Analisis Development and Implementation Media Education of Matematic Achievement of Student Learning (Object: Student 6th Grade in Semarang)

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**ABSTRACT**

Currently learning media used in Indonesia, particularly primary schools are still using blackboard and chalk media so that students feel bored and need innovation. Thus the technology-based instructional media, Information and Communications Technology (ICT) adobe flash player is made to increase the attractiveness of students in absorbing science lesson. Research methods in the making of instructional media is done by developing a model of analysis, design, development, implementation, and evaluation. Research object is a 6th grade student lodoyong 02 Ambarawa State. Testing is done by teaching media researcher with testing alpha testing the value of 4.25 obtained with very decent category, media experts obtained a value of 4.33 with a decent category, beta testing and assessment of the value of 4.36 obtained very viable category. The results of this research is the development of student achievement results in mathematics subjects who have applied this interactive learning media ride by 2.4%. The achievement of an increase in the media stated that the interactive learning media give effect to the increase in student interest.

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**INTRODUCTION**

According to UU No. 20 of 2003 on the National Education System, Education is a conscious and deliberate effort to create an atmosphere of learning and the learning process so that learners actively develop her potential. Interactive learning media is one of the efforts to improve the effectiveness and efficiency of the learning process. Instructional media is media that carry messages or information that aims instructional or contain teaching purposes by Gagne and Briggs (1975). In this case the role of a teacher must choose and implement appropriate and efficient learning for learners not only conventional-based learning. Data on the daily chart replay value, replicates the midterm and final replay the second half period with conventional learning methods in elementary school Lodoyong 02 based random sampling is shown in images 1.

Judging from Figure 1 that the value of Mathematics grade 6 at the school declined, so that one of the prospective considerable effort is to provide subject matter geometry packaged in the form of interactive learning media-based information and communication technology (ICT) adobe flash player. The media gives the student an overview of digital visualization of three-dimensional (3D) geometry, thus making the method more effective and interactive learning.

Based on the background described above, the author would like to identify as to how much the success of the use of interactive learning media material geometry three-dimensional (3D) to grade 6 Elementary School Lodoyong 02 Ambarawa.

**Purpose:**

The purpose of this research is to develop an interactive learning media for Mathematics-based Adobe Flash Player to increase interest beljar and student achievement in these subjects.
Images 1: Graph semester Score in primary school 2012-2013 Lodoyong 02

Literature:
Interactive learning media is everything related to software and hardware that can be used as an intermediary to convey the contents of the teaching materials of learning resources to learners (Kemp and Dayton, 1985: 3) with a learning method in which all sensory organs possessed can receive the message contents (Latuheru, 1988: 13) to the user of what has been entered to the media. The quality of learning media can be assessed through measures and certain methods, as well as through tests software. Menurut Walker and Hess (1984: 206), quoted by Arsyad (20011: 175-176), an interactive learning media quality criteria can be assessed based on the quality of materials and purposes, quality of learning, and quality engineering.

A lesson to be effective, when the various components (text, charts, audio, video, animations, simulations, or photo) coupled interactively (Sutopo, 2003: 23). Media-based learning can be assumed Adobe Flash Player more interesting because they involve more senses.

Methods:
The method of manufacture of instructional media is done with ADDIE development model. According to Shelton and saltsman (2008) ADDIE model of instructional design is a model of a generic that provides an organized process. ADDIE Model is a simple framework that is useful for designing learning in which the process can be applied in a variety of settings for common structures (Peterson, 2003). Langkah-step research and development used by the model ADDIE, namely:

Analysis:
Analysis is to analyze needs, identify problems and perform analysis tasks. Learning in primary schools on average still using conventional learning media, do not provide enough time for students to reflect on the materials presented (Burrowes, 2003). From the perspective of primary school students in grade 6 Lodoyong 02, how teachers teach boring as depicted in Diagram.

Diagram: Opinions Elementary School Grade 6 Lodoyong 02
Regarding How Teachers Teaching in Schools:

From these data, it can be concluded that children in need of learning innovation, namely ICT-based interactive learning media Adobe Flash Player.

Design:

In this design phase, SMAR formulating learning goals (specific, measurable, applicable, and realistic). Customized design with objects and materials, some animations and interactive forms with navigation that can be active participants in understanding the material presented. Design workflow design interactive learning media titunjukan on Use Case Diagram.

Use Case Media Pembelajaran

Development:

Media teaching materials in the learning activities of matter in 3D geometry in grade 6 elementary school Lodoyong 02 created using Adobe Flash Player, which the geometry is made more interactive and more interesting as in Figure 4.

Implementation:

Latuheru (1988: 14) states that in learning, the role of multimedia designed to complement each other so that the entire system be efficient and effective. Media were made already can be used and implemented as the display running the application in Figure 5.

Evaluation:

Evaluation is the process to deliver value and see if the learning system is being built successfully, according to initial expectations or not. Evaluation is the final step of the ADDIE model of instructional systems design. Evaluation of interactive learning media is obtained from alpha testing and beta testing.
RESULT AND DISCUSSIONS

Alpha Testing:
The test is performed with the validation, by asking for opinions, criticism, and advice from experts in the field, in this case is a matter experts and media expert.

<table>
<thead>
<tr>
<th>Tabel 1: Test of Master Material</th>
<th>Σ Score</th>
<th>Σ Score Average</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>270</td>
<td>4.00</td>
<td>Good</td>
</tr>
<tr>
<td>Education</td>
<td>25</td>
<td>4.17</td>
<td>Good</td>
</tr>
<tr>
<td>Usability</td>
<td>41</td>
<td>4.56</td>
<td>Excellent</td>
</tr>
<tr>
<td>Total</td>
<td>336</td>
<td>4.25</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Assessment by experts of material in Table 1 as outlined in the chart above in the material aspect gets an average value of 4.00 with a decent assessment category, then from the aspect of learning received an average rating of 4.17 with a decent category, and the aspects of the use of scored average of 4.56 with a very decent category. Third average value of these aspects later in kumulatifkan thus obtain an overall average score of 4.25 with a very decent category.

<table>
<thead>
<tr>
<th>Tabel 2: Penilaian Ahli Media</th>
<th>Σ Nilai</th>
<th>Σ Nilai Rata-rata</th>
<th>Kategori</th>
</tr>
</thead>
<tbody>
<tr>
<td>View</td>
<td>256</td>
<td>4.00</td>
<td>Layak</td>
</tr>
<tr>
<td>Learning</td>
<td>26</td>
<td>4.33</td>
<td>Sangat layak</td>
</tr>
<tr>
<td>usability</td>
<td>50</td>
<td>4.17</td>
<td>Layak</td>
</tr>
<tr>
<td>Total</td>
<td>332</td>
<td>4.16</td>
<td>Layak</td>
</tr>
</tbody>
</table>

Assessment by media experts in Table 2 as outlined in the chart above the display aspect gets an average value of 4.00 with a decent assessment category, then from the aspect of learning received an average rating of 4.33 with a very decent category, and the aspects of the use gets the average value of 4.17 with a decent category. Third average value of these aspects then dikumulatifkan so get an average overall score of 4.16 with a decent category.

Beta Testing:

<table>
<thead>
<tr>
<th>Tabel 3: Test of User / Student</th>
<th>Σ Score</th>
<th>Σ Score Average</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>2182</td>
<td>4.35</td>
<td>Excellent</td>
</tr>
<tr>
<td>Material</td>
<td>278</td>
<td>4.35</td>
<td>Excellent</td>
</tr>
<tr>
<td>Education</td>
<td>676</td>
<td>4.22</td>
<td>Excellent</td>
</tr>
<tr>
<td>Usability</td>
<td>554</td>
<td>4.52</td>
<td>Excellent</td>
</tr>
<tr>
<td>Total</td>
<td>3690</td>
<td>4.29</td>
<td>Excellent</td>
</tr>
</tbody>
</table>
From Table 3 as outlined in the chart above can be seen that the assessment by User / students in aspects of the display gets an average value of 4.35 with a very decent assessment category, from the aspect of the material gets the value of 4.35 with a very decent category, then from aspects of learning received an average rating of 4.22 with a very decent category, and the aspects of the use of got an average rating of 4.52 with a very decent category. Third average value of these aspects later in kumulatifkan thus obtain an overall average score of 4.36 with a very decent category. Thus, interactive learning media assessment of computer networks by students expressed very feasible to use.

**Result Learning:**

The results of the implementation of ICT-based interactive learning program Adobe Flash Player to grade 6 Elementary School Lodoyong 02 data parameters in the form of graphs obtained average daily student test scores in Figure 6 and the overall value comparison chart between TA (school year) from 2012 to 2013 and FY (academic year) from 2013 to 2014 in Figure 7.

From the graph it can be seen that after using interactive learning media, the ability of students is always increased by 23.75 or by 2.4% in the material geometry math. Compared with the previous year, the 2012-2013 school year at 8.25 graph shows the value of a gradual improvement.

**Conclusion:**

Testing the performance of math-based interactive learning media information and communication technology was conducted by researchers to test the value of 4.25 obtained alpha testing with a very decent category, media experts obtained a value of 4.33 with a decent category, and assessment testingdiperoleh beta value of 4.36 category very decent. Thus, media interactive learning computer network is very suitable to be used as a medium of learning for grade 6 in elementary school Lodoyong 02 Ambarawa.

After the use of interactive learning, student achievement has increased gradually by 2.4% compared to the application of conventional learning. In other words, the need for innovative ICT-based learning has been achieved.
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