number makes the person who wants the book will not use the book he wants.

A digital library is a system consisting of hardware and software devices, electronic collections, and services by utilizing various types of information technology. With a digital system, a library has the advantage of saving space, not limited by space and time; collections can be in the form of multimedia, and costs will be cheaper (Lisa Damayanti et al., 2023). Digital library is a library information institution that uses technology in its operations and systems, and the collections in it are also digital to facilitate the dissemination of information because it can be accessed anytime and anywhere by all levels (Julianti, 2023). According to (Senjaya & Susinta, 2022) Digital libraries have technological advantages. Its systems and management have been supported by technology, and its collections are in the form of digital technology. The existence of digital libraries provides solutions to users and offers convenience for users to access electronic information sources with fun tools at limited times and opportunities.

Based on research that has been conducted (Suryani & Madinah Yandriswan, 2023) with the title Digitalization of Web-Based Multi-Level Access Library System. Based on this, if it is related to the previous problem regarding the management of educational technology learning products, it can be concluded that the educational technology department needs an information system that can manage/manage these products. Well-developed information resources fooled by the development of ICT that is increasingly advanced give rise to applications that make access and retrieval systems to information faster. This situation makes access to digital information increasingly important in meeting the community's needs conventionally. This phenomenon has led to a form of information storage, which is then called a repository.

Digital libraries are very important in the Sriwijaya University environment, especially in the Physical Education and Health study program, because digital libraries can help and provide easy access to scientific and technological data documentation in digital form and are easily available. A digital library is a learning media where students, as users, are actively involved in finding the right and accurate information practically. Thus, this digital library can help students overcome problems regarding daily learning activities.

METHOD

In this study, the type of research that researchers used was Research and Development (R&D). The research and development (R&D) method intends to produce certain products and, at the same time, test the effectiveness of these products (Sugiyono, 2014). Research and development (R&D) is a method used to produce certain products and test the effectiveness of these products. The development research procedure consists of two main objectives, namely: (1) developing products and (2) testing the effectiveness of products in achieving goals. The first objective is referred to as the development function, while the second objective is referred to as validation. Thus, the concept of development research is more accurately interpreted as a development effort accompanied by its validation efforts (Francisca et al., 2019) This digital library aims to help students and lecturers find books to support the learning process. The development research procedure, according to Sugiono, can be seen in the figure below.

Technological advances have a huge impact on everything, as well as on the world of education. All levels of education have begun to implement learning using technology, especially at the college level of physical education and health. Physical Education and Health students also have devices such as laptops and smartphones to support the implementation of learning. Thus, the potential of students is to utilize technology well. For this reason, researchers use this potential to develop a digital library for physical education and health students.

The problem is that with the rapid advancement of technology, students prefer to use technology for things outside of learning. Moreover, reading printed books is very rarely done by students because they prefer to use the smartphones they have. So, researchers want to develop a digital library that can be accessed using a laptop, computer, or smartphone, which is expected to be able to help lecturers and students find books to support learning. After finding the potential and problems, we obtained data about the possibility of technology that developed among students at the time of this Sekaran. Issues from this potential also arise so that we can design product designs that suit the needs of students.

Design validation is a process of activities to assess whether the product design, in this case, a new work system, will rationally be more effective than the old one or not. It is said rational-

ly because validation here is still an assessment based on rational thinking, not yet facts in the field. This means that the product design obtained from this research must always be checked and evaluated so that its validity can be known and taken into account. At this stage, two validation processes will be carried out, namely, media experts and library experts.

The product design is followed by validation of the product design, so weaknesses and shortcomings in the design are found. Because of these shortcomings, design improvements will be made to reduce the plan's liabilities. The purpose of design revision is that the correct procedures carry out product development and the results are maximized. The first trial was a small-scale test because the sample used in this trial was only a small part of the entire research sample. This small-scale trial aims to determine whether the product can be maximized in its use and as a reference for further revisions. Product testing on a limited scale will produce data that can be used to see the development and feasibility of the product. The data obtained will be an evaluation to improve product quality.

This usage trial is a test with the entire sample to find out the product that has been revised after the previous product test and whether it is good if the test is carried out using a large scale. After holding a large-scale trial of use, it can be assessed what shortcomings must be corrected before heading to the final production stage. The data obtained from the large-scale usage trial is an evaluation for researchers to improve if there are still weaknesses and deficiencies that must be corrected. In this case, the revised product will continue with the final production stage.

The data analysis obtained in this study is grouped into 3, namely the analysis of validity, practicality, and effectiveness. Learning using media and learning resources is carried out by the competencies of the material that has been prepared. After the implementation of learning media, the analysis of products developed by data analysis techniques is carried out.

Table 1. Description of validity

Value	Criteria
$3,5 \leq Va \leq 4$	Highly valid
$2,5 \leq Va < 3.5$	Valid
$1,2 \leq Va < 2,5$	Fairly Valid
$0 \leq 1,5$	Invalid

Description Va = the average value of validity of all validations. (Source: Astiting, 2018)

Table 2. Practicality Assessment

Interval	Kategori
$3,2 < x$	Excellent
$2,4 < x \leq 3,2$	Good
$1,6 < x \leq 2,4$	Simply
$0,8 < x \leq 1,6$	Less
$x \leq 0,8$	Very Less

Convert the results of the percentage of learning implementation into qualitative values based on the 5-scale assessment criteria adapted from Nana Sudjana (2015) as in the following

Table 3.

Table 3. Criteria for Learning Implementation

Percentage of Applicability	Category
$k \leq 90$	Excellent
$80 \leq k \leq 90$	Good
$70 \leq k \leq 80$	Simply
$60 \leq k \leq 70$	Less
$k < 60$	Very Less

RESULTS AND DISCUSSION

The research conducted produced a product in the form of a web-based digital library containing physical education books. This research begins expert validation sheets, material expert validation sheets, and language expert validation sheets. After validating the research instruments, the researchers revised the parts that needed to be used as teaching resources are usually available in the library. improved on the research instruments. Textbooks Technological advances in the 4.0 era make it easier for lecturers and students to find learning books through this web-based digital library with researchers designing research instruments that will be used for the research process, which research instruments must be validated first. The instruments that need to be validated are media

Research and Information Colletion

The following is a description of the results of the needs analysis and field findings obtained by researchers. There are several important points that it is necessary to develop a web-based panca-kes digital library; more than 30% of students strongly agree, 64% agree, 3% disagree, and 3% strongly disagree. A web-based digital library needs to be developed to help 1st-semester students of FKIP Unsri.

Planning

The first step in product development is the initial stage of a web-based digital library based on courses strengthened by 1st-semester undergraduate students of the Physical Education and Health Study Program, Faculty of Teacher Training and Education, Sriwijaya University. After completing the initial product development, the next step is to conduct validation consisting of material validation, language validation, and media validation.

Product step in making a Development

The initial web-based digital library product is to rent hosting and domains from the service provider Rumahweb. And get a website address, namely www.epenjaskes.com. Researchers began building a digital physical education library using WordPress and custom-made plugins.

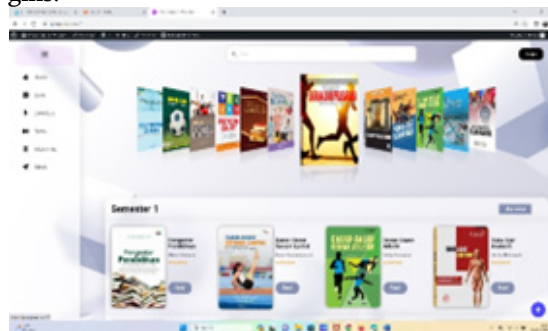


Figure 1. Physical Education Digital Library Product

After the initial product is compiled in the form of a web-based digital library of physical education, it is then validated by three experts in related fields, including media experts, material experts, and language experts. The following are the results of validation from these experts.

Table 4. Results of Material, Language, and Media Validation

Validation	Assessment Results	Category
Material Validation	3.6	Highly Valid
Language Validation	3.00	Valid
Media Validation	3.8	Highly Valid
Average	3.47	Highly Valid

From the observations of the observers and observation assistants (media lecturers), several things must be considered and improved on the front page of this digital-based library that looks less responsive and less attractive so that re-

visions are made to the front page of this revised digital-based library that is more attractive and more responsive.

Small-Scale Product Trial

The main small-scale trial was conducted to measure the practicality and effectiveness of the web-based digital library made by the researcher. The initial trial was conducted on 20 students of the first semester of physical education at the Faculty of Teacher Training and Education, Sriwijaya University. Researchers asked respondents to answer the items of the web-based digital library practicality research instrument.

Table 5. Practical and effective main trial results

Testing	Percentage (%)	Category
Practical Test	91.36 %	Excellent
Effective Test	89.8 %	Excellent

Large-Scale Product Trial Results

In a large-scale trial of physical education students from the Faculty of Teacher Training and Education, Sriwijaya University, totaling 40-70 students. The purpose of this assessment is the same as the initial trial and the main trial, which is corrective in nature, trying to find various errors and deficiencies that exist in the web-based digital library for immediate updates, corrections and improvements.

Table 6. Large-scale trial results

Testing	Percentage (%)	Category
Operational Tests	85 %	Excellent
Operational Test of Effectiveness	85.8 %	Excellent

Final Product

The resulting product is a web-based digital library for physical education and health students at Sriwijaya University where the library contains lecture books that have been arranged according to needs. Articles written from research results, then in the initial part of the results and discussion of research are preceded by a description of the implementation, namely (1) a description of the schedule of research activities, (2) the stages of making the product, (3) the results of the valid test and product trials (4) ending with a description of the process and product results.

CONCLUSION

The results of this study developed a web-based digital library for 1st-semester physical education students at the Faculty of Teacher Training and Education, Sriwijaya University.

From the research results, this digital library is by valid and practical criteria. Validation by several validators showed an average score of 5.26%, included in the very valid category. The average score for the assessment aspects is 3.6 for material, 3.00 for language, and 3.8 for media. This shows that this digital library contains books by the courses of 1st-semester students of Penjaskes, Faculty of Teacher Training and Education, Sriwijaya University, and is very valid in all three aspects.

The practicality and effectiveness of web-based digital libraries can also be considered practical and effective after research on 1st-semester pancakes students. Based on the results of research on the feasibility, practicality, and effectiveness of digital libraries that have been carried out, this web-based digital library is feasible to be used by 1st-semester students of the Faculty of Physical Education.

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