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by Soetam Rizky Wicaksono

Modeling Wiki as E-Collaborative Learning in Higher Education Environment

Soetam Rizky Wicaksono

MacWISE (Ma Chung Web Innovation Study Center) - Information System Study Program
Ma Chung University
Malang, Indonesia
soetam.rizky@machung.ac.id

Abstract—-**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. 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. One of the most common way to implement collaborative situation in e-learning environment is using wiki. This research try to give real model of a wiki implementation as a e-collaborative learning in higher education environment. While the implementation of this wiki still currently in progress, this model expectantly help many lecturers in Indonesia to create similar implementation in their own higher education environment.**

Keywords—**Wiki, E-Collaborative, E-Learning, Higher Education**

I. 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 [1]. 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 [1].

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 [2]. This approach being believed can improve learning more effective for college's student [3,4].

Even though many empirical research already being done about collaborative learning [4], however it still need unique implementation in each college. Hence this paper tries to create alternative framework for higher education environment in order to make a collaborative situation in e-learning or commonly named as e-collaborative learning.

One of the most common way to implement collaborative situation in e-learning environment is using wiki [5,6]. It is not merely based on wikipedia popularity, however, it already being proven that using wiki technique is more succesful for learners which need self motivation and also anxious about the effectiveness of e-learning [6]. This learners characteristic matchs with most college's students in Indonesia, which

commonly hesitate whenever their lecturers try to give course material in e-learning way [7].

This research currently in progress implementation, while it still waiting of the evaluated result. Thus, it only represent early design of framework that is currently being implemented. However, the model which being written is the actual model which is being implemented in present time.

II. LITERATURE REVIEW

A. Collaborative

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 [8]. 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 [4]. 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 [9]. While e-learning has already growth rapidly, the emergence of collaborative learning in online environments must become more focus in its building process [4,9]. Thus, using collaborative technique applied in e-learning environment, students will get more excited in doing learning process [9].

Collaborations also previously being proved that can encourage other individual to join the process as it progress [10]. Empirical research toward collaborative learning also proved that students and also teachers are more excited in doing learning process using e-learning [4,9,10].

It is also clearly stated that collaborative skill for higher education rarely thought as soft skill [11]. 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 [9].

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 [12]. 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 [4,9,10]. However, there should be global framework in order to ease other higher education environment to form each e-learning model [1].

B. Wiki

Wikis are collaborative environments by design, and can serve a variety of purposes for collaborative online projects. Wikis are commonly used as personal information managers (PIMs), knowledge bases or knowledge management systems, content for academic instruction, sites for collaborative authoring of a document or project development, and collaborative communication forums [13].

Wiki word originally came from Hawaiaan which means quick, and early developed by Howard G. Cunningham at 1994 as *wikiwiki*. While the definition of wiki also defined as A collaborative website whose content can be edited by anyone who has access to it [6].

The usage of wiki nowadays simply often related with encyclopedia function, since that wikipedia popularity has raised beyond expectation. However, it is already being proven that using wiki's software based can support e-learning more successful in collaborating students knowledge and also encourage students to be better [5,6,13].

On the other hand, utilization of wiki in e-learning should have careful steps in its implementation. This caused by the characteristic of each study environment which need special treatment from its teacher [5,6,13]. Thus, it clearly stated that each environment should build wiki model distinctively rather than just doing simple adaptation from ready to made wiki's software based.

III. MODEL

As already stated before, this research is currently being implemented and still waiting for testing and evaluation process. The project itself named as *MacWiki* or *Ma Chung Wikipedia* which consists of basic terms, important resume, basic explanation and linked definition based on course material. In testing and evaluation stage, all of the contents only put course material from Information System Study Program, however, in future it should be consist of all of course material from whole faculty in university.

MacWiki was built using *MediaWiki* which already proven can handle thousands until millions of pages as *Wikipedia* already used it also. However, the wiki which is built has already modified and redesigned, thus it will bring fresh interface to students whenever they try to start fill the contents. On the other hand, some technical modification has already been made such as applying *OpenID* features which allow students login to wiki using their current email address.

MacWiki contents filled by students and lecturers with certain rules. These rules would have been deny any improper answers or terms that can comes from students. It also make MacWiki better in its arrangement, since that MacWiki will also be published to public after editing process finished.

Technically, there are some extensions injected in this modified wiki. Some of those extensions deal with the capability of grouping users based on their *watch list*. Watch list in MediaWiki term is about page's contents which are not yet being approved by the moderator. In this case, moderator is the lecturer, however, lecturer also can assign some students to be a temporer moderator in order to create collaborative situation in this circumstance.

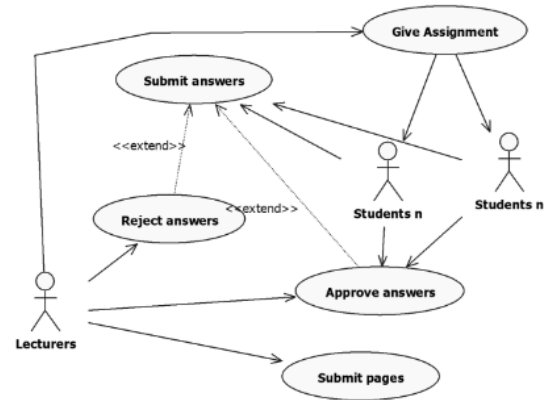A big picture of use case in MacWiki shown in following figure :

Figure 1. Use Case MacWiki

Core feature in this e-collaborative learning happen when students which already being grouped by lecturers submit their assignment. Even though some submitted answers will be assumed as correct answers by the lecturer, some wrong answers will be throwed back by lecturer into watch list.

This watch list answers will collaboratively resubmit by current students and other students who assigned by lecturer to help others. This collaborative can be done anonymously, thus students who is rejected their submitted answer hopefully will not feel embarrassed.

The collaborative process will be conducted by lecturers with distinctive rules for each case. Hence, there should abundant types of collaborative experiment in this e-learning implementation. This types of collaborative experiments is beyond of this research's purpose, however, it will be a main theme in next research which will be published later.

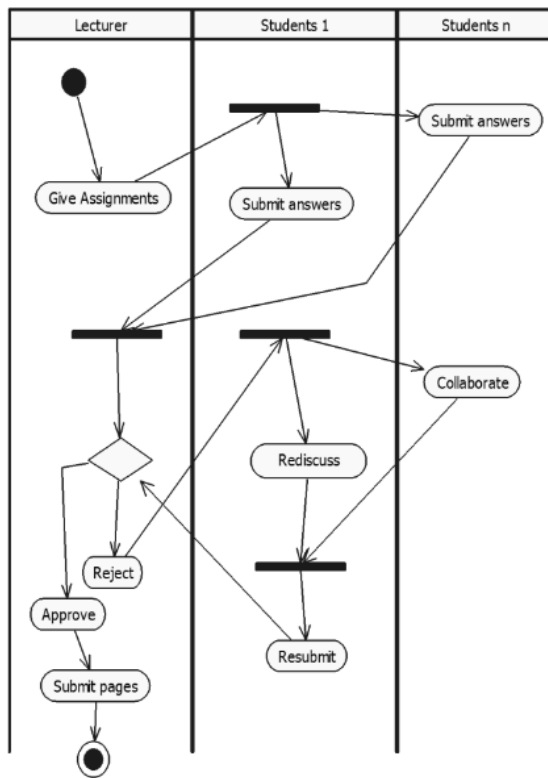Detail from the collaborative process is shown in following diagram :

Figure 2. Collaborative Diagram

IV. CONCLUSION AND FUTURE WORK

While testing and evaluation still currently being implemented, there are some important conclusion that might worth for next research. First, using wiki technique and utilizing open source software like MediaWiki is relatively easy for a higher education environment. It happen because MediaWiki offer easiness and simplicity in its implementation and installation. So, it can be implemented by novice user without necessity of IT expert.

Second, the university can implement this framework fast and cheap. Since that it use PHP based webhosting which are cheaper and easier to find. There are even many free hosting that already offer special service for MediaWiki hosting.

The third conclusion is the freedom of collaborative type which will be applied by each lecturer. This freedom can happen with distinctive group which can be formed by lecturer according to course material condition. Even though the quantitative result is still waiting for evaluation process finished, at least this circumstance should bring morer creative e-collaborative implementation in future works.

Though this e-collaborative learning still need deeper evaluation result, from its first impression, many students become more interesting in doing collaborative assignment using this technique.On the other hand, it also teach students to cite other people terms, definition or other material respectively.

So, next publication from this research will expose the deep evaluation result from its implementation. It will also reveal the effect of this special wiki for the students whenever MacWiki already published to public.

REFERENCES

[1] Kelly, Tom and Nader Nanjiani, "The Business Case for E-Learning", Indianapolis: Cisco Press

[2] Michinov, Nicholai and Estelle Michinov, "Face-to-face contact at the midpoint of an online collaboration: Its impact on the patterns of participation, interaction, affect, and behavior over time", Computers & Education 50 (2008) pg. 1540–1557.

[3] Puntambekar, Sadhana, "Analyzing collaborative interactions: divergence, shared understanding and construction of knowledge", Computers & Education 47 (2006) 332–351

[4] Bennet, Sue, "Supporting Collaborative Project Teams Using Computer-Based Technologies" (Online Collaborative Learning: Theory and Practice (Tim Robert, ed)), 2004, Hershey: Idea Group

[5] Ebner, Martin et al, "Utilizing Wiki-Systems in higher education classes: a chance for universal access?," Univ Access Inf Soc (2008) 7:199–207.

[6] Kohli, Marc .D and John .K Bradshaw, "What is a Wiki, and How Can it be Used in Resident Education?" Journal of Digital Imaging (2010), doi: 10.1007/s10278-010-9292-7.

[7] Wicaksono, Soetam Rizky, "A Framework Of E-Collaborative Learning In Higher Education Environment", 2009, IIS, UIN Sunan Kalijaga Yogyakarta

[8] Fong, Michelle W.L, "E-collaborations and virtual organizations", 2005 Hershey: IRM Press.

[9] Dirkx, John .M and Regina O. Smith, "Thinking Out of a Bowl of Spaghetti: Learning to Learn in Online Collaborative Groups (Online Collaborative Learning: Theory and Practice (Tim Robert, ed))", 2004, Hershey: Idea Group

[10] Buck, George H, "Advanced Broadband Enabled Learning (Selected Style in Web-Based Educational Research (Bruce L. Mann, ed))", 2006, Hershey: Information Science Publishing

[11] Lynch, Katie and Julie Fisher, "Tomorrow's Workforce Today: What is Required by Information Systems Graduates to Work in a Collaborative Information Systems Workplace? (Information systems and technology education: from the university to the workplace / Glenn R. Lowry and Rodney L. Turner, ed)", 2007, Hershey: Information Science Reference

[12] Innes, Robert .B, "the Effectiveness of Problem-Based Learning Groups? What can Learning Science Contribute to our Understanding of", JOURNAL OF MANAGEMENT EDUCATION, Vol. 30 No. 6, December 2006 751-764

[13] Engstrom, Mary .E and Dusty Jewett, "Collaborative Learning the Wiki Way", Tech Trends, vol. 49, number 6, pp 12 - 15

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