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Collaborative Learning Model With Computer Supported Learning Approach

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Abstract—Objectives to be achieved in this study are: (1) Knowing how to design collaborative learning model through Computer Supported Collaborative Learning approach; (2) To know how to design collaborative learning model through Computer Supported Collaborative Learning approach; (3) Knowing how the results of collaborative learning development through the Computer Supported Collaborative Learning approach has met the valid, practical, effective, and efficient criteria. The planned study is an educational research and development. In accordance with the understanding that this study aims to produce the product. The learning model of computer-supported collaborative learning is part of the learning function with a student-centered learning model. Learning model of Computer-Supported Collaborative Learning is a combination of cooperative learning model and the use of computer and internet as a medium for learning. With increasingly sophisticated technology, individuals in remote locations make it possible to collaborate online. Research in the field of Computer Supported Collaborative Learning or commonly referred to as Computer Supported Collaborative Learning, provides a new experience that Blog is one model that can be used to improve collaboration in learning. Its use in improving collaboration in learning provides an insight that Blogs are good when integrated into learning. As in this study, it can be concluded that Collaboration between lecturers and students in utilizing the Blog provides a good relationship to the increased collaboration between Lecturers and students. Utilization of this Blog makes it easy for lecturers and students to share information and interact either personal or group/general. Collaboration activities not only occur in the campus environment but anytime and anywhere. The effectiveness and efficiency of the use of Blog as a medium of Computer-Supported Collaborative Learning with some indicators obtained the assessment Very Effective and Very Good.

Keywords—computer supported collaborative learning; blog; collaborative learning

I. INTRODUCTION

The development of technology today is growing rapidly. The use of computers as part of technology is also increasingly widespread and has penetrated the world of education. Computers in the world of education in college is not only used

as a medium of learning in the classroom that helps Lecturers in presenting lesson materials. Computers can function more than just it, which can be used as a learning medium for students. Computer functions in learning at the beginning of its development are classified into two things, namely, computer-assisted instruction (CAI) and computer managed instruction (MAI). But along with the increasing needs of computer use in learning, then the computer functions expanded into three classifications, namely: management functions, learning functions, and action research functions. Management functions are intended to make school budgeting, accounting, record keeping, electronic communications, printing and information retrieval. Meanwhile, the learning function is divided into two, namely teacher-centered learning and student-centered learning. Action research functions include data storage applications and statistical analyses that assist teachers in processing learning outcomes [1].

The learning process generally emphasizes the importance of cooperation rather than competition as well as interdependence rather than independence [2]. If competition is developed, then the tendency can lead to thoughts and feelings that are not reluctant to attack others. On the other hand, the development of cooperation and interdependence can be developing the ability to face the challenges, leadership, and management that are urgently needed if they are already entering the workforce. Collaborative Learning (CL) is a structured and systematic instructional strategy whereby a group of learners works together to maximize the learning of their peers. The form can be dialogue, negotiation, and arguments to solve problems they have. The emergence of collaborative learning stems from a philosophical perspective on the concept of learning. To be able to learn, one must have a partner. Collaborative learning can provide opportunities to lead to successful learning practices. As a technology for instruction, collaborative learning involves the active participation of learners and minimizing differences between individuals [3] [4]. One method of applying collaborative learning is Computer-supported collaborative learning where a group of learners is in a computer network in order to maximize individual, team, and learning outcomes to achieve goals through useful discussions and assistance [5]. CSCL

learning model is viewed from the psychology of education including constructivism understand, that is students build their own knowledge. Students can study independently or in groups, form a communication network and interact with members of the group. Students can interact not limited to time, school, city, an even country which became a long distance learning problem over the years. CSCL learning model is allegedly able to establish independence and sense of responsibility learn, increase motivation to learn, forming metacognition ability and critical thinking ability in problem-solving.

Where alumni are prepared to go to the work world. Every student should be able to be prosecuted to collaborate with colleagues. For that in this study will be a collaborative learning model using CSCL approach, as the stock for students academically can improve learning outcomes and be socially able to cooperate well with others in workshop. Learning model has a broader meaning than the strategy, method or procedure of learning. The term learning model has distinctive features that strategy or learning methods do not possess: 1) The logical theoretical rationale devised by the educator; 2) Purpose learning to be achieved; 3) Teaching steps needed for the learning model can be implemented optimally; 4) The learning environment needed for learning objectives can be achieved. [5]

Collaborative methods are based on assumptions about the learning process of learners as follows: (1) Learning is active and constructive. To learn the lesson material, learners should actively involve with the material. Learners need to integrate this new material with the knowledge that has been previously owned. Learners build meaning or create something new related to the subject matter; (2) Learning is context-dependent. Learning activities expose learners to challenging tasks or issues related to contexts that learners already know. Learners are directly involved in the completion of the task or problem solving; (3) Learners are diverse backgrounds. Learners differ in many ways, such as backgrounds, learning styles, experiences, and aspirations. These differences are acknowledged and accepted in collaborative activities, and are even required to improve the quality of shared outcomes in the learning process; (4) Learning is social. The learning process is a process of social interaction in which learners build a shared meaning [6]. From the understanding of collaboration expressed by various experts, it can be concluded that the notion of learning collaboration is a learning strategy in which learners with multi-level variations work together in small groups towards one goal. In this group, the learners help each other with one another. So the collaborative learning situation has a positive dependency element to achieve success.

The rapid development of the use of computers in education and the change of web-based content delivery, this has led to an interest in educational actors to use non-traditional learning methods in the design and delivery of materials. Model collaborative learning was tried and found successful in the late 18th century by George Jardine at the University of Glasgow. He argues that teachers should change their activities in the classroom, and should give students the freedom to learn from each other [7]. CSCL offers an innovation and the advantages of using computer technology in

the learning model Technology is seen as a way to automate learning and can save costs, without changing the traditional learning point of view as the transfer of knowledge from authoritative sources to relatively passive student memories. CSCL uses media different from traditional ways to create new learning experiences for students, where students can interact with each other in a learning structure designed by teachers to create exploratory situations and discussions.[8] [9]

II. METHODOLOGY

Research is planned is an educational research and development. In accordance with the understanding that this study aims to produce the product. The learning model of computer-supported collaborative learning (CSCL) is part of the learning function with student-centered learning model. CSCL learning model is a combination of cooperative learning model and the use of computers and the Internet as a medium in learning. With increasingly sophisticated technology, individuals located in remote locations make it possible to collaborate online. The next multimedia development used in this research is as stated by Lee & Owens (2004: 161). The development consists of 5 stages: 1) Analysis, 2) Design, 3) Development, 4) Implementation, and 5) Evaluation.

Borg & Gall's research and development model [10] basically consist of two main objectives: (1) developing the product, (2) testing the effectiveness of the product in achieving aim. The first goal leads to the development of a product and the second aim is to lead to validation. Independent document. Please do not revise any of the current designations. [11]

The initial phase of the model trial Collaborative learning through the Computer Supported Collaborative Learning approach to be developed is to validate the product to material experts, media experts, visual communication experts, and programming experts. Initial product validation is done in an integrated manner starting from the device generated in the design (design) to obtain the product model of collaborative learning. [12][13]

III. RESULTS AND DISCUSSION

Based on the calculation results of questionnaires can be concluded that all of the features offered in the learning collaborative needs or are needed by students. The result of this requirement analysis is made valuable information for the next stage of development. Thus it can be ensured all features as offered are provided on every page of instructional media. After conducting needs analysis and literature study, the next step is to develop the features of learning model with CSCL approach that already exist in accordance with the results analysis. The blog used in this study was developed using www.blogger.com, used as a teaching medium at the time of learning in the lecture hall as a compliment that can be accessed by students anytime and anywhere via the internet. In making the blog as a medium of learning has several stages of the installation of the blog lecturer on hosting, page modification blogs, posts, and then integrate internet messenger, Flickr, SlideShare, youtube or google video and others. This integration is for facilitating communication,

exchange links and clarify material learning materials in the presence of images, animation, video, and others.

Assessment involves lecturers of Digital Electronics courses and media learning experts. Process assessment by an expert of learning media and lecturer of Digital Electronics is done by expert judgment. The results of the assessment conducted by the media through the expert process judgment as a whole shows good value especially aspects and features of visual design, completeness of information, convenience searching websites, assignments, reference lists or reading materials, blog profiles, materials animated presentations, videos and pictures, discussion forums, bulletin boards which provides information, means for sharing files and means of discussion group and access speed. On other aspects and features such as valuation, source reference, based on assessment results indicates sufficient value. From most blog ratings good value, then blogs contested to students.

Observation data sheets were described in this study is an observation sheet on the class which uses the learning model collaborative by using blogs. Each class's observation sheet consists of Aspects of the Role of Media (In This Blog) and student activities. After the Blog media was revised based on validator assessment results Expert and one-to-one trial, next field trial. This trial besides aiming to get various feedback about possible shortcomings still available on Blog products as collaborative learning is also to test effectiveness, practicality, and efficiency of the product. Collection data on this field trial was done using instruments in the form of evaluation sheets, and for observation using the instrument already provided.

Sheet evaluation that used to get data in the form of respondents' assessment of aspects of the content, aspects of practicum design, aspects display simulation aspects, and programming aspects. While observation (observation) is done to obtain data on deficiencies or weaknesses or errors that may be encountered in Blog media as learning collaborative and knowing opinions respondents about the attractiveness of learning by using Blog. Field trials are the ultimate test to measure feasible whether or not Blog media products as a computer learning media

Supportive Collaborative Learning which has been developed. Assessment Contents aspect for this field trial conducted by 30 students Department of Electronic Engineering Education Overall aspect of that judged by the results of field trials included in the criteria very well, through observation against respondents also obtained some responses as follows.

1. Through Media Blog, respondents can hone the competence Owned without having to go to the real laboratory.
2. Programs developed very well because it is very educative

in helping students to know and learn the various circuit and capable collaborate with others. On Field trials for test the effectiveness of the product through media Blog, then distributed a questionnaire to 5 observers. One of how to determine effectiveness and the practicality of the model is through expert judgments and practitioners based result of mastery of theory and experience which it holds that

Blog media can be said to be effective or no. Results of the questionnaire assessment on the effectiveness of the products presented. Next to see Blog products developed within this research has been qualified practical through several indicators assessment as presented, obtained the average score overall aspect of 4.9 in the category very good. The indicators are stated the practicality is elaborated with four assessment indicators as follows: First, respondents can implement and complete practicum objectively according to the flow and procedures in the Blog obtained the average score of 4.8 or deep category is very good. It is very practical when compared to the time practice on laboratory conventional one equipment in practice by 4-5 students so the completion of the practicum is not running objectively because only a workman and a who others just watch, also on conventional laboratory only smart respondents who can practice well. Second, Lecturers can directly perform assessment and scoring of results stored student lab in the database Blog obtained average score 5 or with the very good category. Unlike the case in the laboratory, conventional lecturers should observe students one by one carefully the walking of the practicum process done by the students. Third, Blog stored in the website can be directly in access by students to practicum obtained a mean score of 5 with the very good category. [14]

Everything needed in the Blog has been provided including tools and materials, measuring instruments, and datasheet books obtained a mean score of 4.8 with the category is very good. Computer learning model supported collaborative Learning is part of the function of model student-centered learning. CSCL learning model is a combination of learning models cooperative and computer use as well as the internet as an inner medium learning. With technology, the more sophisticated, individual which is at that location far apart allows for collaborating on online. Use of online learning model Blog-based can be utilized by the lecturer effectively as on assessment in Table 5.10 is obtained that assessment of the effectiveness of the media Blog-based at 4.56 (With criteria Very Good), although it is something new that may still be many obstacles. But it is believed in future models this distance learning will grow rapidly along development technology and the development of learning methods. In writing that proposed by Laurillard, highlights the differences in the framework embraced by the idea of instructors, socialist, constructivist and learning collaborative by using computers and those that do not use a computer. This is the basis for designing the necessary needs in collaborative learning. By contrast, in pedagogic learning media needs become important in the aspect of communicating. In learning collaborative, aspects communication can be access to information, ask questions, understand the concept, formulate purpose, repetition exercise, reflection, discussion, debate, articulation, and documentation of ideas delivered. In the framework CSCL learning work, tools traditional like a whiteboard or classroom is not a requirement major in collaborative learning, there is a new way with that can use. The CSCL model emphasizes the use of computer technology as a learning medium for enhancing the learning experience.

IV. CONCLUSION

Research in the field of Computer Supported Collaborative Learning or commonly referred to as CSCL provides a new experience that Blog is one of the models that can be used to improve collaboration in learning. It's used in the enhancement of collaboration in learning to provide an input that Blog is good when integrated into learning. As in this study, it can be concluded that:

Collaboration between faculty and students in utilizing the Blog provides a relationship both towards increased collaboration between Lecturers and college student. Utilization of this Blog makes it easy for lecturers and students to share information and interact either personal or group/general. [15]

Collaboration activities not only occur in the campus environment but anytime and anywhere. Collaboration between students and students in utilizing the Blog provides a relationship both towards increased collaboration between students and students. Utilization Blogs make it easy for students to coordinate with other students or study groups. They are also easier to share information and communicate and provide feedback on what their colleagues are doing. In addition, students can construct their learning outcomes.

The effectiveness and efficiency of using Blog as CSCL media with some indicators obtained the assessment Very Effective and Very Good.

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