Optimizing the Implementation of e-Learning Strategies in Higher Education

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Abstract—As part of quality assurance, a tertiary education institution has the obligation to plan and design the best methods for students to follow and understand what is taught. Sometimes, a skilled professor may be able to convey materials which are quickly comprehended by the students. However, it is not infrequent that many lecturers experience difficulties in delivering easily understood by students due to various conditions, such as limited time, the class atmosphere, and various conveniences which often rise in a classroom.

A feasible solution to the problems is implementing e-learning in supporting the learning process. In concept, e-learning will help transfering knowledge from teacher to student. Yet, many schools engaged in establishing an e-learning system do not see a significant improvement in knowledge transfer, as explained in various existing e-learning concepts. Such implementation is of little use because what is invested is not in line with expectations.

Optimization in this case is crucial where a university puts efforts in reviewing the extent to which the role of e-learning can be achieved. Certainly, the role of a system in developing e-learning needs required focused attention because it will affect the culture of all parties involved.

Index Terms— learning strategies, transfer knowledge, strategy domain, optimization

I. INTRODUCTION

Currently many organizations began using information technology, this condition requires that the use of appropriate technologies will greatly assist organizations in carrying out its business processes, and can sometimes be an advantage in competing. This has happened in the world of education, whose core business is learning. One group is college education, which was spicy using a methodology of delivering information using e-learning system. A number of universities in Indonesia are trying to take advantage of this opportunity trying to optimize the e-learning system. Constraint is often the case, that the management of e-learning system which is implemented in college was not built in accordance with the capabilities of the system or it can be assumed is not optimal delivery methodology and packing materials are included in the e-learning, so that many colleges do not feel a significant change in the presence of e-learning system. Finally, many e-learning that is built not far different from the functions of the website in general, which save the document as usual for download by students. Implementation of e-learning strategy becomes important if the expected presence of a better transfer knowledge, than learning how ordinary (conventional).

Obviously, the effect arising from implementation of e-learning optimally will change the culture of student learning, particularly in terms of ease to understand the knowledge given by the lecturer.

II. E-LEARNING SYSTEM

Although the application of e-learning system is quite variable at this time, but it is based on a view that e-learning system, as a means of information delivery and distribution of teaching materials through the medium of electronics. So participants can understand both learning the knowledge given by the lecturer. As noted by Gilbert & Jones [1] about e-learning, namely : the delivery of learning materials via an electronic medium like the Internet, intranet/extranet, satellite broadcast, audio/video tape, interactive TV, CD-ROMs, and computer based training (CBT).

Similarly, the definition of e-learning in The e-learning Action Plan to explain ".e-learning defined as the use of new multimedia technologies and the Internet to Improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration. " [2]

Markus (2008) defines e-learning as follows: "e-learning is a learning process created by interaction with digitally delivered content, network-based services and tutoring support. This definition focuses on the revolutionary impact of network-enabled technology. Adding more details on methodology : e-learning is any technologically mediated learning using computers whether from a distance or in face to face classroom setting (computer assisted learning), it is a shift from traditional education or training to ICT-based personalized, flexible, individual, self-organized, collaborative learning based on a community of learners, teachers, facilitators, experts ". [3]

The emphasis in this framework is on the facilitation of a broad range of learning opportunities through the use of Knowledge, Information and Learning Technologies (KILT) and can be described as follows [4].

The competencies contained within the framework require the identification of the learning goals, needs and styles of individuals and the design, management and evaluation of programmes to meet those individuals requirements. They involve a sound knowledge of the contribution of KILT to successful learning events, and appropriate levels of expertise in using KILT to enhance the learning experiences of individuals and groups.

The use of e-learning aimed at the realization of learning based on student (Student Centered Learning /SCL). SCL built learning content must refer to the Competency Based Curriculum (CBC). Of course, learning content built CBC, must provide the ability to understand, explain, to describe, and xplore the competencies have been defined.
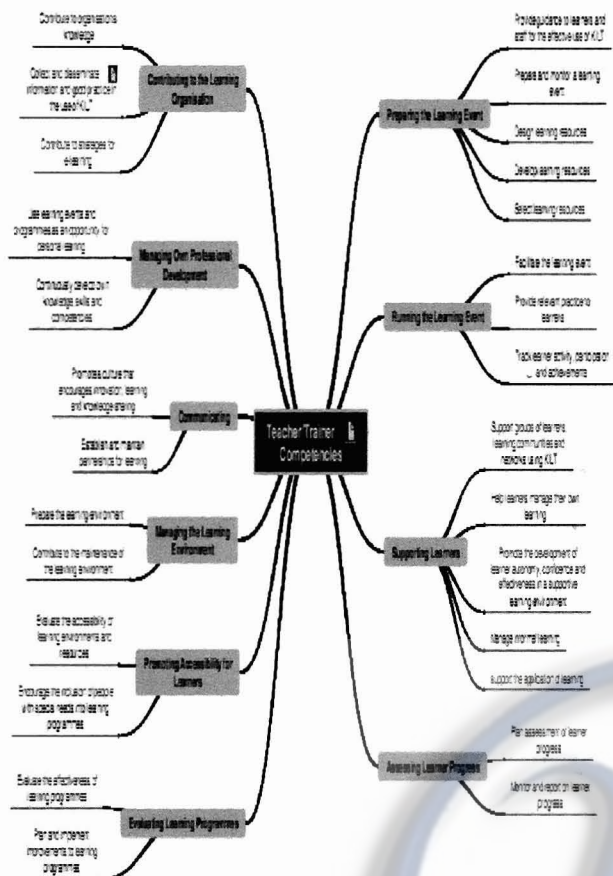
Fig.1.The E-learning Competency Framework for Teachers and Trainers.

CBC learning content to the needs of e-learning media should refer to the e-learning framework. There are several advantages to the media e-learning, first, has a broad coverage so once this expansion as a virtual university. Secondly, media e-learning is flexible and interactive so that students more easily adjust to the desire to learn. Third, media e-learning contains elements entartain for students, thus increasing the durability of students to learn. Finally, media e-learning is very good for a vehicle resource sharing, on knowledge, HR and others.

A fifth model is electronic performance support (EPS). This is the term for instruction available in the workplace, perhaps incorporated into a computerized system designed to perform a task, or perhaps held by the operative as an electronic form of instruction manual (for example, on a handheld device) [5], these are summarized in TABLE I.

TABLE I: THE FIVE MODELS OF E-LEARNING

Model 1	online courses	exclusively online courses, providing learning solely via the internet
Model 2	integrated online and offline learning	learning programmes that integrate online learning with complementary offline activities
Model 3	self-managed e-learning	the provision of online learning resources for self-managed learning
Model 4	live e-learning	synchronous online learning events involving learners in multiple locations
Model 5	electronic performance support (EPS)	work-based online learning to support specific tasks, systems or operational procedures

III. LEARNING STRATEGIES

A learning culture is a climate within an organization where people enjoy learning and see it as one of the benefits of working there, where people welcome and seek out opportunities to learn and work is often arranged to build in learning experiences. By definition, a culture is not really a tangible thing but we can identify distinguishing characteristics to help us know when we have one. Peter Senge is the organizational development theorist who has had most to say about this. He has identified five dimensions of a learning culture: personal mastery, mental models, shared vision, team learning and system thinking [5] (see TABLE II)

TABLE II: A LEARNING CULTURE

Dimension	Description
personal mastery	creating an environment that encourages the development of personal and organizational goals in partnership with others
mental models	using visualization or 'internal pictures' to help shape behaviour and decisions
shared vision	winning group commitment by developing shared images of how the future should look
team learning	encouraging collective thinking and working, so that a group's capacity to develop intelligence and ability is greater than the sum of its individual members' talents
system thinking	developing the ability to see the 'big picture' within an organization, and understanding how changes in one part affect the whole system

The main thing at the time of lecturers will conduct the learning process, is preparing the pedagogical and instructional materials. General sense defined in pedagogical, as a way to convey information to students, including the style of the lecturer concerned. So in this case, this teacher must have good teaching skills to interact or communicate with students. Teaching materials are presented as well, must be understood by students. To these two things, who became concerned in transforming the knowledge given to the student teacher. In e-learning system is also necessary to the learning process, which is expected to provide a better knowledge than just plain learning. That is, the pedagogical methods and teaching materials in e-learning will be designed in such a way as a learning strategy.

Learning strategy, a design tailored college environment. Because every college has a different emphasis in providing knowledge to the student learning. This is reasonable, given the vision and mission of a university is also different. More specifically, instructional design needs to be described to be run, according to the needs and ease of learners in understanding any material from the lectures. This is the reason for the need to build a good learning strategy, so that knowledge transfer can be optimized by means of e-learning. E-learning system has been designed to be used as a means of various formats of digital media, this ability may be need to be optimized by universities in developing the learning process.

The focus of this research strategy more towards preparation of teaching materials or known content

management system (CMS). Many things to consider, if universities want to use them optimally, meaning that the application needs to perform all types of digital media format capabilities to provide information that is easily understood by students. Here is the distribution of teaching materials preparation strategy domain becomes :

1) Domain Developers topic / course materials
2) Developer Domain content / narrative
3) Domain Developers animation / audio / visualization (ADV)

A. Domain Developers Topic / Course Materials

This domain describes the scope of the subject that will be given. Of course, the picture of this scope will be different with a view on the scope face to face in the classroom. Because of this scope, the limits presentation of material that must be achieved by study participants. Further more, this scope will be reduced to the topics that will be measured based on the duration or meetings. This in turn, a topic not just keep learning material but has been tested first. That what was presented was well understood by students. Then, this topic is also revealed to be sub-topics, which will further determined core competencies. At its core competencies need to be established, the minimum that must be mastered / understood by a student.

This domain is in fact concluded, that the subject that is usually given in a classroom, can be done with many topics, because of the rapid interaction at the lecturer providing course material, as well as the ability of a good reception at that time for students (both directions). However, students are often unable to remember all the good of delivery, and consequently a lot of information is lost or forgotten.

While in the context of e-learning, the topic became a little more, because the delivery is some what different with in the classroom. So, this topic should be packed in different forms but the results should be understood by students, conclusions made by the repetition of material that students can improve the quality of learning.

B. Developer Domain Content / Narrative

As explained in the previous domain, then the next is more focused, in part to be used as a core competence or at least part of each meeting (sub-topics) are presented. This is the most important part of a presentation in e-learning , because the content or narrative that is not optimal in the present section / core competencies, then it can definitely be having problems on the material / sub-topic of the next.

Servings of the narrative (e-learning), should be able to match the quality of delivery of the narration at the lecturer explained in the classroom. As the order of delivery may change according to the dynamic faculty interaction with students in class, but at a certain time lecturer can control / restore the main topic. The problem, students are not always able to engage actively in the process of dynamic learning.

So this domain, emphasizing the stages of interaction, which can be arranged by the lecturer with a variety of explanations channels, to better facilitate the dynamic understanding of learning for students. Channel this explanation, may include; descriptions of story can be linked to specific addresses; to explain in more detail; or in the form of interesting things that can motivate users of e-learning

to follow it. In conclusion, the material in the form of text should be designed with various links or steps that provide more detailed understanding. Analogy, if students are not forced into a particular link, then the student will not understand the intent of the lecturer concerned.

C. Domain Developers Animation / Audio / Visualization (ADV)

The next domain is no less important with the previous domain, because this domain is used to revive the atmosphere of each narrative is presented. Problems that often arise in the users e-learning, because the support of the ADV is not optimized and consider the description in the form of text has been adequately understood by students. ADV is also unable to stand alone without the role of a narrative, because the role of narrative provide direction and structure of a topic that is expected to be understood by students.

In this case, certainly not just record a voice teacher but need to do a wide range of application of digital media formats, in order to match the technical faculty teaching in the classroom. All existing digital media format, the presentation might not be the same for students of different classes, although the same subjects are presented. Therefore culture / character of students for each class differently. Or not all courses must be created using an audio form at but tailored to the ease with which it can be understood directly by the student. How to use this ADV will change the culture of students, in learning the course material in various forms of digital media formats.

D. Example Application of a Sub Topic

The following slides illustrate the application of a sub-topic, supported by visualization. This media uses powerpoint format.

Slide 1

Visual Concepts :
- Animate text points from bottom to top of the screen
- Provide a virtual host as a learning companion.

Slide 2

Visual concepts :
- Draw a figure that can be clicked
- When clicked come up with a text bubble

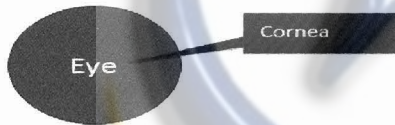This method is often referred to as a click button
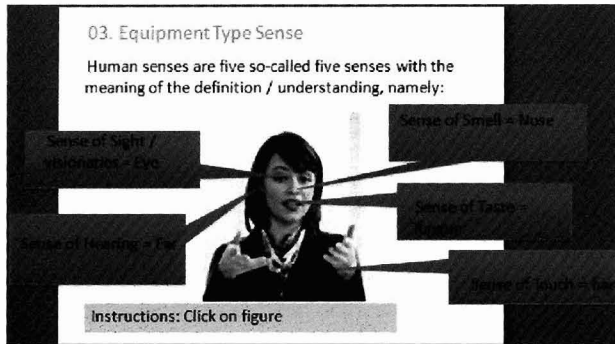
Slide 3

Visual concepts :
- Draw a half-body figure can click on parts of the senses
- When the cursor through the senses come up with a Description
- When the cursor out of the sensory information disappears

This method is often referred to as a rollover button

Slide 4

Visual concepts :
- Describe the parts of the eye such as cornea, pupil, iris, diaphragm etc.
- When the cursor through the senses come up with a description
- When the cursor out of the sensory information disappears
- Cornea, functioning of light entering the eye forward to the retina.
- Iris, controls the light entering the eye.
- Pupils, more or less controls the light entering the eye.
- Lens, focusing light Functioning into the eye to fall precisely on the retina.
- Retina, Functioning receives the incoming light.

Slide 5

Give mark for correct answer

Feedback :
- When the user answers correctly, come up with a caption "Great, you're rightanswer"
- When the user answers wrong, come up with a caption "Sorry wrong answer, try again"
- When users answer incorrectly 3 times, come up with a caption "Please see the correct answer."

Slide 6

Visual Concept :
- Create a table discussion, when the mouseover (pass cursor) statement appears.

IV. CONCLUSIONS

Conclusions in this research, explained the need to design content in a more optimal learning at the time will be uploaded into e-learning system. Some of the things that guide the design it, namely :

1) A topic that is usually described in a short duration at the time in class, it can not be equated with the duration when given the same topic in e-learning system
2) Topic usually described verbally in class for one session, can be divided into sub-topics to facilitate the design and visual narrative
3) Sub-topics that have been made need to think about core competencies or at least knowledge to be gained from the student learning outcomes
4) Exposure to a sub-topic, should be described more detailed narrative and it would be optimal if included visual or audio from any narrative that explained it.
5) Instructions learning needs to be included also to facilitate the students trace the narrative of a sub-topic.
6) Each exposure to a sub-topic should be described more detailed narrative and it would be optimal if included visual or audio from any narrative that explained it.
7) Instructions learning needs to be included also to facilitate the students trace the narrative of a sub-topic.

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