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**WEB BASED LEARNING MEDIA DEVELOPMENT
IN CARDIOVASCULAR SYSTEM
HUMAN ANATOMY AND PHYSIOLOGY SUBJECT**

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Abstract

The use of information and communication technology in learning has developed rapidly. Learning media has been one of the important elements in learning activity. Web based learning technology has been thought to be an alternatives way in increasing learning quality. Student need assessment result showed that cardiovascular system was considered as difficult material in human anatomy and physiology subject. This researched aimed at developing web based learning media in cardiovascular system human anatomy and physiology subject. Research was done in August to November 2012 in Biology department FMIPA UNJ. Method used was research and development (R&D). Indicators measured were material, website content, design, visual, structure and navigation and interactivity. Those indicators were assessed by material and media expert and students. Website address developed was <http://www.anfisman.com>. Assessment percentage from material expert was 73,3%, media expert was 64,01%, dan students was 67,44%. Result indicated that website develop in this research was good and proper to be used as alternative learning source for students.

Keywords: learning media, website, cardiovascular system

INTRODUCTION

There are two important things in learning and teaching activity, learning method and teaching method. Conventional learning usually needs lecture and student face time. This has made limited use of learning media, which only relies on transparency, ohp, power point, books and copy of material. ICT development as internet development in lecturers and students has given opportunity to create ICT based learning media. One of which is Web based learning. ICT has developed rapidly, based on www.internetworldstats.com/ there are more than one billion internet users worldwide. Internet used in Asia was estimated to 10% and US for 67%. Indonesia is rank 13 internet user worldwide with 18 million users in 2006. This number is 10 times greater than five years before. So, it is not too much if some people stated that ICT has brought new wave to great changes in human history (Depdiknas 2004). Nowadays, every student in Biology department FMIPA UNJ has already had laptop or note book which make them easier to get access to internet. This accessibility was supported by Wi-Fi availability and this has been the main key to support web based learning. Human anatomy and Physiology subject is one of the core subjects in Biology department. Wide comprises difficult material with less supportive learning media has made the subject difficult for students. Media used were only relying on transparency, OHP, power point, textbook and copy of material. Here with this

research we try to develop another possible and easier to understand learning media in cardiovascular system, which was known to be one of the most difficult materials for students.

RESEARCH METHOD

Research was conducted in Biology department FMIPA UNJ. Method used was Research and development with product assessment and revised it (Sugiyono, 2008). Need assessment analysis was done in human anatomy and physiology subject with regular biology program 2009 as sample.

Learning design and development were carrying in programmer house. Expert and media assessment were conducted in exper and student place. Material expert in this research was dr. Subandrate, M.Biomed , a lecturer in Medical Faculty Sriwijaya University Palembang. Media Expert was Dr. Khaeruddin, M.Pd, lecturer in education technology education faculty UNJ, Whilst product was tested in biology education program 2010 biology department FMIPA UNJ.

RESULT AND DISCUSSION

Result

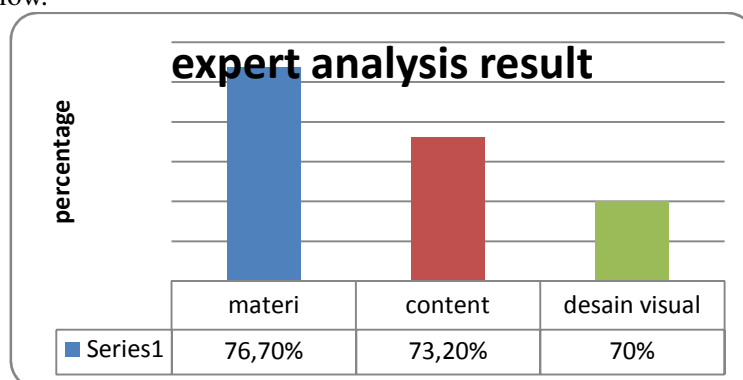
Data were collected from three research steps, need assessment analysis, media development and assessment from material and media expert and also from student. Student need analysis result was described as follow:

Student knowledge about computer was very good. It was seen from 100% students knows and has ever used computer, internet and website for more than twice a week. Most students use internet facility in learning to handing their lecture assignment (92,3%). Moreover, 65,3% students has ever used human anatomy and physiology CD or software which considered very interesting since it has animation, graph and sound.

73,07% students stated that human anatomy and physiology subject was hard for its vocabulary in English or Greek that must be memorized (46,15%). Material noted to have the highest percentage as the hardest was cardiovascular system (57,69%).

One solution in handling problems in human anatomy and physiology learning was the use of website as learning source (57,69%). 100 %students supported the plan of developing web based learning media in human anatomy and physiology subject.

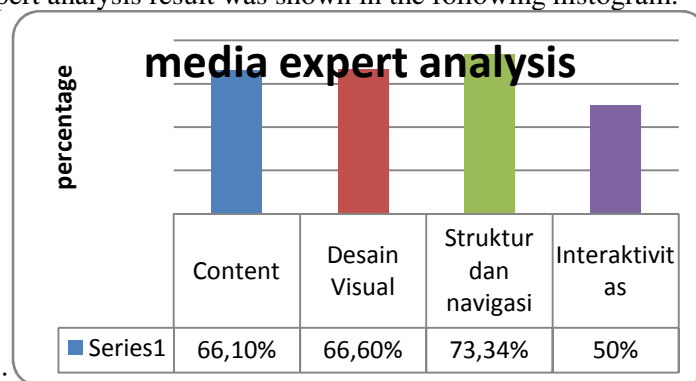
Web based learning media in cardiovascular system human anatomy and physiology subject can be seen in [http:// www.anfisman.com](http://www.anfisman.com). This media has been uploaded on December 20, 2012 and can be accessed trough internet. Expert analysis result for the media was describe in histogram below.



Graph 1. Analysis result from material expert

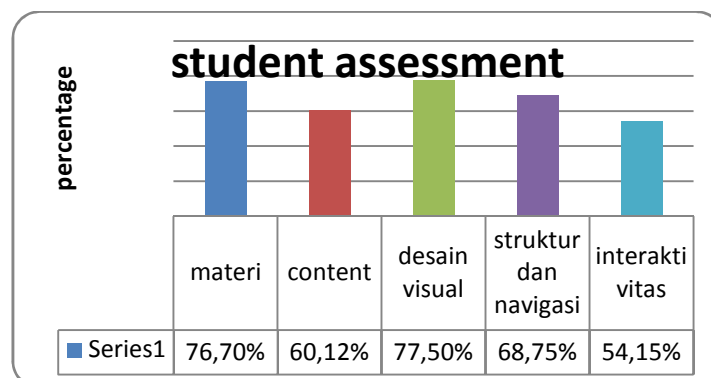
Material indicator reached mean percentage of 76,7%. This brought conclusion that material design was good. Content indicator overall has 73,20% which indicate that website content was also good. Visual design indicator got value for 70% means that it has already well design.

Media expert analysis result was shown in the following histogram:



Graph 2. Media expert analysis result

Content indicator reached mean percentage of 66,10% which can be concluded that website content as learning media was good. Visual design has score for 66, 60% and navigation reached score for 73,34%. All of these indicators can be describe as good. Furthermore interactivity indicator has been scored for 50% means that it was still enough to be learning media in the term of its interactivity. Student assessment result can be seen below:



Graph 3. Student assessment result of the website

Based on the data above, it can be described that material reached mean percentage of 76,7%, Content valued for 60,12% ,visual design for77,5% and structure and navigation for 68,75%. That means that all indicators had good result. Interactivity still got 54,15% means that the score still under enough category.

Discussion

Based on need analysis instrument, student knowledge for recent technology is very good. This was applied in the use of technology facilities as their learning source. Human anatomy and physiology material, specifically cardiovascular system has been considered as a hard subject that needs creativity in understanding the material. Alternative way which might be try was developing learning media in the form of website. Those background has line all respondent to support the effort of web based learning media development. After the program

was fully developed, it was uploaded to [http:// www.anfisman.com](http://www.anfisman.com), for easy accessibility reason. The uploaded fee for this website was not too expensive and low monthly payment. This website can also be accessed with any browser such as goggle chrome, internet explorer or Mozilla Firefox.

When the website was already well prepared, assessment was done by student and material and also media expert. Based on instrument analysis from material expert, the media reached mean percentage of 73,3% for all indicators. This means that the website developed was considered good. Moreover, material expert also stated that website developed was very interesting and can be used as a source for student in learning human anatomy and physiology. Based on media analysis, result showed that mean percentage for all indicators was 64,01%. This has also can be described as good media to be used for students. Aspects exist in the website has met well developed website and deserved to be used as learning source. Student analysis result, showed that mean percentage for all indicator was 67,44%. This is also brought good interpretation. Nevertheless, there are few different score from media and material expert and also from student. Reason underlying this fact will be because subjectivity on scoring. From the result, it can be known that the website develop has reached varies score on assessment, but it generally was good and can be used as learning source and revision will be needed. Next steps will be product revision and small group assessment for the preparation in mass assessment.

CONCLUSION AND SUGGESTION

Based on the research, it can be concluded that web based learning media in cardiovascular system human anatomy and physiology subject has successfully developed and meet general requirements as good learning media.

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