

Needs Analysis of E-Flipbook as Digital Literacy Media in Conservation Biology Learning

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Received: August 21, 2023

Revised: September 30, 2023

Accepted: October 25, 2023

Published: October 31, 2023

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DOI: [10.29303/jppipa.v9i10.5060](https://doi.org/10.29303/jppipa.v9i10.5060)

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Abstract: The purpose of this study was to analyse the level of need for learning resources or teaching materials for students in the Digital Age and to find out opportunities for media development with e-flipbooks in learning that can be used as a source of digital literacy. This research is descriptive research with a survey method. Descriptive research is used to understand and obtain a picture that occurs in the field as it is without making changes or interventions to the research target. The results of interviews and questionnaires of students and lecturers stated that a digital-based literacy media is needed that can increase student learning independence and can eliminate student boredom in learning including the development of e-flipbook teaching materials. In addition, lecturers and students need a digital-based literacy media in Conservation Biology Learning.

Keywords: Digital Literacy Media; E-Flipbook; Needs analysis

Introduction

Learning innovation is needed in the world of education in the era of revolution 4.0. Educators are required to master technology to improve the efficiency and effectiveness of the learning process where the utilisation of information and communication technology in learning is by providing digital-based learning media to support the teaching and learning process.

Entering the digital era like today, education needs to adjust to the development and advancement of technology, where the potential of this technology can create new learning spaces needed to facilitate learning activities. The utilisation of technology in education has been able to reform the learning process. In addition, technology has been able to create various opportunities for individuals to learn and access learning resources remotely (Sari & Atmojo, 2021).

Digital learning as the delivery of learning by utilising technology to increase the effectiveness of knowledge and skills, needs to be applied in addressing

the demands of 21st century education. One of the learning technologies needed today is learning media that can be used as a source of literacy in the learning process. Many learning media are developed for self-learning today, but to find a really good media so that the learning process becomes effective, interesting and interactive and fun is a problem that needs to be solved. (Hamid & Alberida, 2021).

In the field of learning, the presence of learning media, for example, has been felt to help educators in achieving their learning goals. In this era of technology and information, the utilisation of technological sophistication for learning purposes is no longer a new thing (Pinar, 2019). The existence of technology is also able to make the scope of learning for students and educators unlimited, because with technology teaching and learning activities can be done outside the classroom which of course is with the guidance of educators and aims to make students become more independent in solving problems in learning (Muthoharoh & Sakti, 2021).

How to Cite:

Lestari, P.I., & Nur, R.A. (2023). Needs Analysis of E-Flipbook as Digital Literacy Media in Conservation Biology Learning. *Jurnal Penelitian Pendidikan IPA*, 9(10), 8679–8685. <https://doi.org/10.29303/jppipa.v9i10.5060>

One of the benefits of using technology in the learning process is the use of flipbook teaching materials, where flipbook teaching materials are digital books used by educators in delivering learning materials. According to Wibowo & Pratiwi (2018) flipbook teaching materials can improve the quality of the learning process, meet learner satisfaction, service quality, and are very feasible to use as a tool in the learning process because students are more interested and eager to learn using digital-based teaching materials such as these flipbook teaching materials.

Teaching materials have various forms, one of which is digital teaching materials in the form of flipbooks. Flipbook teaching materials are digital books that have pages like printed books but in this flipbook there are animations, videos, images and audio so it is very different from printed books in general. The flipbook application also makes teaching materials more interesting and interactive for students and can be a facility for educators in delivering learning material and achieving a learning goal, and to achieve these goals, facilities and various learning resources are needed, one of which is flipbook-based teaching materials.

Conservation Biology learning requires students to look for literacy sources regarding environmental conservation throughout Indonesia and even outside Indonesia. So that this learning needs learning innovation in the form of virtual media that can be used as an interesting literacy source and is able to provide learning motivation. The opportunity to use Flipbook-based digital media shows very positive results when applied in the learning process. Some studies show that flipbooks in learning can motivate learning and attract attention to learning and are proven to be effective in the learning process and can help them in learning the materials studied (Kumalasani & Eilmelda, 2022). Similar research states that flipbooks in addition to motivating are also very necessary to be developed in learning (Hadiyanti, 2021).

The results of observations on FKIP UMMA biology students that the teaching materials used are PPTs sourced from the internet, sources of literacy other than books students also take literature from personal blogs which of course have no clear validity. Observations of teaching materials and media used by lecturers generally use PPT, GCR, G-meet as learning media during the conservation biology lecture process.

Based on the various descriptions above, it is important to make innovations in the learning process, especially in delivering material. The opportunity to use Flipbook-based digital media shows very positive results when applied in the learning process. Therefore, this study aims to identify the need for opportunities to develop teaching materials that are integrated with

flipbook-based technology in the hope of increasing students' opportunities to improve digital literacy skills.

The purpose of this research is to analyse the level of need for learning resources or student teaching materials in the Digital Age and to find out media development opportunities with e-flipbooks in learning that can be used as a source of digital literacy. While the technology offered in this research is E-flipbook as a digital literacy media that can facilitate students in learning.

The educational process in the era of rapidly developing information and communication technology as it is today makes it possible to optimise learning in the form of application and development of technology-based learning such as Flipbook which is grammatically interpreted as a book flipping (Ristanto et al., 2020). The development of technology innovates this Flipbook concept digitally so that it becomes a three-dimensional e-book, with the display of pages that can be opened like reading a book on a monitor screen (Ladamay et al., 2020). Digital flipbooks also overcome the challenges of distance learning so that they can be accessed anytime and anywhere. Several studies have shown that flipbooks in learning can motivate learners to learn and attract attention to learning and are proven to be effective in the learning process and can help increase students' motivation in learning, and can help them in learning the materials studied (Roemintoyo & Budiarto, 2021).

Flipbook media is a visual media in the form of sheets of paper arranged like a calendar with a size of 21 x 28 cm which is tied at the top. However, along with the advancement of science and technology, flipbooks can now be presented in a digital format in which there are multimedia elements, and navigation that makes users more interactive with the media. In this study, researchers developed conventional flipbooks in the form of paper sheets into digital flipbooks. Digital flipbook is a form of presentation of self-learning materials that are arranged systematically into the smallest learning units, to be able to achieve certain learning objectives presented in a digital format in which there are multimedia elements and navigation that make users more interactive with the media (Saparina et al., 2022).

This research is supported by several previous studies including in 2022 Wicaksono and Kuswanti stated that with a flipbook on the material of the Excretory System in Humans to train digital literacy skills of class XI high school students which is categorised as very valid and very practical for use in distance learning (Wicaksono & Kuswanti, 2022). Wahyuni et al's research in 2022 stated that the use of android-based mobile learning module is effective in improving students' digital literacy. This is because the

android-based mobile learning module has been adapted to the needs of students so that it can attract students to use it (Wahyuni et al., 2022). The results of Angelina C. O. Rosari Lake's research in 2023 stated that the Flipbook learning media developed by researchers is very feasible to be used by students as a supporting learning media to improve the cultural literacy of East Nusa Tenggara students (Lake et al., 2023). Ulfanur et al's research in 2022 stated that students' learning outcomes increased after using flipbook maker-based learning resources that support as learning media that will help in the learning process because this application is not fixated only on writing but can be included in a motion animation, video, and audio that can make an interesting interactive learning media so that learning becomes not monotonous (Ulfannura, 2022).

Method

This research is descriptive research with a survey method. Descriptive research is used to understand and obtain a description that occurs in the field as it is without making changes or intervening in the research target. The research technique was carried out through interviews assisted by online and offline questionnaires to analyse the needs of Flipbook-based digital teaching materials in conservation biology courses. The participants in this study were Biology education study programme students of FKIP UMMA who had taken conservation biology courses, namely students in semester IV, VI, and VIII and lecturers who taught conservation biology courses. This research data collection instrument is in the form of a questionnaire sheet to analyse the needs of lecturers and student needs analysis questionnaires.

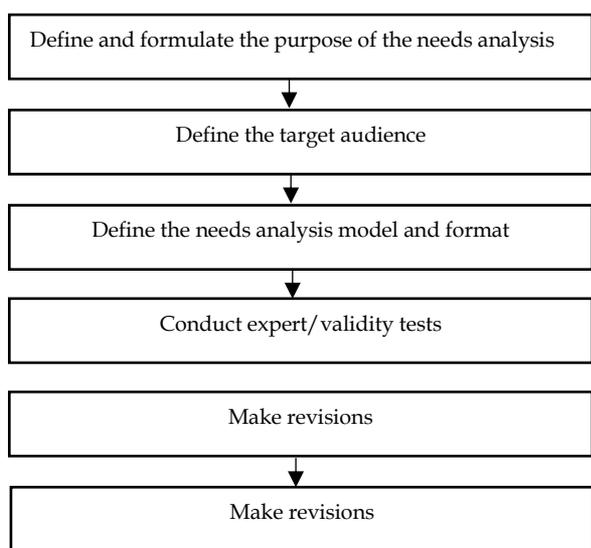


Figure 1 Research Flowchart

Data analysis was carried out in the form of qualitative data analysis and quantitative data analysis from the questionnaire results. Questionnaires are written in the form of a Likert Scale and qualitative statements with instruments in the form of check lists and interview questions. In summary, the stages of this research are described through the following flowchart (Figure 1).

Processing of questionnaire data regarding learning needs analysis for each item, as follows (Malina et al., 2021):

$$p = \frac{f}{n} \times 100\% \tag{1}$$

- P = Percentage of each category for each item
- F = Number of object responses
- N = Number of all respondents

Result and Discussion

Description of Student Needs Analysis of E-Flipbook as Digital Literacy Media in Conservation Biology Learning

Analysis of the need for literacy media is not only sourced from lecturers but based on student opinions as well. Therefore, to find out the level of student needs for E-Flipbook as a Digital literacy media in Conservation Biology Learning, a questionnaire was given to 28 students of the Biology Education study programme at Maros Muslim University who had attended lectures in Conservation Biology courses. The results of the literacy media needs analysis questionnaire described in table 1 only show some items that have a high frequency and percentage of student responses as a basis for development. The following is a description of the results of the questionnaire analysis that has been filled in by students.

Based on Table 1, some information can be obtained as an initial basis in developing E-Flipbook as a Digital Literacy Media in Conservation Biology Learning. In the first question, from a total of 28 student respondents, there were 25 students or 89.29% who stated that they did not feel difficulties in learning conservation biology. This means that students have good learning motivation. However, the difficulties experienced by students in understanding Conservation Biology Learning that there is a discrepancy between what they expect and the reality that occurs in the field. Students' difficulties are caused by the lack of reading sources, the literacy media used are only PPT and electronic books which are not appropriate according to the characteristics of the material. The sixteenth question revealed that students' difficulties in understanding the material were due to: teaching materials used by lecturers are less interesting, the preparation of material

for discussion sometimes there is material that is difficult for students to get, or sometimes the material that students get is different from the literacy media available to lecturers, lecturers who teach are less active

in sharing information about conservation biology with students in the class, lecturers more often use malakah and ppt.

Table 1. Frequency and Percentage Distribution of student needs in the aspect of the need for teaching materials as literacy media

Question	F	Percentage
Do you have any difficulties in learning conservation biology? No	25	89.29%
What methods do lecturers use in conservation biology lectures? Lecture, Discussion, Co-operative (Group)	13	46.43%
What teaching materials do lecturers use in conservation biology lectures? PPT	26	92.86%
Platforms provided/used by lecturers in conservation biology lectures? *Whatsapp, Google Classroom, Google Meet, Canva	23	82.14%
Of the platforms you use, which is the most convenient and effective? Whatsapp, Google Classroom, Google Meet	11	39.29%
What literacy media can you use? Smart Phone/Computer/PC, Social Media (WA, Line, FB, IG, etc.), Google Workspace (gmail, gmeet, GCR, etc.), websites, Internet, E-books	21	75.00%
How often do you use the literacy media? Often/Sufficiently	22	78.57%
Do you know about electronic books (e-books)? Yes	25	89.29%
How often do you use electronic books (e-books)? Rarely/Little	17	60.71%
Does using e-books make you independent in finding digital literacy resources? Yes	25	89.29%
Have you ever heard of an e-flipbook (modified e-book)? Rarely/ Less	16	57.14%
Have you ever used e-flipbooks as literacy media? Rarely/Little	14	50.00%
In the process of learning conservation biology, are you interested in using electronic books or e-flipbooks (modified e-books)? Yes	25	89.29%
Do you agree if Lecturers / educators develop teaching materials with e- flipbook? Yes	28	100.00%
If the lecturer develops flipbook teaching materials on conservation biology material, are you interested in using this media as a digital literacy resource? Yes	27	96.43%
Do you experience difficulties with the use of teaching materials, learning methods, and literacy media applied by lecturers in learning conservation biology? No	22	78.57%
What teaching materials do you need as literacy media in the conservation biology course? Digital book, PPT	14	50.00%
What hindering factors do you find in learning conservation biology? Network and Literacy resources	16	57.14%
Do you think the conservation biology lecture process with f-lipbook can help with learning difficulties? Yes, it can help	21	75.00%

From the results of interviews with students, information was obtained that the problems described showed an alignment between the teaching materials needed and the inhibiting factors that students find in learning conservation biology where students really hope for digital-based teaching materials or learning resources that can provide convenience in reading and understanding them, not only that students also hope for a modified e-book in the form of an e-Flipbook that contains complete material and has an attractive appearance so that students have interest and motivation to learn the material. From these interviews it is also evident that students really need the development of digital-based literacy media because according to them this is a new digital literacy media for them so they hope that this media can be used as a trusted reference so that students have a reference learning resource as expected. With E-flipbook Students

can easily read teaching materials or books physically (Sugianto et al., 2017).

Overview of E-Flipbook Lecturer Needs Analysis as Digital Literacy Media in Conservation Biology Learning

As a first step to determine the level of lecturer needs for E-Flipbook as a Digital Literacy Media in Conservation Biology Learning, a questionnaire was given to 5 lecturers who had taught Conservation Biology courses to Maros Muslim University students, especially in the Biology Education study programme. The results of the model needs analysis questionnaire described in table 2 only show some items that have a high frequency and percentage of lecturer responses as a basis for development. The following is a description of the results of the questionnaire analysis that has been filled in by lecturers.

Tabel 2. Frequency and Percentage Distribution of lecturers' needs on aspects of the need for teaching materials as literacy media

Question	F	Percentage
Have you ever taught a Conservation Biology course? Yes	4	80%
Do you experience difficulties in learning conservation biology? Yes	3	60%
What methods do you use in conservation biology lectures? * Lecture, Discussion, Lecture, Discussion, Co-operative (group), Demonstration	4	80%
What teaching materials do you use in conservation biology lectures? * PPT	5	100%
Where are the teaching materials that you use? Download from the internet, and make your own	4	80%
Platforms that you provide/use in conservation biology lectures? Whatsapp, Google Class Room, Google Meet	5	100%
Of the platforms you use, which is the easiest and most effective? Google Class Room	4	80%
What literacy media do you use in conservation biology lectures that make it easier for students to learn independently? Smart Phone/Computer/PC, Google Workspace (gmail, gmeet, GCR, etc.)	4	80%
Do you often use the literacy media in learning conservation biology? Always	2	40%
Have you ever used electronic books (e-books) in learning conservation biology? Rarely/ Less	4	80%
Have you ever heard of an e-flipbook (modified e-book)? Rarely / Less	3	60%
Have you ever used e-flipbooks as literacy media (e-book modification)? Never	3	60%
In the process of learning conservation biology, are you interested in using electronic books or e-flipbooks (modified e-books)? Yes	5	100%
Do you experience any difficulties with the use of teaching materials, learning methods, and literacy media applied to conservation biology learning? No	3	60%
What teaching materials do you use in learning conservation biology? Power point	2	40%
After using the teaching materials, how are the students' abilities? Good	5	100%
Have you ever used flipbook teaching materials as digital literacy media? Not yet	5	100%
What do you think about e-flipbooks as digital literacy media? Good and worth trying	3	60%
What do you think if the development of flipbook teaching materials as literacy media in conservation biology courses is carried out? Strongly agree	5	100%

Based on table 2, some information can be obtained as an initial basis in developing E-Flipbook as a Digital Literacy Media in Conservation Biology Learning. In the first question, from the total respondents of 5 lecturers, there were 3 lecturers or 60% who stated that they felt difficulties in learning conservation biology. This means that lecturers have problems in learning. Lecturers' difficulties are caused by the learning methods used are sometimes monotonous and do not involve interesting and easy-to-understand reading sources, teaching materials used are only in the form of PPT so that students have limitations in understanding the material studied. In the fifth question, it was revealed that there were 4 lecturers or around 80% of the lecturers' difficulties in providing learning because the teaching materials used were mostly only downloaded from the internet so that the provision of material was not in accordance with the characteristics of students.

If we look more deeply at the lecturers' answers to questions 10, 11, 12, and 17, it appears that there are 3 lecturers or around 60% rarely and even some have never used electronic books (e-books) such as e-flipbooks in learning conservation biology in particular. Meanwhile, if you glance at the lecturers' answers to questions 13, 18 and 19, it is obtained information that lecturers strongly agree in developing e-flipbooks (modified e-books) as literacy media in biology learning. Of the 5 lecturers or around 60% stated that electronic

books (e-books) in the form of E-Flipbooks as Digital literacy media are good and worth trying to develop. An indication of the need for a development of E-Flipbook as a Digital literacy media can also be read in question 19 where as many as 5 lecturers or 100% of lecturers stated firmly that they strongly agree with the development of E-Flipbook as a Digital literacy media. Based on some of the questions and answers given by lecturers, it gives an indication that the development of E-Flipbook as a Digital Literacy Media in biology learning, especially in conservation biology courses, is needed by lecturers.

Based on the results of interviews with lecturers related to opportunities for developing e-flipbooks as literacy media in learning, information was obtained that all respondents gave good responses and agreed with the development of the e-flipbook with the hope that with this literacy media, students' ability and independence to understand a material will be easier and no longer depend on the lecturer's explanation, and even lecturers hope that students will be more active in expressing opinions during discussions because they have references that are in accordance with what is expected.

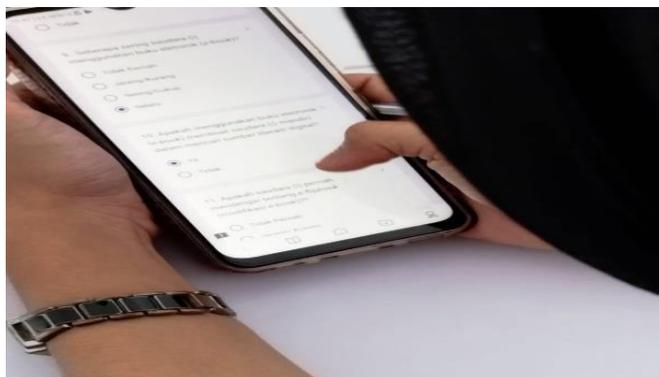


Figure 2. Online data collection



Figure 3. Offline data collection

The results of this study are in line with research conducted by (Herdiawan & Triyono, Wibowo, 2022) that the school that is the research site at Al Azhar Islamic Junior High School is in dire need of teaching materials in the form of flipbook-based e-modules because it can facilitate independent learning and make it easier for students to access material independently outside of school hours. Likewise, research conducted by (Farida & Ratnawuri, 2021) concluded that flipbook media needs to be developed in statistics courses, especially for online learning because based on the questionnaire results, 95% of students need teaching materials in the form of flipbooks. As well as research (Endaryati et al., 2021) concluded that the PBL-based E-Module flipbook as an effective solution for 21st century science learning is in accordance with the character of the material and the learning style of 21st century students as digital natives.

For this reason, researchers argue that the use of e-flipbooks as digital literacy media in Conservation Biology learning is needed in today's learning.

Conclusion

Based on several needs analysis activities, it can be concluded that lecturers and students need a digital-based literacy media in Conservation Biology Learning. This is known from the results of interviews and student and lecturer questionnaires which state that a digital-

based literacy media is needed that can increase student learning independence and can eliminate student boredom in learning.

Acknowledgments

The authors would like to thank the Directorate of Research, Technology and Community Service, Ministry of Education, Culture, Research and Technology and FKIP Universitas Muslim Maros.

Author Contributions

Pertiwi Indah lestari: drafting the original manuscript, results, discussion, methodology, conclusion; Rizki Amalia Nur analysing, proofreading, reviewing

Funding

This research was funded by the Directorate of Research, Technology and Community Service, Ministry of Education, Culture, Research and Technology in 2023.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper and the Funders had no role in the design of the study; in the collection, analysis, or interpretation of the data; in the writing of the manuscript; or in the decision to publish the results.

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