

# THE DEVELOPMENT NATURAL SCIENCES BASED ADOBE FLASH CS3 WITH THE TOPIC SYSTEM OF COORDINATION AND THE SENSES IN HUMANS IN NINTH GRADE JUNIOR HIGH SCHOOL

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## Abstract

The purpose of this study was to develop a product in the form of instructional media based integrated natural science adobe flash cs3. This research is the development or R & D by adopting a 4-D model of development, namely, the stage of defining, designing, and development. Samples were students of class IX junior high school. Data was collected using a questionnaire sheet that covers several aspects of the study include: feasibility aspects of the material / content, language, presentation and evaluation. Quality media rated by the media experts, subject matter experts and language and class IX students of junior high school.

**Keywords :** Natural Science, Media and Adobe Flash

## 1. Introduction

The problem Arising from the lack of technology utilization as media that can help teachers in learning. Media is a tool that can be used to facilitate learners in the learning process, so that the explanation of the abstract can be imaged by learners through a tool that is used as a medium of learning. However, mostly in schools, the use of technology in learning is still less be applicable. Likewise with the schools we studied, whereas, a computer room complete with a projector is available to support learning. Teachers use media that are more traditional, such as the charta, and torso. Actually, charta and torso can help students understand the material, just not all the material can be understood. System of coordination and the senses, for example, this

matter takes more than just Charta and torso for discussion include processes in organs in the human body.

In this paper we have offered on a media that we studied as a solution to the problem of the teachers to create the ideal learning and can help students understand the material. We create media-based learning adobe flash cs3 then analyze the data obtained from the questionnaire design validation and materials by experts, as well as a questionnaire testing students.

## **2. Theoretical Background**

Natural Science is a science that studies about life. Humans, animals and plants are the discussion of the scope of this science. In humans, the body consists of organs, each of it has a specific function. Those organs can work as well, but it needs necessary coordination. In humans and most animals, the coordination is done by the nerve system, sensory system, and hormonal systems. Field of applied knowledge that is expected to further contribute to the development of education in the country is the field of Educational Technology. The ability to utilize modern technology in the development of educational course very much depends on the number and capacity of experts in the field of Educational Technology (Sadiman, 2011, page. 5).

Science and technology is developing very rapidly all over the world, as well as in Indonesia. Already many modern tools developed by scientists in the world in various fields in order to assist the work of man. One example that is well known by the public is the computer. Similarly, in education, science and technology, also influence and contribute to advancing the educational world. Program software adobe flash cs3 is one of the sciences and technology that can be developed into a medium of learning, especially in this discussion is the instructional media of Natural Science Integrated.

Haryono (2013) argues that "before discussing about how should the process of learning science done, we need to examine some of the problems of science learning

happens on the field today, one of which is the teaching materials provided in schools still feels off the main problems that arise in the community, particularly with regard to technology and the presence of technology products in the midst of society, as well as the consequences. Therefore, the need for businesses to develop and align instructional materials science with the development of local technologies and issues related to the study material listed in the curriculum "(page. 1-2)

This is in line with the observation of the author of the two-week teaching science subjects Integrated in MTs (MTs) Al-Khairiyah in grade IX student that active to participate is very low in the following study. During the observation process students were passive and did not understand the lesson is in progress. Students do not understand how the stages of the processes that take place every day and even every second in their bodies. This has an impact on the outcome of the midterm students were only 4.5% in the grade IX who successfully pass the minimum completeness criteria hereinafter abbreviated to minimum completeness criteria. While 95.5% did not pass because values are below minimum completeness criteria. minimum completeness criteria determined is 70. The results of author interviews to teachers teaching science in grade IX MTs Integrated Al-Khairiyah city of Jambi, on learning that has not previously been used instructional media, especially Adobe Flash; this is because teachers are concerned only using media that is classical, such as the charta and torso. Media classical readily available, and its use is practically one of the reasons teachers choose to use the media. Based on the description that has the writer explained above, the author would like to implement instructional media Integrated Sciences based on Adobe Flash in a study entitled "Development of Media Education Natural Sciences Based Integrated Adobe Flash CS3 On Topic Coordination System and Tools Indra In Humans In Class IX MTs Al-Khairiyah of Jambi.

### **3. Method**

#### **Needed Analysis**

Research in the Research And Development that the research methods used to produce a particular product, and test the effectiveness of these products ( Sugiyono , 2011, page: 407 ).

#### **Product Evaluation**

Product evaluation done in three stages, namely the validity and product trials. Validity test is done by subject matter experts and media experts. While testing of products is done in MTs Al-Khairiyah of Jambi.

Sources of data obtained from the study of this development are:


- a. Reference of the journal Biology of the development of instructional media junior and senior high school
- b. Reference books on the development of instructional media middle and high school Biology
- c. References to Adobe Flash
- d. Biology teachers of MTs Al-Khairiyah Jambi
- e. Students of MTs Al-Khairiyah Jambi

### **4. Result and Discussion**

Instructional media integrated natural science writer developed based on Adobe Flash CS3. The result of the development of instructional media consisted of 25 layers that contain material system of coordination and the senses in humans, starting from the title of the media, the basic competencies and learning objectives, the main menu consists of the nervous system, kinds of motion, senses and evaluation menu.

Starting with the development of instructional media design and produce the cover , competencies and learning objectives , the main menu button , the display of the nerve system , kinds of motion , senses , and evaluation . The design of instructional media ended with designs and produces display evaluation questions are

aligned with the material, attractively packaged like playing games to attract the interest and motivation of students . Here we show a picture of a layer media that we design and we have produced.

Picture	Picture
 <p>The image shows a digital book cover with a white background and decorative borders. The title is 'Sistem Koordinasi dan Alat Indra Pada Manusia'. It features a central illustration of a human head in profile with a glowing blue brain. Below the title, there are icons for 'MUSKEL' and 'SISTEM KORDINASI DAN ALAT INDRA PADA MANUSIA'. The author's name 'KIDAR' is visible at the bottom right.</p>	 <p>The image shows a page from a digital book with a white background and a decorative border. The title is 'Kompetensi Dasar'. It contains a list of three learning objectives:         <ol style="list-style-type: none"> <li>1. Mendeskripsikan sistem koordinasi dan alat indera pada manusia.</li> <li>2. Mendeskripsikan bentuk, fungsi, dan struktur organ-organ sistem saraf manusia.</li> <li>3. Menganalisis sistem koordinasi, struktur, dan fungsi organ-organ sistem saraf manusia.</li> </ol>         A blue 'Mulai' button is located at the bottom right of the text area.     </p>
 <p>The image shows a digital book menu screen with a blue background. The title is 'Sistem Koordinasi Dan Alat Indra Pada Manusia'. It features a list of menu items: 'Sistem Saraf', 'Macam Gerak', 'Alat Indra', and 'Evaluasi'. A 'Kembali' button is located at the bottom left.</p>	 <p>The image shows a page from a digital book with a blue background and a decorative border. The title is 'SEI SARAF NEURON'. It contains two text boxes:         <ul style="list-style-type: none"> <li>The top box explains that neurons are the basic units of the nervous system, consisting of a cell body (soma) and a tail-like structure called an axon. It also mentions that neurons are specialized for communication and coordination.</li> <li>The bottom box explains that neurons are specialized cells that receive and conduct electrical impulses (action potentials) along their axons.</li> </ul>         A 'Kembali' button is located at the bottom left.     </p>

**Slide 1: SEL SARAF NEURON**

Labels: Dendrit, Nucleus, Badan Sel, Akson, Selubung Myelin, Ujung-ujung Akson, Mielin, Ranvier, Salibung Myelin, Akson, Selubung, Sel Schwann, Akson.

**Slide 2: Susunan Saraf Manusia**

SISTEM SARAF

- Saraf Tepi
  - Saraf Otoronom
  - Saraf Somatik
  - Saraf Periferik
  - Saraf Impuls
- Saraf pusat
  - Saraf Talamik
  - Saraf Basal Ganglia
  - Saraf Cerebrum
  - Saraf Cerebellum
  - Saraf Medulla
  - Saraf Pons
  - Saraf Medulla Oblongata
  - Saraf Spinal Cord

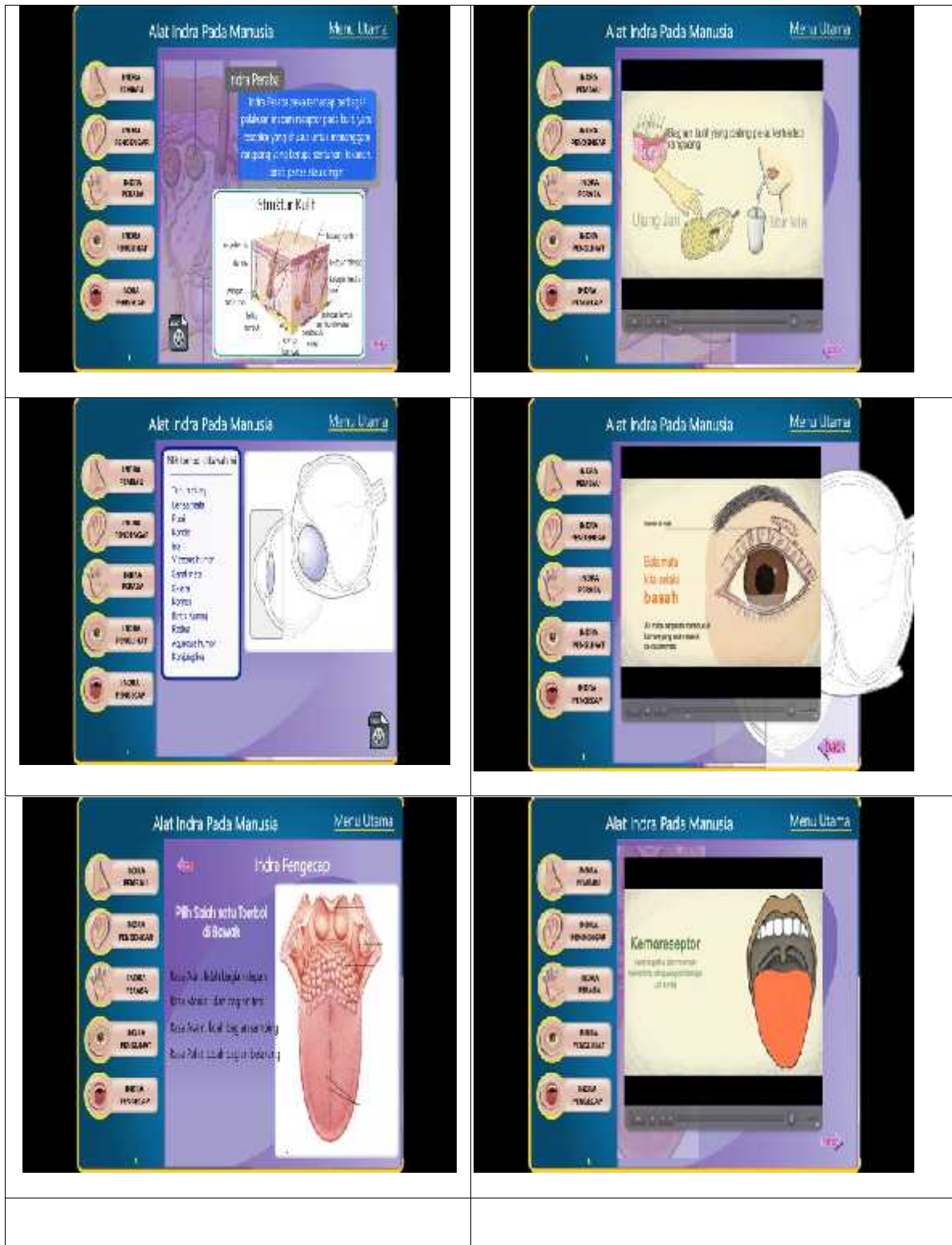
**Slide 3: Gerak Refleks**

Gerakan yang terjadi tanpa kesadaran. Contoh: Refleks lutut. Ketika lutut dipukul, otot betis berkontraksi dan kaki diangkat. Refleks ini melibatkan reseptor, neuron sensorik, otak, neuron motorik, dan efektor.

**Slide 4: Gerak Biasa**

Gerakan yang melibatkan kesadaran. Contoh: Mengetik. Ketika kita mengetik, kita memutuskan untuk mengetik huruf tertentu. Refleks ini melibatkan reseptor, neuron sensorik, otak, neuron motorik, dan efektor.







Pic 1-21 The initial appearance of instructional media, display basic competencies and learning objectives, the main menu key, display materials nerve cells, images of nerve cells neurons, chart nervous system of man, simulation reflex, action simulation usual, sub menu sorts of senses, the material senses of smell, trailer video senses of smell, see material auditory, image thumbnails video learning, material sense of touch, the picture preview video sense of touch, the portions sense of sight, the picture preview video sense of sight, the material sense of taste, image thumbnails video sense of taste, appearance evaluation questions about brain, appearance evaluation questions about the senses.

Referring to the result of the development of instructional media based integrated natural science adobe flash professional CS3, then obtained some data, namely: the trial results of this study are as follows biology instructional media assessment instruments on the subject of the system of coordination and the senses, and assessment of students to the media assessment instruments that have been developed by distributing questionnaires in class IX MTs Al-Khairiyah.

### **The Feasibility of Media**



Adobe Flash is used as a instructional media biology have been developed, validated by the validator. Validator consists of two lecturers Biology of The State Institut For Islamic Studies Sulthan Thaha Saifuddin Jambi.

Feasibility design of instructional media which has been developed after following the first phase of the validation process by the validator obtained a score of 70.58 % . Then do the repairs and process validation phase II by the validator obtained a score of 75 % . Scores validation stages I and II was then calculated then obtained a score of 72.79 % , which means the media that have been developed fit for use as a media of learning.

Feasibility materials and language instructional media that has been developed after following the first phase of the validation process by the validator obtained a score of 61.66 % . Then do the repairs and process validation phase II by the validator obtained a score of 88.33 % . Scores validation stages I and II was then calculated then obtained a score of 74.99 % , which means that material and language instructional media has developed a decent used in instructional media .

### **The Effectiveness Of Media**

The effectiveness of instructional media that have been developed after following the process efektivitasi by respondents, the percentage obtained by the two categories, the very effective with the percentage of 76.47 % , while the effective category with a percentage of 23.52 % . This value indicates that the media that has been developed effectively used as a instructional media integrated natural science .

As expected the media that we have developed can be a solution to help teachers explain the material to students , so that students more easily understand the lessons delivered . From the data obtained we analyze and get the results that the media have been developed feasible and effective. There is a possibility this media becomes ineffective if teachers do not understand how to operate this media. Therefore we designed a instructional media is very practical to be easily operated by both teachers and students.

## **5. Conclusion and Remark**

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### **Remark**

Thanks to the MTs Alkhairiyah for willingness to provide a time and place for us to do the research development of instructional media integrated natural science. Next to biology education department for their guidance, advice and opportunities so that we can complete this research.

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