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A FRAMEWORK OF E-COLLABORATIVE LEARNING IN HIGHER EDUCATION ENVIRONMENT

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Abstract - *Learning process in higher education is such challenge and many empirical research already stated that it still need many improvement in it. While e-learning become one option to improve learning process, e-learning implementation itself also meet many challenges. Other researchers previously described practically that collaboration can improve learning process, even in learning process which use e-learning. This paper tries to model a global framework of collaborative learning in context of e-learning, or commonly named e-collaborative learning. It also describes main component and business process that should be done in designing e-collaborative learning especially in higher education environment. In short, the framework should be easily adapted by college in implementing e-collaborative learning and furthermore it will ease future empirical research of e-collaborative learning.*

Keywords: *e-collaborative, e-learning, higher education*

1. Introduction

E-Learning has always been crucial issue among higher education nowadays, especially in Indonesia. Since that many colleges have already claim that they implement good e-learning, many colleges also have difficulty in implementing it. This can be happening not just because of digital literacy deficiency among lecturer and learner, but also happen because of pluralism in common teaching activity.

Indonesia government itself has already been supporting e-learning in higher education through INHERENT program that give proper bandwidth among college in Indonesia. However, its implementation is not widely adapted by many colleges, since that information that being represented in colleges' website is merely lecturer's note and e-book.

E-learning always assumed as knowledge-sharing tools. Knowledge sharing is actually just e-communication: the tools that make it possible to get information from one person to many people quickly and consistently (Kelly and Nanjiani, 2004). Even though knowledge sharing will not replace instructional-led effort to bring course material in classroom activity, there are more resistance in implementing such concept.

Especially in college environment in Indonesia, while many students and lecturers still believe that classroom activity is the best approach in gaining knowledge. This traditional believe is supported by myth that e-learning would merely be an annoyance toward *normal teaching*

activity. On the other hand, e-learning trend is keep rising more not just in education environment, but it also grows more than 15% in industrial environment in US (Kelly and Nanjiani, 2004).

Therefore, many researchers already did experiment in order to make e-learning more successful. One approach that already believed by many researchers is using collaborative learning framework (Michinov and Michinov, 2008). This approach being believed can improve learning more effective for college's student (Puntambekar, 2006; Bennet, 2004).

Even though many empirical research already being done about collaborative learning (Bennet, 2004), however it still need unique implementation in each college. Hence this paper tries to create common framework for higher education environment in order to make a collaborative situation in e-learning or commonly named as e-collaborative learning.

2. Literature Review

Collaboration is a process by which individuals and/or groups work together on a practical endeavor. Collaborative work is a fundamental feature of organizations and is increasingly being supported by technology (Fong, 2005).

It is commonly known that helping students develop the interpersonal skills that underpin collaboration is an essential part of preparation for the world of work (Bennet, 2004). Thus, collaborative skill is really needed in order to make higher education learning process more effective.

On the other hand, online learning often exacerbates earners' ambivalence toward group work (Dirkx and Smith, 2004). While e-learning has already growth rapidly, the emergence of collaborative learning in online environments must become more focus in its building process (Bennet, 2004; Dirkx and Smith, 2004). Thus, using collaborative technique applied in e-learning environment, students will get more excited in doing learning process (Dirkx and Smith, 2004).

Collaborations also previously being proved that can encourage other individual to join the process as it progress (Buck, 2006). Empirical research toward collaborative learning also proved that students and also teachers are more excited in doing learning process using e-learning (Buck, 2006; Dirkx and Smith, 2004; Bennet, 2004).

It is also clearly stated that collaborative skill for higher education rarely thought as soft skill (Lynch and Fisher, 2007). That is why online learning groups get

stuck between opposing fears of loss of individual voice and identity, associated with belonging, and fears of isolation, alienation and estrangement from the group, associated with asserting one's individuality (Dirkx and Smith, 2004).

Other empirical research has already stated that learning will be more effective through sharing a common belief that knowledge is constructed by learners rather than transmitted to learners (Ines, 2006). Thus, collaborative learning must be intended for dealing with constructivism and social constructionism in order to ease learner.

All of those problems earlier stated is can be solved using unique collaborative implementation for each college (Bennet, 2004; Dirkx and Smith, 2004; Buck, 2006). However, there should be global framework in order to ease other higher education environment to form each e-learning model (Kelly and Nanjiani, 2004; Baghdadi, 2007).

3. Model

Infrastructure Architecture

Model that being proposed in this paper is merely global framework for higher education environment, especially in Indonesia. Technically, simple collaborative learning must be aware of outer side participation. The outer side should be group or someone that can construct knowledge sharing among students and also lecturers in order to make e-learning not becoming in one way passive teaching.

It means that learning process will be done in bidirectional rather than unidirectional. This should improve students' motivation and as well makes learning process more successful (Clark and Gibb, 2006).

Therefore, e-learning server must have a web server as gateway to outer side that will give their knowledge to share. Initiation of sharing must be done by lecturers as they are the "driver" in learning process. This means that even though students have independency in e-learning access and also questioning "something" to outer side, lecturers must coerce all topics still in active course.

Since that not all lecturers capable in handling e-learning infrastructure, there must be a special e-learning administrator. This special role must handle all technical administrative stuff in e-learning process. Technical administrative will take care infrastructure as well as content management system that will need special IT knowledge in managing it.

E-learning administrator could be from pure IT technician or it could be from lecturer that has special ability in handling server or content management system. It roles not merely handle troubleshooting, but also organize data traffic and create boundary between inner side (lecturers and students) and outer side who access e-learning from outside college. This boundary will be a protection besides of restrict the students in order to keep the course still in its track.

Big picture of common infrastructure in e-collaborative is described in following picture:

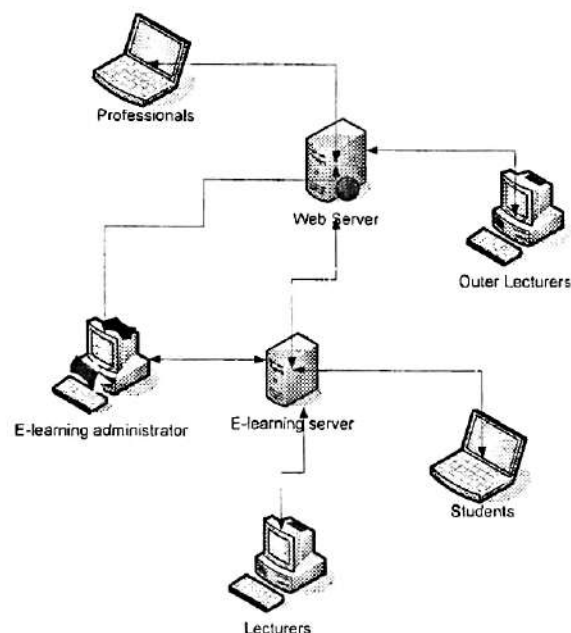


Figure 1. Infrastructure Architecture

Business Process

In addition, e-collaborative that will be implemented must be unique according to each faculty class material. Since that not all class material are suitable using this model, thus head of faculty also must be included in business process.

On the other hand, lecturer must arrange course material so it can take as broad a view as possible of the rationale for group work, and particularly more consciously to apply adult education principles to the design and implementation of group work (Holtham et al, 2006). Since that main problem in collaborative learning is individual accountability are often not found in student group projects assigned in business classes (Holtham et al, 2006).

Thus, it means that lecturer must bring course material in team work method in this framework or model. The common problem from this model is many of the student concerns have their correlates in academic concerns. Concerns about levels of individual input into teamwork are inherent in attempts by academic staff to assist students in developing functional interactions (Wilcoxon, 2006).

In order to solve that problem, business process in e-collaborative learning must include scaffolding material that will have flexibility according to students' progress level. So, hopefully there will be no student who complains about unfair grade during collaborative session, whether they do collaboration with their peer or with outer side.

Lecturers also must put themselves into fair position while grading students' progress. Active student must be controlled using its solvability outcome problem. Thus, their activity is not about quantity, but it must be depend on quality.

Quality of collaborative outcome also can be judged by its peer reviewed, especially peer that come from outer side. Since that outer side (guest lecturer or professional in its special skill) must have fair reason in

grading students, so they must be picked up carefully by lecturer and also being approved by head of faculty. Outer side capability will become main support in this framework to achieve e-collaborative purpose.

When lecturer or head of faculty cannot find excellent outer side that assumed to be capable enough in this framework, outer side can be taken from students from different level or another lecturer from other faculty. Even though this situation is categorized as emergency, but outer side must be present in this framework to bring e-collaborative fulfill its purpose.

Based on previous description, the business process of e-collaborative learning can be illustrated using following use case figure:

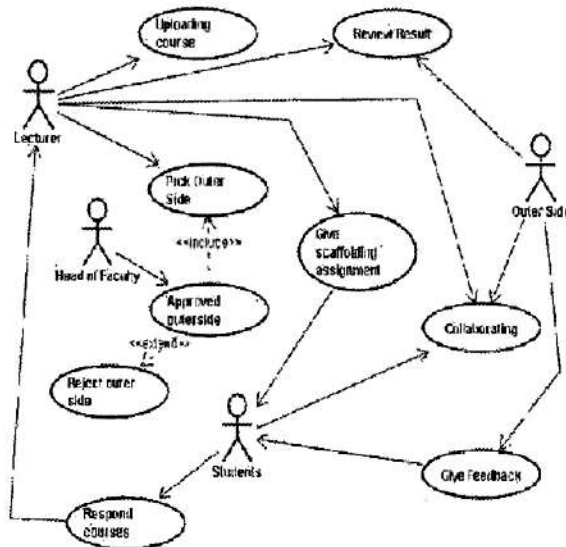


Figure 2. Use Case Model

4. Conclusion and Consideration

E-collaborative learning framework that already described previously is still global picture of its model. While this framework is not empirically tested, thus it will need many adjustments if it really implemented.

Meanwhile, the main difference in this e-learning model is the outer side component that resides outside college but they will be main factor in it. Therefore, outer side personnel must be picked up very carefully and must be not chosen by individual lecturer. But its pick up process have to be approved by head of faculty, and it also can be suggested by peer lecturer.

It also stated in framework, that outer side role is not passive role. Their role is very significant and become benchmark key for the lecturer in grading students' outcome. Thus, outer side should be rewarded by faculty, otherwise, their role will not become effective and e-collaborative purpose will not be achieved.

Other thing that should be considered in this framework is the breakdown of framework. When this framework is going to be implemented, faculty must consider about infrastructure planning. Faculty must be careful in choosing hardware and also software that will be used in this case.

Simple software that use e-learning template such as Moodle is not enough for this framework implementation. It must be combined with other

collaboration template such as wiki template or forum discussion, thus its collaborative feature can be shown explicitly.

On the other hand, building process of this framework also must include good preparation of complete course material. Course material that is being provided by lecturer is not common course material, but it must be prepared better. Due to its main feature that needs scaffolding material, it means that the course material must be divided into stages.

The stage must deploy each difficulty step and also accommodate all students' level. Whether the level is under average, average or above average student, they all must have different course.

This framework also need lecturer active role in learning process. Even though many lecturer still think that e-learning process must be done by students independently, actually it still need active control and dynamic adaptation from lecturer.

In short, this framework should give the students new experience and improvement in learning process. It also can give outer side become more aware, what should higher education give in its course to suit college graduation hard skill in real world. It also give lecturer better knowledge, since that collaborative process surely will add broader knowledge among lecturer, students and also outer side.

In future, this research must be continued into empirical model that will bring up weaknesses that should be corrected. Empirical research also can be done in order to make more detail in framework, thus the model can be better adapted by many college easily.

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