



**DEVELOPMENT OF INTERACTIVE TEACHING MATERIALS (3D PAGE FLIP)  
ON SCIENCE LEARNING FOR JUNIOR HIGH SCHOOL STUDENTS IN  
KECAMATAN PINGGIR-MANDAU**

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**Abstract**

This study aims to: a) to find out the validity of interactive teaching materials (3D Page Flip) by experts, b) to find out the validity of interactive teaching materials (3D Page Flip) by the audience. In this study also using a limited method (RnD), namely Limited Research and Development, namely by using two media experts and 10 junior high school students in The District Edge-Mandau grade VIII. The process of media development starts from media planning, media creation according to design, experiments and also revisions of the results of the experiment, in the process of developing interactive learning media (3D Page Flip) requires an application assistance in its implementation of 3D page flip application. In this study the instrument was given to two expert lecturers with a result of 81.6% with valid validation, feasible, appropriate and without revision. Instruments were also given to an audience of 10 junior high school students in grade VIII at SMP Subdistrict Pinggir- Mandau with a validation score of 95% with very valid results, very suitable and without refisi. The conclusion of this research is interactive teaching material (3D Page Flip) in science subjects in junior high school grade VIII semester 1 can be used as teaching materials in junior high school.

**Keywords:** 3D Page Flip, science, learning media

## Introduction

Teaching and learning activities consist of three important components, namely students, teachers and teaching materials. In the attachment permendiknas No. 16 year 2007, that teachers as professional educators are expected to be able to develop teaching materials. To achieve an optimal teaching and learning process, teaching materials are one of the important things

Teaching materials that have been the teacher's hand obtained from the publisher. So that the teaching material is less interesting because of the lack of animated images and animations that make students more happy to learn it (Hidayatullah, et al. 2013).

Nowadays, there are interesting teaching materials where many animated animations can visualize abstract concept concepts, so that students can get an idea of abstract concept concepts in the teaching and learning process (Harjadi and Sulisworo, 2014).

Teaching materials can provide good benefits for teachers and students, namely (a) making teaching and learning activities more interesting, (b) fostering students' desire to learn independently with teacher guidance, (c) students easier to understand each competency (d) teaching materials developed by the teacher more in accordance with the needs of the students. (Ministry of National Education, 2008).

Nowadays, the teaching and learning process must be able to follow the development of science and technology to train learners to master not only knowledge but also, concepts, scientific principles and also skills, one of which is teaching materials (3D Page Flip).

Teaching material (3D Page Flip) is a sheet of sheet paper containing material with images and also videos that can increase the interest of students to learn the teaching material (Nurseto, 2011).

Teaching materials (3D Page Flip) have several advantages such as: it can present material in the form of words, images and videos equipped with attractive colours (Suslilana and Riyana, 2008).

But teaching materials (3D Page

Flip) has disadvantages namely: need a sophisticated gadget or have to use a Pc to access it (Wahyuni et al, 2014).

This teaching material (3D Page Flip) is a very suitable teaching material applied to science subjects because in the process of teaching and learning images and video are needed in real life to improve students' understanding (Hayati, 2015).

## Research Method

This type of research is (RnD) limited i.e. Limited Method Research and Development. The resulting product is learning media (3D Page Flip) in science subjects in junior high school in Pinggir-Mandau Village.

The stages of development of teaching materials (3D Page Flip) are as follows:

- a. Needs analysis  
The first step of product development is the analysis of needs by conducting surveys to several junior high schools in Bengkalis Regency, Pinggir-Mandau Village related to interesting teaching materials in accordance with the needs of students,
- b. Planning  
Planning this product by determining the flipbook that corresponds to the selection of appropriate classes for the development of teaching materials (3D Page Flip),
- c. Product development
  - 1) Product Manufacturing
    - Product creation starts from looking for source references to be used to develop,
    - Make a teaching material design (3D Page Flip),
    - Make teaching materials according to the design that has been made,
    - Need more application to open learning media (3D Page Flip) was 3D Page Flip
  - 2) Preparation of product evaluation instruments
    - Pretest
    - Posttest
    - Questionnaire evaluation



Figure 1. Learning Media (3D Page Flip) of



Figure 2. Learning Media (3D Page Flip) of Science (middle page)

d. Trial

This trial phase is carried out to find out the feasibility of teaching materials to be developed. This stage is carried out to validate the product by the material expert, as well as the student.

e. Product revision

At this stage, revision of teaching materials based on input on the trial.

Data collection instrument was with expert research sheet and student response questionnaire sheet used to find out student's response on the efficiency of teaching materials (3D Page Flip) science. The technique used in analyzing data by experts to validate learning media (3D Page Flip) is to use validation sheets.

Expert validation was conducted by two lecturers from the Science Education Study Program, Medan State University, namely Mr. Aristo, S.Pd., M.Pd. and Mr. Halim Simatupang, S.Pd., M. Pd. And audience validation involving 10 students from junior high school in Pinggir-Mandau subdistrict from the results of student post tests

## Result and Discussion

### Result

This research produced learning media products (3D Page Flip) in science subjects in junior high school. Learning media (3D Page Flip) is a book containing materials, images, animations, and also videos in the form of soft copy.

In learning media (3D Page Flip) was developed as a whole starting from: a) cover; b) table of contents; c) list of images; d) table list; e) observing activities; f) sample questions; g) practice questions; h) video.

From the results of expert validation by two lecturers of Science Education Study Program Medan State University, namely Mr. Aristo, S.Pd., M.Pd and mr. Halim Simatupang, S.Pd., M.Pd data obtained in the form of data assessment questionnaires in the form of suggestions and comments. The data is then analyzed with the calculation of the average rat value of the total assessment aspect of all validators. Assessment result of learning media (3D Page Flip) IPA in table 3 below:

Table 1. Expert Validation Results

Aspect	Valid ation value	Mean	Category
Creativity	80%	81,6%	Very valid, and well used
Conformity	85%		
Needs	80%		

Based on table 1 obtained the average value of validias results conducted by two lecturers of science education study program, namely Mr. Aristo, S.Pd., M.Pd and Mr. Halim Simatupang, S.Pd., M.Pd obtained results of 81.6%.

Audience validation data is data used to determine the effectiveness of teaching materials (3D Page Flip) science and its implementation in junior high school students, from pretest results and also post tests and student response questionnaires. Pretest and post test questions are the same as the number of 10 multiple choice questions against the developed learning.

Based on table 2, it can be seen that the percentage percentage of student responses is very valid, very effective and can be used without revision

Table 2. effectiveness based on pre test and post test.

Based on the research results of

teaching and learning activities using interactive teaching materials (3D Page Flip) science can increase teaching and learning activities as long as students use interactive learning media (3D Page Flip) science has improved quite well.

Tabel 2. effectiveness based on pre test and post test.

Pretest Average	Postest Average	Effectiveness level
60%	95%	Very valid, very effective, very thorough and can be used without improvement.

### Conclusion

Based on data obtained from the development of learning media (3D Page Flip) in science lessons in junior high school in Pinggir-Mandau subdistrict it can be concluded that: 1) the development of interactive defense media (3D Page Flip) in science subjects get validation test results of 81.6% of this media shows this learning media is valid. 2) Interactive learning media (3D Page Flip) IPA based on respondent audience get results of 95% this indicates that the development of interactive teaching materials IPA very valid and can be used without revision.

### Reference

- Akbar, S. 2013. Instrument Perangkat Pembelajaran. Bandung: PT REMAJA ROSDAKARYA.
- Antasari, O. Pujiyanto. Budiharti R. 2013. Pengembangan Bahan ajar IPA Terpadu Berbasis Saling Temas Dengan Tema Biomassa Sumber Energi Alternatif Terbarukan. *Jurnal Pendidikan Fisika*. 1(1): 2338-0691.
- Fauziah, U. 2015. Desain Penelitian Pengembangan Bahan Ajar IPA Terpadu Tema Cahaya dan Warna Untuk Pengembangan Pembelajaran IPA SMP. *Prosiding Simposium Nasional dan Pembelajaran Sains*. 978-602-19655-8-0.
- Harjadi dan Susilo. 2014. Efektifitas Pembelajaran Simulasi Komputer Pra eksperimen untuk meningkatkan aktivitas belajar fisika di SMP Negeri 1 ponorogo. *Prosiding Pertemuan Ilmiah XXVII HFI Jateng dan DIY Yogyakarta*.
- Hayati, S. 2015. Pengembangan Media Pembelajaran Flipbook Fisika untuk Meningkatkan Hasil Belajar Peserta Didik. *Prosiding Seminar Nasional Fisika*. Vol .4(2): 49-54.
- Hidayatullah, M.J.D Sunarto, T. Sutanto. 2013. Rencana Bangun Aplikasi Pembelajaran Sandi Pramuka Pada Siswa Tingkat Dasar Berbasis Android. *Jurnal Sistem Informasi*. 2(2): 2338-137.
- Nurseto, T. 2011. Membuat Media Pembelajaran yang Menarik. *Jurnal Ekonomi dan Pendidikan*. Vol. 8(1):19-35.
- Rahmawati, D. 2017. Pengembangan Media Pembelajaran Flipbook pada Materi Gerak Benda di SMP. *Jurnal Pembelajaran Fisika*. 6(4) : 326-332.
- Riyadi. J, Murni. (tanpa tahun). Pengembangan Bahan Ajar Kinematics Application (KA) pada Flatlform Android. *Jurnal Inovasi dan Pembelajaran Fisika*: 2355-7109.
- Wahyuni, S. 2015. Pengembangan Bahan Ajar Untuk Meningkatkan Kemampuan Berfikir Kritis Siswa SMP. *Prosiding Seminar Nasional Fisika dan Pendidikan Fisika*. 6(1): 2302-7827.
- Yuniar, F. Zainuddin. Misbah. 2016. Pengembangan Bahan Ajar IPA Fisika Berorientasi keterampilan Generik Sains Menggunakan Model Pembelajaran Inquiri Terbimbing di SMP Negeri 13 Banjarmasin. *Berkala Ilmiah Pendidikan Fisika*. 4(3).