



## Literature Review of Learning Media Development using 3D Pageflip in Physics Learning

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### Article Info: Abstract

Sent:  
26 June 2021  
Revision:  
5 Sept 2021  
Accepted:  
10 June 2022

### Keywords:

Learning Media,  
3D Pageflip

*Technological progress in the 21st century is progressing very rapidly, one of the fields that has an impact on the development of technology and knowledge is in the field of education. Where the development of technology is increasingly developing interactive multimedia-based media that can assist teachers in delivering material to students and students also more easily understand the material being taught. One of the media development software that has an effective, easy and attractive appearance to use is 3d pageflip. This research is a descriptive study with data analysis techniques using percentages which are then analyzed by descriptive techniques. This research refers to 10 articles that are relevant to the research, namely media development with 3d pageflip. The results of this study are obtained that the average articles developed already have valid criteria, the types of teaching materials that are mostly developed with 3d pageflip are EBooks and the materials developed are different from 10 articles there are 9 different materials developed.*

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## INTRODUCTION

In the 21<sup>st</sup> century, technological developments have made very rapid progress. Many sectors in life are helped by technological developments, one of which is the field of education. In the world of education, this technological development is very helpful in the learning process in the classroom. The development of technology and knowledge encourages educators to innovate or improvise in carrying out learning activities in the classroom in achieving the objectives of learning. According to Arsyah (in Milya Sari, 2018) said that the development of technology and science encourages renewal efforts in the use of technological results in the learning process [1]. Updates in learning have made new innovations in delivering learning materials born so that a success rate in learning is achieved. To achieve it all, effective communication between learning components is also needed. One of the forms of effective communication is using learning media [2].

Science learning is learning related to phenomena from nature. Science is part of education that not only contains concepts, but also the process of discovery. Science learning is very relevant to use learning media as a forum for providing abstract material. Science itself is divided into several branches of science, one of which is physical science. Physics is a science that studies matter and energy and the relationship between the two [3]. In physics learning, there are abstract concepts that cannot be taught directly, for example, atomic physics, quantum physics, and solid matter physics [4]. Physics learning that contains phenomena about nature and also the many concepts that are abstract, so in facilitating and assisting teachers in delivering this abstract material, an effective

communication tool is needed that can be used in delivering material, namely the use of learning media.

Learning media are tools used to help and serve to explain the material in part or the alignment of the material that is difficult to explain verbally. So that the material will be easier to explain with learning media. There are several benefits, including that it can increase students' motivation or interest in learning a lesson [5]. In addition, it can increase creativity and understanding of concepts toward the material. Benefits can reduce misconceptions, increase students' interest in learning, provide stimuli related to real experiences, and make lessons more profound and diverse[6]. There are many benefits of using this learning media, where the media is also used as a communicative means between teachers and participants in its own hands and also the use of media can bring deeper learning and can bring students more interested in learning activities and can increase understanding from students as well.

There are a lot of learning media, namely, print learning media and multimedia-based learning media. In situations in the field where teachers delivering material are more likely to use print media such as books and LKS which make students get bored faster and learning is also considered very uninteresting for students so that it can reduce student interest and student motivation in learning. It should be in the delivery of learning materials in the learning process that teachers should use multimedia-based interactive media where the use of this media can make students interested in the learning process and also increase student motivation and their interest in a lesson so that learning will be more meaningful and achieve the objectives of the learning. There are a lot of learning media that exist today, electronic-based media that can make it easier for teachers to deliver material and also make it easier for students to understand the material. One of the media that is packaged attractively and easily in the process of using it is 3D PageFlipp [7].

A 3D page flip professional is software that can be used to create teaching materials in the form of digital e-books with 3D effects. Where this software can turn teaching materials in the form of PowerPoint into flash 3d ebooks. With this 3d flash teaching material, it will provide a new nuance in the learning process in the classroom because teachers and students can read at various angles with 3D effects. This software also has several settings such as magazines, documents, E-Papers, and others [8]

According to [5] the advantages of this 3D Pageflip Professional media include: (1) Flipbook media can be folded (back and forth) like a real book. When turning a page, it looks like it moves like turning a book, so it causes a different and more interesting sensation. (2) On each page of the flip book, an animation is inserted that supports learning materials in the form of videos or flash animations. (3) E-books are interactive learning media in conveying information because they can display multimedia illustrations.

According to [5] the disadvantage of this 3D Pageflip Professional media is that students are not used to reading by staring at the glossy light coming out of the monitor of the e-book reading tool will exhaust the vision for some students.

From the explanation above, the author is interested in conducting a review of physics education articles related to media development in physics learning using a professional 3D page flip. Therefore, researchers will conduct research entitled "Literature Review of Media Development using 3D Pageflip Media in Physics Learning". The purpose of this study is to review the validity, the types of teaching materials used and what materials are used in physics learning.

## **RESEARCH METHOD**

This research is a literature review research which uses the descriptive review method. Studies with the descriptive review method are quantitative, where usually codification of the object to be studied is carried out based on publication time, methodology, theory, or results which then carry out frequency analysis of the codification results. The data collection technique used is a documentation technique. Documentation techniques are a way of collecting data through written relics such as archives related to research problems [12].

The data analysis technique uses a descriptively analyzed percentage technique. The equation used is as follows:

$$P = \frac{x}{\sum X} \times 100\% \tag{1}$$

## RESULTS & DISCUSSION

This study refers to 10 articles that are relevant to the problem being studied. Where the problem is about the development of learning media with 3D page flip in high school physics learning. In media developed from several previous research results including the level of validity of media development developed in physics, learning is shown in table 1 distribution of learning media development research samples[9].

**Table 1.** Distribution of learning media development research samples

No	Code	Validity
1.	A1	Very Valid
2.	A2	-
3	A3	Valid
4	A4	Very Good
5	A5	Very Valid
6	A6	Very valid
7	A7	Strongly Agree
8	A8	Very valid
9	A9	Valid
10	A10	Very valid

In the analysis of media development with 3D page flips at the level of product validity test, products that are categorized as less than very valid are code articles A1, A5, A6, A8, and A10. And the products of valid categories are A3 and A9 coded articles. The A4-coded article in the test uses an analysis with a calculation of the perception clause using a Likert scale with a range of points 1-4 and the percentage of scores obtained are then used to interpret the Likert scale score[10]. Article A7 uses descriptive statistics where the presentation of data in the form of percent for each score category, the data is presented in the form of a table or frequency distribution, and the presentation of data in a visual form such as bar charts, histogram circles or polygons, so that in testing the validation results are categorized as very agreeable from 3 validators And in testing the validity of the product, the product developed on average has a high validity value this shows that the product developed is already worthy of use in the learning process at school[11].

The research also looked at the development of learning media, and what kind of material many researchers use in this 3d page flip software. In table 2, data on the type of teaching materials developed using this 3d page flip media is presented.

**Table 2.** Data on types of teaching materials developed using 3D

No	Type Of Teaching Materials	Article Code	Total	Percentages
1.	E-Book	A3,A5,A6,A8,A10	5	50%

No	Type Of Teaching Materials	Article Code	Total	Percentages
2.	E-Modul	A1,A2,A4,A9	4	40%
3	E-LKPD	A7	1	10%

Of the 10 articles referred to, there are several types of teaching materials developed, namely E-books, E-modules and E-LKPD. Where in the E-Book there are about 5 articles that develop E-books using software from this 3d page-flip. Then from the E-Module, 4 articles do development with 3d page flip-based software. While in E-LKPD there is one article that uses software from 3d page flip in its development.

**Table 3.** Distribution of learning media in terms of learning materials

No	Subject Matter	Article Code	Total	Percentages
1.	Fluid Static	A1	1	10%
2.	Newton's Law	A2	1	10%
3.	Particle Dynamics	A3	1	10%
4.	Kinematics of Motion	A4	1	10%
5.	Temperature and Heat	A5	1	10%
6.	Optical Instruments	A6	1	10%
7.	Rotational Dynamics	A7, A10	2	20%
8.	Quantum Physics	A8	1	10%
9.	Momentum and Impulse	A9	1	10%

And also from some of the articles referenced in the development of 3d-based media page flips the material developed varies greatly such as Static Fluids, Newton's Law, Particle Dynamics, Kinematics of Straight Motion, Temperature and Heat, Optical tools, Equilibrium, and Rotational Dynamics, Quantum Physics and Momentum and Impulses[13]. Of all these materials on the material equilibrium and rotational dynamics, there are two articles[14]. So it can be seen that the development of media with the help of 3d page flip can be used in various types of material in learning physics.

## CONCLUSION

The results of the study can be concluded that the learning media developed can be used in the physics learning process in SMA/MA. The media developed is in the form of teaching materials in the form of E-Books, E-Modules, and E-LKPD. Where 5 articles develop 3d page flip learning media in the form of E-Books, namely articles A3, A5, A6, A8, A10. And on the E-Module there are four articles and on the E-LKPD there is only one article. This shows that the development of 3d page flip-based media is still a lot on materials in the form of E-Books.

Of all the articles referred to the learning material used as research in making learning media, there are nine materials, namely: Static Fluids, Newton's Law, Particle Dynamics, Kinematics of Straight Motion, Temperature and Heat, Optical Tools, Equilibrium and Rotation dynamics, Quantum Physics, Momentum, and Impulses. This shows in the development of 3D-based media this page-flip allows for almost every material to be used in physics learning.

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