A Study on Constructing Inquiry-Based Learning Environment through Web 2.0 A Case Study of National Chung Hsing Senior High School

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The purpose of the study is to construct an Inquiry Learning Platform by combining relevant concepts of Blog, Wiki,Tag and so on within Web 2.0. It intends to assess how the Platform works on teaching and learning by facilitating the Theme-Inquiry learning for students and using mutual-assess sheet, questionnaires, Self- efficiency and learning tasks scales. The study reveals that students get some progress after a trial for it on self- efficiency and learning tasks scales; but shows no significant difference. From the questionnaires, it reveals students recognize the value of Platform that brings them an in-depth learning.

I. Foreword

Web 2.0 is a new web concept, which represents worldwide web has transformed from a series of web-sites to a service platform used by ordinary users. The characteristic of it is that all users could share and enrich resources simultaneously. All platforms like Blog, Wiki and Tags are derived from this concept. In 1998, Looi,C.K. pointed out that Inquiry-Based Learning is a teaching strategy mainly referring to students activities for exploring knowledge. In the process of teaching, the instructor (teacher) encourages students to actively engage in higher learning activities such as: hypothesis, exploration, verification, generalization, illustration and discussion---etc. It is not the one-way knowledge transmitting; it encourages students to have more and more active learning. With its unique characteristics, the Web 2.0 could be applied to Enquir-Based Learning. This study formulates the Inquiry Learning as a process of teaching strategy, the self-installed Bliki as

an experimental tool. We apply them into the teaching of Media Technology so that we can know possibility of combining Bliki Model and learning environment.

II. Documentary Survey

The study about the student-centered Inquiry-Based Learning within the nation and abroad indicated that such learning model could have positive effects. (Lee Yi-Ching, Chu Yen-Ping, Yang Tsao-Cheng, 2004)　Another study by Chen Cheng-Fu in 2004 revealed that theme-oriented Inquiry Learning—combing WebQuest Curriculum Development Unit, learning file and peer-cooperated learning as a whole---- could raise the quality of theme-study. It's good for the depth of study, but it makes no difference in reams.

Self-efficency

Different levels of self-efficency would cause certain effects for the target goal one sets, the efforts one makes, the behavior one acts, the tasks one choose and one's performance. 　(Huang Yu-Wen 1994) As students think their academic performances can reach certain level, they do own higher self-efficiency and motivation to set higher learning goals and pursue the better academic performance.

The value of learning tasks

As the learning materials fit one's interests and daily experiences, the learner could recognize the importance and the value of oneself. This would raise motivation to learn and gradually strengthen the endurance.

III. Research Method

This study is based on 45 students of No. 7 Class, Second-Grade of National Chung Shin Senior High School.　A one-month Inquiry Learning has been arranged on two themes--- Book Advertisement & Journalism Writing in the Communication Technology Unit. The relevant subject is Living Technology. This study adopts Quality Action Research and supports with Quantity Analysis.　The research tools include: Bliki Platform, Questionnaire, Mutual-Assessment Sheet, Self-efficiency & Learning Task Scale.

Bliki Platform

Bliki Platform, with FCK editor (similar to Word interface) installed, is derived from the self-developed Blog. It adds Wiki Description Engine to make it able to do editing work. The whole system is consisted of 3 Web 2.0 concepts---Blog, Wiki and Tags.　Each user has a set of account and password; after registering, one may publish or respond to articles, or join into tags、change mode、join into groups—etc. It has the similar function as Blog. If

the article contains Wiki syntax, or the article is produced by Wiki syntax; then this article would pop up with Editing Page or Editing, this means this article could be edited by other users.   The old version of article could be kept as shown in Chart 1.   The Tag has its function; as the user register to Tag, it would produce an extra Tag space for saving more grouping key words.   This can be expanded and be having the search function as shown in Chart 2.
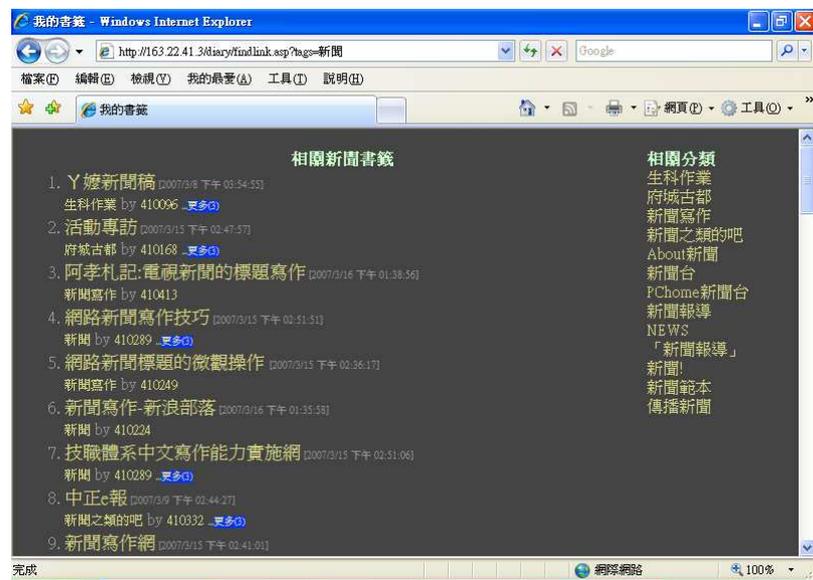

Chart 1

Chart 2

Questionnaires

According to the purpose of study, researchers work out the questionnaires outlines:

1. For learning broadness, in the second stage---Individual Inquiry Learning---students actively surf on the Internet to search what they need to use for their theme study. As joining the Tag in Bliki interactive learning setting, Could students achieve broad learning? What is the comment? And the reason why? Is it possible to conquer the difficulty of the traditional inquiry learning?
2. For in-depth learning, in the third stage---- Cooperative Inquiry Learning---students could do the editing work with teammates in each group of Book Advertisement Scrip through Bliki Platform that has the interactive function. In this learning model, is the scrip more delicate? What is the comment? Is it possible to conquer the difficulty of the conventional cooperative learning?
3. What are the prerequisites for the implementation of Inquiry-Web Learning Model?

Interview target students in experiment for having a better understanding on whether or not the Inquiry-Bliki Platform Learning really works in both of in-depth and broad learning.

Mutual-Assessment Sheet

To set up some criteria basing on the teaching theme for the following items: theme & content、writing quality、progress record、reading impression. Each item gets points from 0 to 5, the more points the item has, the more learning achievement the student has.

Self-efficiency & Learning Task Scale

This scale is derived from a Motivation Scale in the Motivational Learning Strategy Scale edited by Wu Chin-Chi and Chen Beng-Lin. According to the purpose of the study, we select the Self-efficiency Scale from Motivational Scale as our evaluation of Self-efficiency. It includes 5 items. Furthermore, we choose Job Value Scale to evaluate the Learning Tasks. This scale intends to reveal whether the students are aware of the value of learning tasks in the learning process. This scale includes three factors: interest、importance、effectiveness, and it also contains 6 items. We adopt Likert Scale, which contains 7 options (from Very Un-Suitable to Very Suitable, being assessed from 1 to 7 point), the respondent choose the items on his own learning condition. In this scale, the more points the item has, the better Self-efficiency learning and Learning Tasks Value are.

IV .Conclusion and Suggestion

After a month experiment, students could finish the contents of theme- inquiry on line. From the questionnaires, they think that Added Tag could help achieve learning broadness and replace My Favorites, which has no function of co-sharing. By using Blog Sharing and Wiki Co-Editing Model, it could attain an in-depth learning. Many students respond that the

same theme with different versions of sharing contents appears on different page, it is not so convenient to read.   A student points out that such learning platform solves the problem of co-sharing of teamwork. From the Self-efficiency & Learning Task Scale (Table 1), it reveals that the average after-test scores are higher than the pre-test scores, but shows no significant difference.   This study represents that setting up Inquiry learning through Bliki Platform would not pull down student's learning motives and could be implemented.

Table 1—The average scores、standard difference & T-check (Before and After Adopting Bliki Platform) on Self-efficiency & Learning Task Scale

Scale Item	Pretest（n = 45）		After Test（n = 45）		t score
	Average Score	Standard Deviation	Average Score	Standard Deviation	
Self-efficiency	3.57	.69	3.74	.67	1.122
Learning Task Scale	4.03	.71	4.10	.88	0.407
Total Average Scores	3.81	.56	3.93	.70	0.847

*P＜.05

This study reveals that Tag-adding could help have a broad searching, but if the learner uses the irrelevant key words to the theme, it would reduce the learning effectiveness. We suggest having a further study for this issue. Because Blog is the cores of Bliki Platform, the interacting contents would be attached to the same theme-article, the different version of sharing contents for the same theme are not appearing on the same web-page after adding the Wiki Co-editing.   As users do not revise at the same time neither do response to the theme-contents, it works all right. However, in the class of Inquiry-Based Learning, it would come up with some problems if the users do these two things simultaneously. We suggest considering other alternative Integrated Model of Blog and Wiki.

V. Reference Documentaries

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