

Build Cyber University and Implementation E-Learning in Higher Education

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Abstract- Utilization of information and communication technology (ICT) in education has changed rapidly as other technological developments. Model of distance learning by utilizing the internet (e-learning) to demand that must be implemented at all levels of education providers in higher education is no exception. E-learning (electronic learning) is one form of implementation of ICT in educational institutions, where e-learning can be a conveyor of media learning content. With e-learning, learning materials can be conveyed in a very broad range of information delivery time is very short even to reach areas that are in a very remote and difficult to access as long as the area is covered by an internet signal.

Universities should be a pioneer and role model for the planning and successful implementation of e-learning in educational institutions. Successful implementation of e-learning in higher education must be supported by institutions specifically examine and provide e-learning services in a form of Cyber Education Center (CEC). Existence CEC will be a barometer of success in managing the implementation of service learning and information needs that are vital to community college education. Development of CEC in college, can make a beginning in the development of concrete for a district/city in the Cyber City Education. Concept CEC in college could be developed as an internet-based learning development programs (e-learning) between the education community and the government aims to establish cooperation in sustainable development learning model.

Implementation of e-learning in higher education became a necessity as a consequence of the global demand for a cyber university in terms of the world class university.

Keywords – ICT, e-learning, CEC, cyber university, world class university.

I. PRELIMINARY

The development of information and communication technology (ICT) has penetrated all facets of community life. In everyday life use of computer technology and information society today no longer a dream difficult to realize, including its use in education.

Education through the electronic learning (e-learning) with multi-media computers widely known and used by the community, even it has become imperative that all information and educational development can be conveyed quickly and accurately.

In large cities, the level of students ranging from elementary school (SD) to the college was used to access the Internet to search for material enrichment lessons acquired in school / college. What is not understood at school or who have not received at school can easily searchable answer over the internet. The increasing penetration of communication services to the rural / remote villagers causing more easily communicate with the outside world and the ease of accessing the information resources available.

Internet access is no longer monopolized by telephone wires, but can pass either a tech mobile phone GSM (Global System Mobile) and CDMA (Code Division Multiple Access). Even for areas that are difficult to access it directly via satellite.

Given the use of computer technology and information to the world of education has become an integral part, it is necessary that the implementation of proper management and proper utilization in accordance with the desired target of government.

In this white paper Research Development and Application of Science and Technology of Information and Communication 2005-2025 said that information and communication technologies in the future will lead to technological characteristics: convergence, miniaturization, embedded, on demand, grid, intelligent, wireless inter networking, open source, seamless integration and ubiquitous. The technology is characterized by such things are expected to be able to be a source of climate formation that became the foundation for the growth of human creativity which in turn can become a capable human resources in the management system of quality education.

Utilization of information and communication technology in education must be balanced with an adequate system management capabilities so that what is desired in the planning and management of education can be conveyed to the fullest.

E-learning becomes an option when we are required speed and accuracy in the delivery of teaching materials. This technology is the future must be increasingly popular in the community, and even became a necessity when the teacher / manager wants to raise education teaching materials to students / pupils. The more so when the Internet is no longer a strange item in the community. What exactly is meant by e-learning system?. Simply put, e-learning is a distance learning system using the internet. All activities ranging from teaching, practice exams and assessments to be done online without having to meet in person. When compared with conventional learning systems, materials and supplies e-learning system is specifically designed and developed for online delivery including interviews and case discussions. In concrete system of e-learning materials presented in the form of modules which are stored in a database that can be reproduced over and over again quickly without the need of cost and can be designed for specific students.

E-learning facilitates student subjects were required to identify and formulate their own learning agenda will follow. Even the e-learning system allows people to determine their own techniques and training materials delivery format, whether text, multimedia, or other media (Fahmi Azmiar, 2005: 1).

E-learning material on-line internet can be arranged in such a way to better fit the needs and characteristics of students, both characteristics that influenced the age of maturity and the characteristics of regional / local.

Scope of e-learning which consists of theories, matter / problem, evaluations, discussions and simulations can be built with a communicative visualization. By utilizing multi-media that is owned, is expected to be held every school learning with e-learning technologies to the maximum so that the government's target of education can be a stakeholder in the utilization of information and communication technology can be achieved. Coverage of e-learning materials depicted (Suprijadi, 2003: 3):

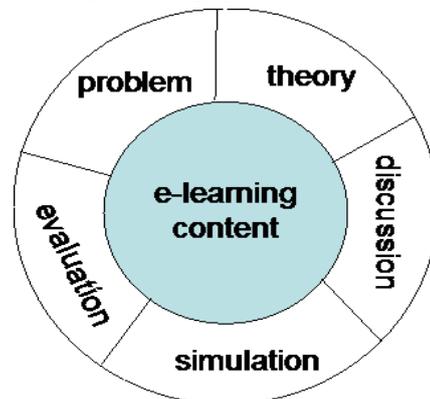


Figure I. Scope of e-learning Learning Materials

II. BUILDING A CYBER UNIVERSITY

As an institution of the highest education, in recent years many universities are developing in the field of ICT infrastructure such as the Internet are integrated in all parts of the existing college (integrated internet network). At present when ICT is a necessity, the successful implementation of ICT in higher education, particularly in the field of education (e-learning) will be one barometer of success in managing the learning process in higher education.

Implementation of the integrated internet in all parts of the concrete can be a beginning for a college in building cyber-university (CU). The concept is CU ICT development program between all parts (Rector-Bureau-Institute-Library-Faculty-Department-Study Program) at a college, which aims to establish an on-line communication between all parts. CU should be fully supported by the leadership of the college and all the academic community in order to provide maximum benefits, particularly in terms of organizing the learning process.

With cyber university, all the parts in a good college that is in the parent campus and regional campuses are located in a network through a Wide Area Network (WAN).

Topology cyber university scheme can be seen in the image below:

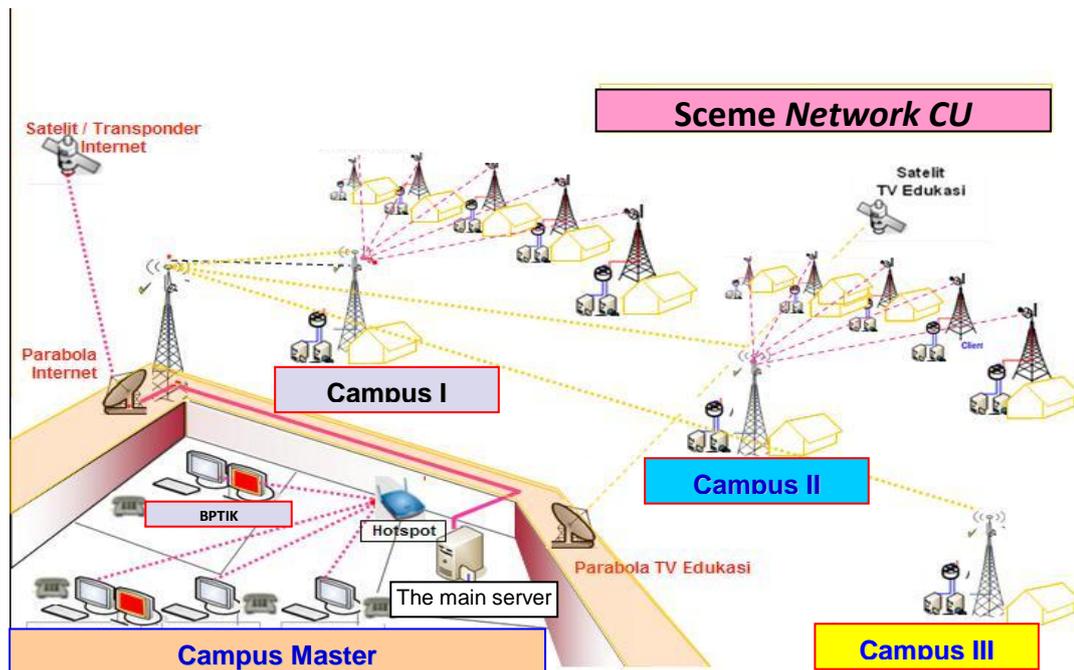


Figure II. Scheme Cyber University

The mission must be accomplished by the leadership of the college of Cyber University's development plan are:

1. Promoting ICT in order to encourage the implementation of internet-based campus.
2. Making the campus is loaded with the implementation of ICT development in all areas of administration and academic.
3. Encourage the creation of atmosphere of cooperation and competence development of an open and integrated ICT from all parts of the ICT community among university.

CU The development plan must proceed with the development of content that can accommodate Internet-based teaching and learning (e-learning) inter-Faculty-Department study program so that the learning process can be monitored by the leadership of the university with ease.

Cyber University development plan can be divided into several categories:

a. Infrastructure

- Providing Education Internet Exchange (IXEdu)
- Hotspot and Wireless Broadband Internet Access CU.

b. E-Content

- Web-Based E-Learning
- E-Book

c. Publications and Information

- Site Portal Cyber University
- Seminar / Workshop on ICT in higher education.

Many of the challenges to be faced in connection with the implementation of the Cyber University, particularly the availability of physical infrastructure, human resources and funds, but the plus side presence triggers Cyber University campus community to more quickly integrate with the global community. The existence of the implementation of Cyber University at a college, will bring a positive impact:

a. The establishment of the Global Community in Higher Education

The existence of Cyber University will make community college (college) good lecturers, staff and students know more about the internet so that they can become part of the global community. Domino effect is the campus community will be encouraged to learn about the internet and all things related to ICT and its use, certainly not to any direction there should be efforts to direct the use of function correctly.

b. Efficiency in the Administration and Learning

In the administration and teaching in universities, the Cyber University will make it more efficient. This is especially in terms of paperwork and correspondence such as conventional mail delivery can be replaced with electronic mail (e-mail), cheaper, faster, effective and available 24 hours, while in the case of learning the

internet can be used for the implementation of e-learning which has advantages in terms of range and infinite time. With the efficiency of this service to the campus community will be faster and unified (integrated).

c. Campus Development

Cyber University's presence could make the ICT factor as an important component in the construction and development of the college. This means, the campus can create a competitive advantage (competitive advantage) so that it can attract a lot of stakeholders to engage in the development of higher education.

III. ICT MASTER PLAN FOR HIGHER EDUCATION

College leaders should be consistent in following the development of the ICT master plan for the campus. This is because the development of ICT is very rapid, to say every three months will be improvements / changes in hardware technology, while the software can be said at any time is always changing and evolving on all types of implementations.

Frequent mistakes in the application of ICT in the campus is the absence of a holistic ICT master plan and integrated so that the application of ICT is still performed partial or patterned by a particular section. Therefore, it can occur at any part of the budget adoption will make its ICT master plan without knowing the parent (campus). Consequently, the development of ICT could not be targeted and integrated on a single interest. Due worse, the application of ICT can be a failure because it only focuses on the interest part and can not be integrated with the overall campus.

It would be wise if the design and development of ICT performed centrally at the main campus to accommodate the interests of all sections. The obvious advantage is obtained by the concentration of the design and development of ICT in the main campus is the cost efficiency and the application of ICT. How to design ICT master plan for the campus? Ideally, it should start by doing a gap analysis that will provide a factual overview of the condition of the existing ICT. Gap analysis is obtained by making a comparison between the components or factors required by the conditions of the current ICT infrastructure (existing infrastructure) on campus.

Components or factors required college obtained from the college's strategic plan is to analyze the vision, mission, goals, strategies, determining key success factors (KSF), and a portfolio of applications required. From this analysis, it would be known for certain what is actually required by the college to realize the strategic plan that has been agreed.

Conditions ICT infrastructure that is currently in a college can be obtained by conducting audits and assessments (assessment) in a comprehensive and involve all parts of the college.

Gap analysis conclusions about the state of ICT in the college include hardware, software, brainware, and policies. The output of this gap analysis is information that can be grouped into four parts:

1. These factors are necessary, but not owned by the college. For these results will do is program development (development) new.
2. Factors necessary, but not sufficient already owned. The solution to these findings was carried update (upgrade).
3. Factors necessary, has been owned and adequate. For the results of these findings will be utilization and deployment.
4. Factors that are not necessary, but it is owned. For the results of these findings will be eliminated.

Gap analysis is the basis for the development of ICT master plan, so that the ICT program that will be designed to be applied (applicable), directed, programmed and holistic.

IV. IMPLEMENTATION OF E-LEARNING

E-learning is a learning model that uses Internet technology for the delivery of learning materials. There are some terms that need to be explained in order to have full understanding of the area of e-Learning. Another term that includes distance learning, distance education, telelearning, online learning and e-training.

Distance learning is an interactive process of bringing information and learning information to students at a time, place and appearance (shape) is appropriate. (Roger Kaufman in Djuniadi, 2003: 2). While distance education is a learning situation between tutor and student are separated by time or place. Greater control of the learning is on students from the tutor, and the communication between the tutor / teacher and students use media communication technology (Lorraine Sherry in Djuniadi, 2003: 2).

Telelearning is the relationship between people and resources to use media and communication technologies as a learning goal (Betty Collis in Djuniadi, 2003: 2). While online-learning with web-based learning. Online learning is the use of some of the technology-based learning and describes learning via the Internet, intranet or extranet.

Understanding e-learning as follows, e-learning is a technology-based learning, includes a number of applications and processes, including computer-based learning, web-based learning, virtual classrooms and

digital collaboration. There are other terms that describe the e-training a company or institution as operator training using e-learning. Respective territorial definition can be clarified with respect to figure III.

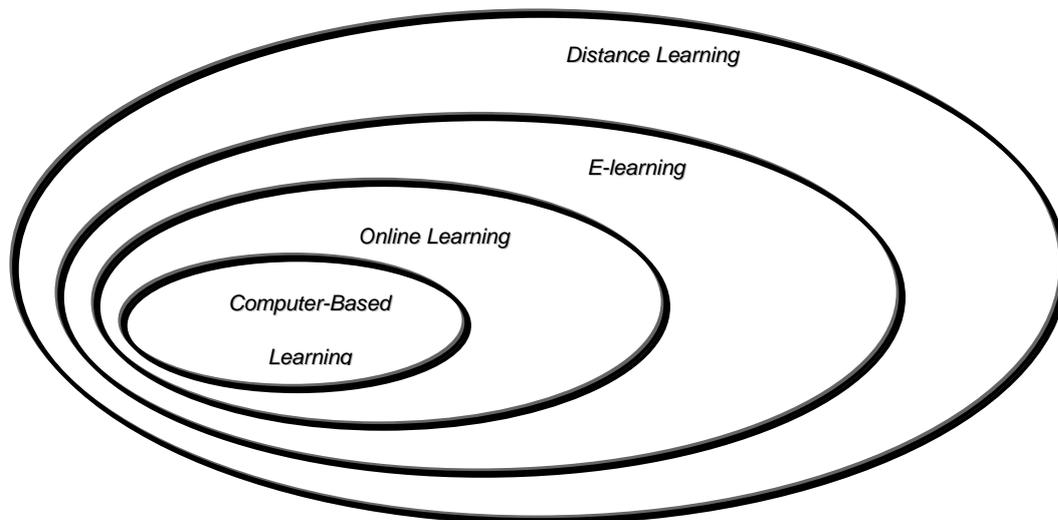


Figure III. Subset Instructional Technology

For the development of ICT network system (E-Learning), required hardware support especially computer equipment as key must exist. A large amount of computer equipment with a powerful specification and supported by a large internet bandwidth in a control center will certainly make it easier to access all the learning materials that have been developed. The problem that often arises is the number and specifications of available computers is relatively very limited, besides the crappy quality internet access, especially in the areas of information technology and communications coverage is still very limited. To provide ease in accessing the system, we need a system that allows it to be identified directly and centrally in a network of intra-net, with good inter-network connectivity. The system developed should be based operating system that has been commonly used, so as to serve the entire operating system and resistant to outside interference such as viruses.

V. E-LEARNING MANAGEMENT MODEL

Many factors affect the implementation of e-learning, but among all the factors that influence exists, then the motivation for faculty to want with full awareness and responsibility of using e-learning in the learning process on campus. Thus, the readiness of teachers in the development of e-learning systems are dominant in the implementation of e-learning on campus.

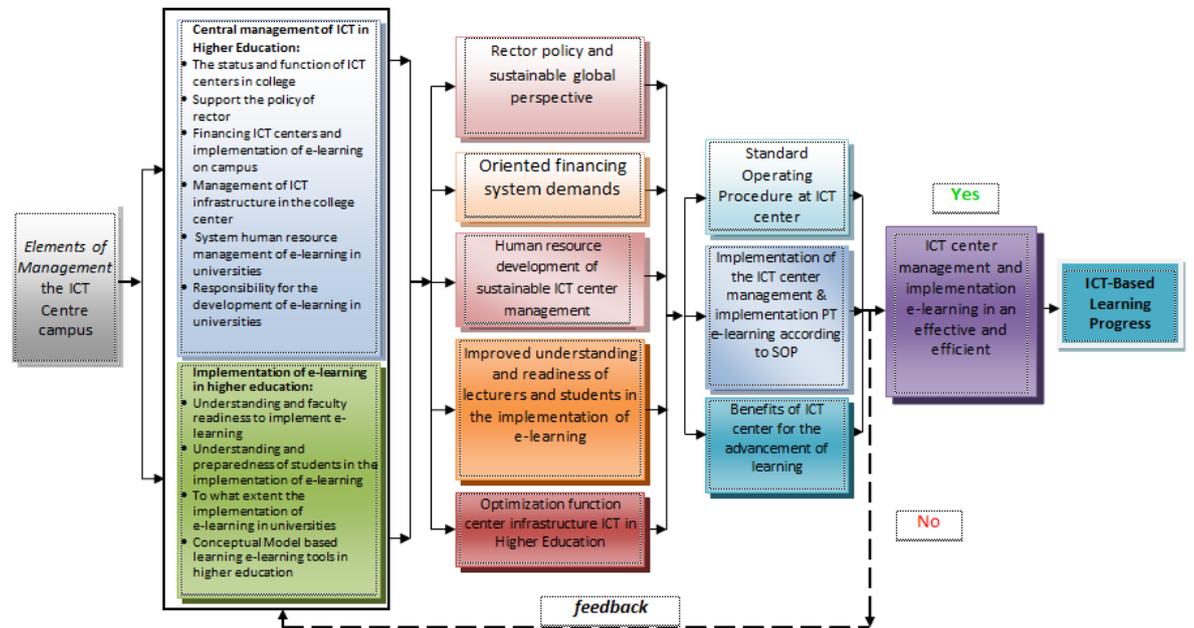
To find out how effective and efficient management of the ICT center campus, have formulated a conceptual model of ICT center management and implementation of e-learning effective and efficient. The formulation of this model is based on the study of management theories and research results.

The formulation of this model builds upon the elements that support the effectiveness and efficiency of the management of e-learning, namely:

1. policy support from the Rector of management of the implementation of e-learning,
2. understanding lecturer on e-learning technology which includes internet, learning on- line, and a learning management system, and
3. students' understanding of e-learning technology which includes internet, on-line learning, and distance learning,
4. teacher readiness in preparation of course material into an e-learning module, with operational capability in implementation of e-learning,
5. student readiness in the event receive course materials via e-learning, with operational capabilities in the implementation of e-learning,
6. the readiness of the infrastructure supporting the implementation of e-learning management;
7. systems supporting human resource management of e-learning implementation ;
8. financial management system implementation of e-learning;
9. the implementation process of the implementation of e-learning management;
10. ICT center management control systems and implementation of e-learning on campus by the manager.

Each of these elements must be running optimally and effectively so that the effectiveness and efficiency of the campus ICT center management and implementation of e-learning can be achieved optimally anyway. Each of these elements are in fact interconnected with each other so it will affect the effectiveness and

efficiency of each of the campus ICT center management and implementation of e-learning. Formulation of a conceptual model of ICT center management and implementation of e-learning effective and efficient on campus that may be suitable to be developed at universities such as figure 4 below.



VI. COVER

E-mail, mailing lists and World Wide Web can be a powerful tool to boost college performance in an integrated network. The success of the development of Cyber University in a college would be evidence that the application of ICT in higher education can enhance the learning process there.

It takes extra effort and commitment of the leaders of higher education in order to establish the Cyber University as well as the implementation of e-learning that can be felt by the entire campus community.

Hopefully Cyber University can be a best practice for universities who want to enhance the learning process by utilizing the latest technology.

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