DEVELOPING OF NAVIGATION SYSTEM OF HYPERMEDIA LEARNING MODEL FOR PRIMARY EDUCATION LEVEL

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Abstract— Developing Navigation in hypermedia learning environtment is one of appealing method for user base-on web, Hypermedia was widely being used for the presentation of information. Hypermedia also being e-learning popular during a few decade in the world. Hypermedia is very interesting, complex and flexible for support students knowledge in education particulary on higher education. Thus, navigation system is very important thing how to make user confidence, does not lose and confuse, not feel disorientation, and finally can get what the purpose of their study using hypermedia system. This study would like to developt navigation system in hypermedia learning environtment using software engineering PHP Programming and My Structured Query Language (MySQL) database as software to develop. The content of hypermedia is circulary blood that put in by national primary school curriculum.

Keywords— Developing, SDLC, Hypermedia Learning, Navigation System.

I. INTRODUCTION

Nowadays, the development and advancement of information technology goes very fast (Ezziane, Z.,2007). Along with the development of information technology, storage and delivery of data is getting cheaper and better quality, better individuals, institutions, and governments involved to make efforts to utilize the information technology development. Even in the world of education in Indonesia, it is time to take advantage of the information technology. Especially with the online school program, all the components required educational institutions to prepare themselves by setting up infrastructure to take advantage of the information technology development. The information technology will provide added value in the learning process. This relates to the increasingly high demand for science and technology information that is not obtained in all school environments.

The main problems of student that using information technology media like website, blog and hypermedia learning are feeling difficult how to access and using. Students feel lost, going arround the circle, difficult to find a page that had previously view, disoriented, no idea how to go next for browsing (Jane Webster & Jaspreet S. Ahuja, 2006). Users often get lose in the hyperspace, difficult to get an overview of material and finding spesific material (Hammond&Alison 1998). Based on the problems, this study will create of navigation system of hypermedia learning as solution of the problem. Navigation system can answered the problem of learning disorientation in education environtment. Hypermedia learning environment provides a lot of nonlinear and dynamic information represented as text, graphics, animation, audio and video (Jacobson, 2008).

The navigation in hypermedia quite often associated with the user disorientation problem, that is can be identifed with the kind of problems. Feeling lost, not know where is should go to the next content. Therefore, this study would like to developt navigation system in hypermedia learning environtment using software engineering PHP Programming and My Structured Query Language (MySQL) database as software. The purpose of this stud is to developt three condition type of navigation system hypermedia learning to support learning in college students

The method of developt hypermedia system using SDLC (System Development Cycle Lofe) i.e. a system development model that is widely used by the developers of the system. SDLC is also called Waterfall Model. Waterfall approach was first SDLC (System developtment Life Cycle) Model to be used widely in Software Engineering to ensure success of the project. In waterfall model, the process of software development is divided into separate phases. In Waterfall model, typically, the outcome of one phase acts as the input for the next phase sequentially.There are advantages using waterfall model to developt sotware, The pure waterfall lifecycle consists of several nonoverlapping stages, as shown in the following figure. The model begins with establishing system requirements and software requirements and continues with architectural design, detailed design, coding, testing, and maintenance (Nabil Mohammed Ali Munassar & A. Govardhan 2010).

The developed hypermediain this studywas alsoable to improvethe students ability in mediainformation and communication technologycompetence tomaximize the use ofthe computer withan internet connectionin university computerlaboratory. Studentsbecame moreenthusiastictobrowse deeperrelated toinformation technology-basedmedia.

II. LITERATURE REVIEW

2.1Hypermedia System

Hypermedia learning environment provides a lot of non linear and dynamic information represented as text, graphics, animation, audio and video (Jacobson, 2008). In Hypermedia learning system, User perform better than novices because of their deeper understanding of the subject matter. the development of hypermedia systems. Developtment of hypermedia system is one of step other individual difference elements, such as gender differences, cultural background, and cognitive styles (Sherry Y. Chen, Jing Ping Fan and Robert D. Macredie, 2011).

2.2 Navigation System.

The empirical research in the area of user navigation is limited, fortunatelly we can favorably draw from study and theory in the area of human computer interaction (HCI) and interface design, cognitive, psychology, information science, hyphertext theory and information design. (david&Jean,2000). The results of this study point out significant differences in the use and effects of the three navigation models.Finally, the implications for designing effective hypermedia-based content are discussed. (Chao,Yang&Chiang,2006). There are three forms of navigation mechanism which are commonly combined in information systems spatial, semantic and social. The spatial model provides a good infrastructure to build on, but we should consider how semantic structure aids the individual in navigation and orientation, and how it forms a basis for many means of social interaction. The three types of navigation are distinct yet collectively interlink the issues of form and use.(Douris&Calmers,2011).

The navigation system is very important thing for student using hypermedia system. Succesfully user to using hypermedia depend on navigation system that developed. The hypermedia navigation system is like a road map to all the different areas and information conteined with hypermedia system based-on website. Using navigation system in hypermedia page by page, menu by menu, link by link, content by content can help user to more easily. There are three type of navigation system in information system based-on website, (a)Advance Navigation,its mean that The structure of the hypermedia naviation is built from general to specific. This provides a clear, linier path to all the pages from anywhere on the system, (b) Global Navigation, Global navigation shows the top level sections/pages of the system. It is available on each page and lists the main content sections/pages of the system. (c) Linier Navigation, would the links with the text of the pages, linking to other pages within the system. (David&Jean, 2000).

2.3 System Development Life Cycle (SDLC)

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III. RESULTS AND DISCUSSION

3.1 The process of Developing Hypermedia.

The process of developing system navigation system of hypermedia, How to make the best method of navigation system. To get the required design and format some stages were done. The early stage of hypermedia development was collecting material. The materials that would be applied for students in this hypermedia learning was, of course, referred to the primary school curriculum. The material was about the circulatory system which was a science-based learning concept based on the curriculum of primary school teachers in the course development of elementary school basic science concepts. The material presented was equipped with visualization of images and videos that attracted the students towards learning hypermedia. With the method of collecting data through some literature of primary school teacher education curriculum, the material presented was coherent and complete.The next stage was the design stage referring to the process of system development SDLC (System Development Live Cycle). One of the stages of system development using SDLC is design stage, the design stage is one of design system, which uses easycase software media.

The implementation of the environment was designed for any operation system that is compatible with any browser chosen by users. This selection of operation system was not without any reasons, knowing the fact that this windows operation system is one of the popular operation system. Development tools used flow chart to describe the flow of the system design, the notion system and architecture design which was helped by dialogue chart to describe the forms (page) in the system. The system design of Hypermedia of Blood Circulatory System Based Multimedia used the Microsoft Windows platform with minimal configuration of Windows 98 SE with the help of animation and graphics processors which are the most

popular today such as: processing Dreamwever website using Macromedia MX, with SQL server database processing, processing using Macromedia Flash Animation MX, and graphics processing is Photoshop 7.0, Corel Draw 12. The main material in hypermedia learning systems were the Human Circulatory System on science basic concepts developmentIndonesian curriculum in accordance with competence globals of competence curriculum, with subject matter was blood covering the circulatory system and blood circulation apparatus, Circulatory System including circulatory system of large and small systems and equipment of blood Circulatory including heart and blood vessels.

3.2 Flowchart

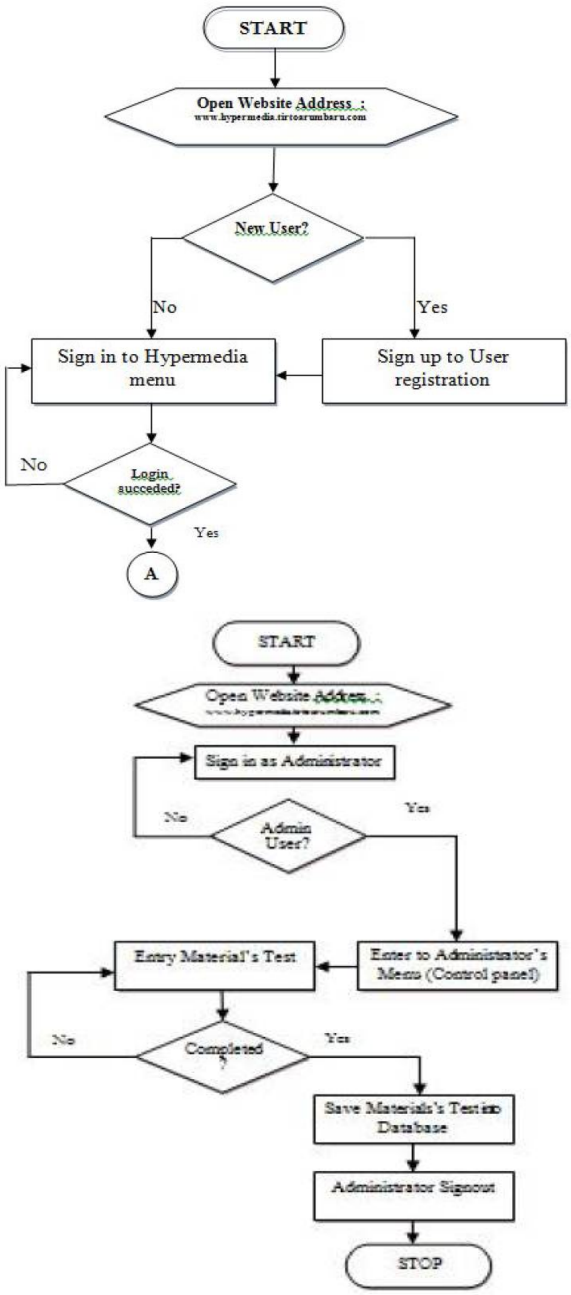
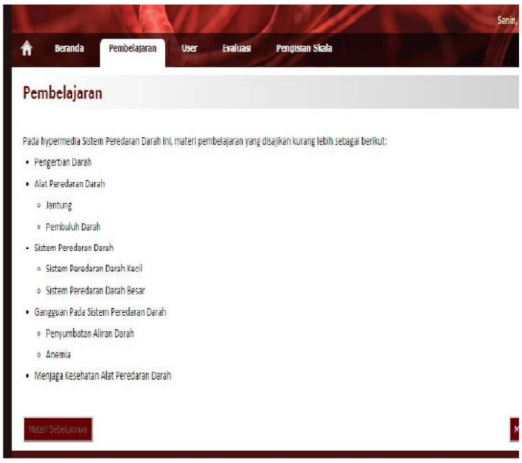


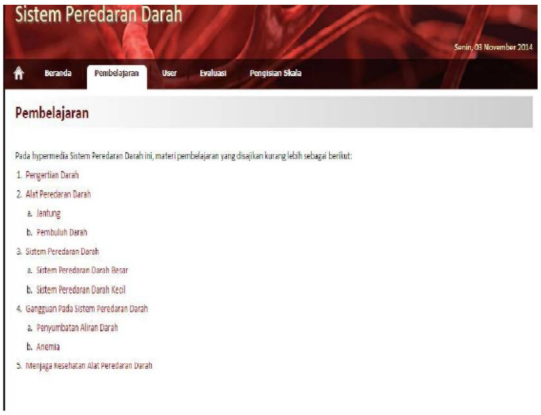
Fig. 1 : Flowchart Hypermedia System

3.3 Design Output Hypermedia

Hypermedia Model 1 :



Hypermedia Model 2



Hypermedia Model 3

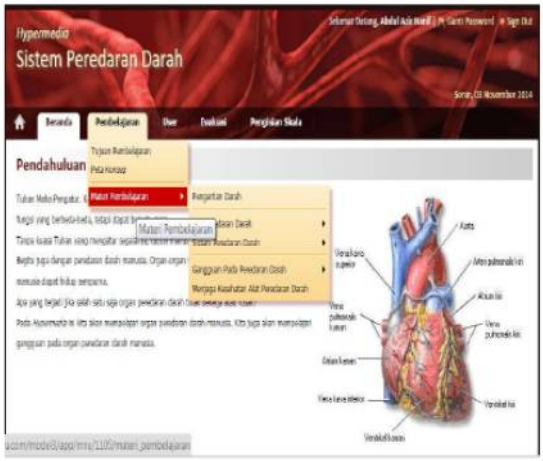


Fig. 2 : Design Output Hypermdia System

3.4 Discussion

The process of hypermedia developing using system developing life cycle (SDLC) with five steps that one by one appropiate with role of developing system

information. The implementation of developed did twice after get advising from expert team. They give some suggestion such as design, role, and material suitable with their capacity of expert. The design of hypermedia created using Photoshop software and Macromedia MX as website software engineering, The database using SQL server 200 for create field, subject and table of database. One example of an empirical study is provided by the developing of tecnology information learning to improve self control (Unggul Wahyono, 2008) that using SDLC as developing method.

There are alot of weakness using SDLC such as they have some requirement system that describing early, The steps of process should really right and could not change temporarely, SDLC also difficult to adapted that happend different spesification in one step developing. Whereas, SDLC have strongly strength that the model of developing system the best and also very long time using, It suitable for big system and generic system software, The process of developt using SDLC would like good managerial and easy to controlled by designer.

Each learning material is well presented with a hyperlink so that the respondents can access all of the material. The users of this navigation model will be more focused on one material because one page only presents one material. The changing of the material will be managed by the provided hyperlink. (3) Model 3 or advance model is a featured model of this study. It is a combination model between model 1 and model 2. The clarity of the material in this model is more focused and conceptual because each of the material is seperated with a menu in the learning content.

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