Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol 3, No 16, 2012

Promoting Higher Order Thinking In Chinese Language Literary Text via Online Social Network

Rafiza Abdul Razak[1*] Chun Mee Lee[2]

1. Department of Curriculum & Instructional Technology, Faculty of Education, University Malaya, 50603, Kuala Lumpur, Malaysia
2. Department of Curriculum & Instructional Technology, Faculty of Education, University Malaya, 50603, Kuala Lumpur, Malaysia

* E-mail of the corresponding author: rafiza@um.edu.my

Abstract

This study aims to investigate the impact of technological application (Wiki) in promoting the skill of higher order thinking. The study highlights the teaching and learning of literary text for higher order thinking in a blended learning environment using Wikispaces as a platform. The objectives of this study are to explore the incorporation of Wiki within teaching and learning of literary text in developing higher order thinking. The instruments used for this qualitative study are content analysis on web pages, and group interviews. It was found that, the features of open-editing, discussion posting and video embedding are enabling effective instructions that leads to higher order thinking development in the learning of literary text.

Keywords: higher order thinking, online social network, Wikispaces

1. Introduction

A critical challenge faced by students today is: while they are getting prepared for the future, the problems, tools and jobs that will exist then aren't even imaginable now (Young, 2008). Thus, what are essential for students to learn is not fact itself but the cognitive skill to process information and generate new ideas. According to Heide & Henderson (2001), in our society, important decision-making positions are held and will continue to be held by those who have developed the skills of obtaining, evaluating, and generating information. Understanding the trend of development and society, is getting crucial for school education to take up the challenge of producing students with cognitive skill.

Nevertheless, accustomed by conventional type of education, many students are receiving and accepting information passively. They tend to memorize and restate information only. Many of them are weak in connecting information. They are unable to make valid evaluation and generalization of facts. They are yet ready to face the demanding scenario in the future. Students need to develop higher order thinking, with cognitive skills to manage the complexity and diversity world of 21st century (Cookson, 2009). However, by integrating technology in education only is not sufficient to produce successful students.

According to Cheltenham and Thornes (as cited in Fisher, 2003), over last thirty years western countries such as USA and England had began a new movement to promote intellectual development. That has been called the "critical thinking" or "thinking skills" movement. However, after years of implementation, many researchers still argue that result of contemporary schooling at both secondary and primary level are disappointing (Fisher, 2003). Fisher stated that there are official reports on schools stating that:

- students are rarely required to use "higher order" thinking skills such as inference, deduction, analysis and evaluation.
- students are given insufficient opportunities to develop social skills and values of cooperation and communication through discussion and group work.
- able students are not given work that is sufficiently demanding.

The purpose of this study is thus to investigate the impact of technological application (Wiki) in promoting the skill of higher order thinking. The study highlights the teaching and learning of literary text for higher order thinking in a blended learning environment using Wikispaces as a platform. With both aspects, higher order thinking and Wikispaces aligned, this study aims to provide possible suggestions to significant teaching and learning.

2. Wikis in Education

The Wikis on the other hand, encourage truly collaborative writing effort ("What is the difference," 2010). A wiki has a far more open structure and allows others to change what one person has written. As its initial

intention, Wikis is meant for easy authoring and to spur people to publish. A Wiki is defined as a piece of server software that allows users to freely create and edit web-page content using any web browser (Leuf & Cunningham, 2001).

At the early introduction period of Wiki, published literature on Wikis has been essentially descriptive and promotive. That is, most articles report the utility of Wiki, provide with examples of contexts in which they could be adopted, and provide suggestions of the possible advantages they provide. In these few years, there have been empirical studies that report on the effectiveness of Wiki promoting educational goals. For examples, Wiki had been incorporated within Physical Education by being a platform for students to plan and develop games (Hastie, Casey Tarter, 2010); SeedWiki also has been applied in facilitating discussion and writing of personal response to literary text (Raghavan, 2007). Researches had found that on-line collaboration tools such as a Wiki are helping in promoting learning. There are some other studies regarding the use of Wiki in many areas as well. For example, peer feedback (Ertmer, Richardson, et al., 2007), cognitive complexity (Granello, 2001) and web-based video clips (Jerry, 2005). It is suggested that Wiki can be used for conveying information, promoting communication and sharing know-how. Some reviewers even see Wiki as "one of the most outstanding technologies developed and improved during the last decade" (Comparison of the best,2011). It is advisable to bring Wikis to the classroom.

Discussion post of each page is one of the unique features. Teachers and members can check on the changes by accessing to Page History. To enhance teaching and learning, Wikispaces allow video, audio and images be embed directly to pages. There are external widgets such as polls and slideshow to enrich the learning environments too. It is expected that with the positive natures of Wikispaces, which produce a higher quality writing than face-to-face collaboration (Nys, 2008) may help in constructing knowledge and at the same time developing higher order thinking of the students.

2.1 Higher Order Thinking and Online Social Network

According to Stacey and Rice (2002), electronic interactions among learners stimulate productive thinking, reflection, and articulation of ideas and opinions. Thus, Daniels, (2001) added that the constructivist notion of negotiation may well thrives in this kind of environment. As one of the findings of an earlier study of a distance-learning education certificate programme, Choi and Ho (2002) indicated that the interaction within online communication appears as if students just think aloud from multiple perspectives. They clearly stated that students' interactions in the study contained evidence of

- Their own thinking (ideas, opinions, and processes);
- Their own learning (style, preferences, and processes);
- Their own personal, social, and professional stories and experiences, hopes and ideas, and reflective thinking;
- Issues of personal relevance that range from personal to social to professional; and
- Issues concerning all aspects of teaching, and how these have affected, were affecting, and might affect them personally and professionally.

In Stacey and Rice's study (2002) of evaluating online environment, social presence continues to be an important factor in facilitating communication of small collaboration to continued group discussions and tasks. They also discovered that most participants saw the potential of the online interaction as a medium for interactive interchange of ideas among participants. The students in their study indicated that the required interaction make them engage more actively with the course content while some of their participants indicated that by revisiting readings and interpreting others ideas, they could construct understanding within their own context. As group participants negotiated over content, they interacted with one another's message text, asked questions and agreed with and complimented the others' ideas, an important social component of effective collaboration and cognitive learning Stacey and Rice (2002).

It shows that the group discussions play important role in developing critical understanding on the topic and co-construct knowledge. The participants in Mok and Khor's study (2001) who took part in a pilot course in computer mediated communication felt that they have learnt a lot from the online group discussions. According to them, 85% indicated that these group discussions encouraged them to think and research the learning issues of the subject. Some mentioned that the online mode allowed them to refer to the previous discussions for further understanding and learning. This showed that the students were ready and able to co-construct knowledge and the meaning on their own.

Sharing knowledge through an electronic medium also helps the overt exchange of naturally covert processes and strategies with other online learners in order to solve collective problems. These exchanges can be viewed

by all learners and contribute to the formation of a collaborative mental model in a specific subject area (Jonassen et al, 1995). Students can also compose a thoughtful response without feeling pressured to produce or interact with the instructor and peers (Hulsizer & Woolf, 2009).

3. Research Design

This is a qualitative research which intend to study students' behavior and to uncover innovations (Ladner, 2007) by considering observer's role, involving inquiry, analyzing and data reporting ("Steps and Methods," 1993). It was done as a case study, with in-depth exploration of bounded system based on extensive data collection (Creswell, 1998). This research meant to be the primary stage of investigating and examining the incorporating of Wiki in teaching and learning for higher order thinking. The researcher who plays the role as the teacher facilitated the activities and observed how Wiki functions in developing students' higher order thinking. Content analysis was conducted based on a rubric adopted from "Rubric of Critical and Integrated thinking skills" designed by Washington State University. This research was conducted in a Chinese Language class. Literary text is one of the important components in the syllabus. Several literary texts had been selected for students to work on. Wikispaces had served as a workplace and a collaboration platform. Forty six students worked in groups of 9 -10 persons. Each group was assigned a quote to work on and a page to create. Everyone is encouraged to help on any page. Learning activities and products are recorded in each page.

Each task is meant for a specific cognitive development which leads to a set of learning objectives:

- By searching, identifying, copying and pasting the original passages on web pages, students are enhancing their memory on the source (title and author of the original passage) and meaning of the text.
- By answering comprehension questions based on the passages, students are showing their understanding and applying their knowledge of the texts.
- By constructing dialogues, students are applying their knowledge of the texts.
- By analyzing on-line polls regarding to each literary text, students are practicing their analyzing skill in group and attributing common reaction to establish a phenomenon.
- By reviewing on the video clips, students are making comments and summarizing current phenomenon which are fostering their skill of evaluation.
- By composing short essays/poems, students are achieving the highest level of thinking order, namely creating.

By completing the tasks, students were expected to be able to develop their higher order thinking as a group.

4. Result

4.1 Open-editing

Open editing involves the freedom to create and modify in an online web page. In Wiki, teacher and students are able to write and edit the content anywhere at the same page.

4.1.1 Giving Instructions

In a web page that students created in the class Wiki, the teacher had been giving direct instructions to students in order to set up the web pages in a well-structured manner. The end results of the web pages shown that students were able to follow the instruction well and present a well-structured web page both in content and layout.

The preliminary instructions given by teacher in each group's web page are:

- *Search on-line for the literary source (original passage) of the literary quote and its translation.*
- *Read the original passage and its translation and answer the comprehension questions below.*
- *Construct a set of dialogues implicating the primary theme of the literary quote.*
- *Participate in the polling activities conducted by each group.*
- *Write down the analysis of the poll result here.*
- *Search on-line for a video clip that carry a similar massage with the literary quote and write a review.*
- *Write a short essay or poem according to the primary theme of respective literary quote.*

The open-editing feature of Wiki provided a platform for clear preliminary instructions to be inserted for students to follow. Besides the preliminary instructions, further specific instructions were given too when errors occur or the teacher felt that students need further facilitation:

- *Please pay attention to sentences that teacher had marked green, you do not have to discuss the matter in detail. Please make amendment. (Group C, 20 Feb 2011)*
- *Instead of jotting down the dialogue in the video clips, you should write down your own review. (Group C, 12 Feb 2011)*
- *You are behind schedule, please catch up as soon as possible. (Group D, 12 Feb 2011)*
- *This is not the translation required, please read passage carefully. (Group E, 30 Jan 2011)*
- *Questions for polling are too simplified; please refer to the sample which teacher had provided. (Group E, 12 Feb 2011)*
- *"Contentment" is not the prime idea of the literary quote, please check with the reference again. (Group E, 8 Feb 2011)*

To give instructions, the teacher had written down the guideline of each task in the web pages where students are supposed to work on. Prompts from teacher had enable students to know exactly what they need to do. The open-editing system had made it possible for teacher to give pre-embed instructions in students' web pages. And when students were working on the page, the teacher could insert further instruction whenever necessary.

4.1.2 Giving Comments

Teacher was writing comments at the web page regarding students' task during the teaching and learning process. These feedbacks were meant to give acknowledgements or demand for amendment:

- *Well done. (Group A, 10 Feb 2011)*
- *The video clip is very interesting. (Group A, 12 Feb 2011)*
- *The dialogue is very well constructed! (Group B, 13 Feb 2011)*
- *The first sentence is not fluent, and there are some spelling mistakes in the second sentence. (Group C, 10 Feb 2011)*
- *Your personal opinions and review are missing. (Group C, 20 Feb 2011)*
- *Thanks for the prompt action! (Group C, 12 Feb 2011)*
- *The review is too short. (Group E, 8 Feb 2011)*

Giving feedback is one the important elements in pedagogical instructions. According to Rotte and Bandura, people are aspired to attain positive results for their actions (Willhite, n.d.). Positive feedback helps to encourage students and stimulate further ideas while negative feedback will urge students for better achievement. During the group interview, students have expressed that such comments were welcomed:

- *Time to communicate with teacher had increased. (Group A)*
- *Prompt comment from teacher had helped me improved. (Group A)*
- *I am glad that I have got prompt responds from teacher. (Group B)*
- *Wikispaces is time-savvy; I can read comments directly from the web page. (Group B)*
- *It is good that I can now improve my writing. Thanks to the comments written by teacher. (Group B)*
- *I am eager to read comments from teacher.(Group C)*
- *Wikispaces has created more opportunity for me to communicate with teacher, I had chance to learn more. (Group C)*

From students' points of view, comments that teacher inserted whenever necessary had provided them feedback with positive impact or reinforcement in the learning of literary text. The transmission of evaluative or corrective information (feedback, 2003) about students' action on the spot has guided student step-by step towards completion of tasks that leads to higher order thinking. The prompt comment from teacher throughout the learning process had been seen as a positive impact for motivating student to work on their project.

4.2 . Discussion Posting

Posting "Discussion" enables interaction and communication. The structured layout of discussion posts had made discussions and viewing such a convenient (Refer Figure 1). Each student was able to post different topics accordingly and discuss in separate room in the same platform.

4.2.1 Interaction With Peers

Transcripts of interview had recorded that students had expressed their keen on interacting with peers by posting discussion:

> *(Group A)*
>
> *It is very convenient for me to get friends' opinion now.*
>
> *(Group A)*
>
> *I can ask around whenever I want to, although I am not seeing friends and teacher face-to-face.*
>
> *(Group B)*
>
> *I am having closer relationship with my friends.*

Discussion posts had helped in developing higher order thinking. Posts below exhibit more than one evidences of higher order thinking. In their discussion posts, students were evaluating and analyzing on peers' essays and poems:

> *(Group A: shanicecheng Feb 26, 2011 3.18pm)*
>
> *No bad. You can write fluently. But there seem some mistakes in punctuation. The correct punctuation should be...*
>
> *(Group B: chewchein95 Feb 16, 2011 10.23am)*
>
> *I agree with teacher. This is a beautiful writing...I am deeply moved.*
>
> *(Group D: khaishan Feb 16, 2011 10:18am)*
>
> *Not bad. However, the contents are too short.*

Students enjoy viewing and being viewed by peers. They had expressed their keen in the discussion posts.

> *(Group A: jasminetan0411 Feb 17,2011 4:20pm)*
>
> *Yes. Everyone's comment is welcome. I am looking forward to your "voluminous" responds.*
>
> *(Group C students)*
>
> *(John_0523_Lim Feb 14, 2011 3:58pm)*
>
> *If this is facebook, (after reading your story) I will click "like".*
>
> *(QueenieChong Feb 20, 2011 5:28pm)*
>
> *I will then "like" your message. Ha...ha...*
>
> *(waiyern Feb 20, 2011 5:29pm)*
>
> *I will "like" yours then.*

Discussion posts in Wiki had enhanced the interaction among students. Students were viewing and reviewing each others texts. Besides motivation from peers, the skill of analysis and evaluating were developed too.

4.2.2 Interaction With Teacher

Development of higher order thinking via successive in-dept interaction with teacher, which seldom happens in face-to-face classroom, had occurred. The discussion thread below exhibiting how the development of higher order thinking occurred. It happened when students discussed with teacher regarding poem that he had composed. Through the activities of correcting the unsuitable phrase and choosing the right words, the skill of analyzing, evaluating and creating have been developed.

> *(apong Feb 12, 2011 4:12am)*
>
> *(The poem)*
>
> *Carve but give up half way, even a decayed piece of wood will not break;*
>
> *Carve without ceasing, even metal and stone can be engraved.*

Work persistently and you may see the light beyond

Success will not be far away

(meeleechun Feb 12, 2011 4:25am)

Good try. What a meaningful poem. However, for a poem, the sentences seem a bit lengthy. Can you please make some amendment?

(apong Feb 13, 2011 11:19am)

When will I be wise?

Each and every effort of mine had become in vain

Even though it is grey

I will keep on my effort, quietly

Glory is just around the corner.

(meeleechun Feb 13, 2011 11:56am)

Very much better.

However, what do you mean by "it is grey"?

(apong Feb 14, 2011 12:21am)

Why should I be strenuous?

Each and every effort of mine had become in vain

Turning over a new leaf (new version changed from "even though it is grey") (Thinking order 4-analysing and Thinking order 6- creating)

I will keep on my effort, quietly

Glory is just around the corner.

(apong Feb 16, 2011 6:45pm)

Why should I be strenuous?

Each and every effort of mine had become in vain

(Canceling of "even though it is grey") (Thinking order 4-analysing and Thinking order 6-evaluating)

I will keep on my effort, quietly

Glory is just around the corner.

(meeleechun Feb 16, 2011 9:10pm)

Can you justify these sentences?

"Why should I be strenuous / each and every effort of mine had become in vain"

(apong Feb 19, 2011 7:02pm)

If one give up what he is working on once facing problem without thinking of making any improvement, everything he had been working on before will be gone. (Justifying relevance of meaning) (Thinking order 5-Evaluating)

(meeleechun Feb 16, 2011 9:10pm)

But in the context, it sounds the other way round.

Can you correct it?

(apong Feb 23, 2011 9:26pm)

No effort, no sucess (replacing "why should I be strenuous / each and every effort of mine had become in vain") (Thinking order 4-analysing and Thinking order 6-creating)

I will keep on my effort, quietly

Glory is just around the corner.

The successive interaction between teacher and student had lead to high quality product. Guiding by teacher, the student had step-by-step moved from average towards mastering stage of thinking skill. The student had moved from superficial understanding of vocabulary to effective literary text writing. It is clear that the discussion post in Wiki had promoted an active learning environment that leads to development of higher order thinking.

4.2.3 Multimedia Embedding

In this research, video clips were embedded in Wiki to serve as a stimulation or raw material for students to analyze and evaluate. Review written by students had shown that analyzing and evaluating skill had been developed.

Review written by students had shown development of higher order thinking.

(Examining causes/criticize)

I was attracted to the effort put by the character. Although many said that she had become famous only because she is beautiful.

(Concluding/judging)

People think that she did not put any effort to achieve all the fame. But I think this is merely empty comment.

(Concluding/judging)

By her own effort, she had proof to everyone; I do admire her strong will.

(Relating and making generalization)

The famous scientist, Thomas Edison once said, "Genius is one percent inspiration and ninety-nine percent perspiration." Many who succeed have to work very hard for it.

(Judging)

I think the story do inspires.

(Concluding)

What in my thought is, although life is full of challenges, but we do not have to give up.

(Judging/concluding)

On the contrary, we should be putting more effort to find out the effective ways to overcome all those problems.

(Concluding)

We ought to understand that, success is never been easy.

(Finding evidence)

Take Brooke as an example...

In reviewing of video clips, the skill of analyzing and evaluating were reveal in their act of examining, relating, judging, concluding etc. Audio and visual element had enriched students' experiences in learning of literary text. Multisensory stimulation with sound and images had fostered a vast range of thinking activities.

5. Discussion

Referring to figure 4, the illustration presents the existence of higher order thinking in online social network environment. Wikispace activities include open editing. The open-editing feature had made pre-embed instructions possible in students' web pages. At hand instructions are very important in managing group works (Hughes, 2004), in the open-editing environment, teacher had been giving clear direction for students to follow and thus leads to the development of higher order thinking as pre-designed. In Wiki, teacher is able to navigate and encourage students by giving instructions and comments in an effective way. Hughes suggested that scripting complex instructions will help in avoiding potential learning problems (2004). Higher order thinking developments were enhanced when the web pages are well-structured and have been fully utilized.

Teacher and peer interaction also contribute to wikispace activities which promote higher order thinking. Findings of previous studies had confirmed that high levels of social interaction contributed to the establishment of a community of learning, nurturing a space for fostering higher order thinking through co-creation of knowledge processes (Ma, 2009). In this study, students had developed their analyzing and evaluating skills by viewing and reviewing on peers' written works. However the most significance effect for higher order thinking development is shown in guided interaction between student and teacher in the discussion posts. Data shown that student's thinking had moved from lower order thinking to higher order thinking.

Furthermore, embedding of video clips in Wiki had proved that multimedia presentation is able to serve as captivating raw materials to generate and foster higher order thinking development. Students' learning of literary text was enriched with examining, relating, judging, concluding etc. While they are learning literary text, what they had acquired is not only the literary knowledge but powerful thinking abilities. As researcher has claimed that multisensory interactions can yield more efficient learning (as cited in Seitz & Shams, 2006), embedding of video clips in Wiki had proved that multimedia presentation is able to serve as captivating raw materials to generate and foster higher order thinking development.

The effectiveness of Wiki can be seen according to its role in helping to achieve learning objectives. In this case, Wiki is very well-match with the designed activities based on Bloom's Taxonomy. The abilities of analyzing, evaluating and creating were being developed through working on the learning tasks which had embedded in the Wiki. The impact of Wiki in promoting higher order thinking in the learning of literary text is very encouraging. With emerging technologies, there are many applications claimed for acknowledgement for their effectiveness. However, what educators should concern is not the facility of the claim but their feasibility for educational goal achievement.

In Wiki, students had gain active learning experiences. They are not passive receiver of knowledge but active participant and creator of content. And through these learning activities they had acquired literary knowledge and develop higher order thinking as well. However, although the creator himself and other researchers had claimed that Wiki is meant for collaboration and best for motivating participation (Sijbrandij & Bruin, n.d.), it was found that to work out the best of the collaboration effect, teachers' facilitation is not to be neglected.

In this research, Wiki had revealed a successful integration of technology. It was used as a tool rather than a delivery system. By using Wiki in this manner, students not only achieve academic objectives but also develop real-life knowledge and skills.

6. Conclusion

By exploring the incorporation and investigating the effectiveness of Wiki in the learning of literary text for higher order thinking, the researcher found that the use of Wiki is advisable in learning of literary text. Besides breaking the time and space barrier what students had gained in the learning process is beyond literary knowledge. Base on the data analysis, it was proved that Wiki with its feature of open-editing, discussion posting and multimedia embedding had enable the development of higher order thinking in the learning process of literary text. Such learning experience and abilities fostered are valuable for future success. However, to get the full strength of Wiki, it should be incorporated seamlessly by effective pedagogy. Technology itself is nothing great in fostering better learning. What had made Wiki great is the pedagogical planning. Although Wiki is renown for its peer collaboration nature, teachers' role as the master mind behind should not be neglected.

References

Choi, C.C., & Ho, H. (2002). Exploring new literacies in online peer-learning environments. *Reading Online, 6*(1). Retrieved February 25, 2009 from http://www.readingonline.org/newliteracies/lit_index.asp?HREF=choi/index.html

Comparison of the Best Wiki Software. (2011). Retrieved March 8, 2011, from http://www.siteground.com/compare_best_wiki.htm

Cookson, P. (2009). *What Would Socrates Say?* EL Educational Leadership, 67(1), 10.

Creswell, J.W. (2005). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research.* Pearson Prentice Hall.

Daniels, H. (2001). *Vygotsky and Pedagogy*. New York: Routledge Falmer Education.

Ertmer, P. A., Richardson, J. C., Belland, B., Camin, D. Connolly, P., Coulthard, G., Lei, K., Mong, C. (2007). Using peer feedback to enhance the quality of student online postings: An exploratory study. *Journal of Computer-Mediated Communication, 12*, 78-99.

Fisher, R. (2003). *Teaching Thinking*. London, NewYork:Continuum.

Granello, D. H. (2001). Promoting cognitive complexity in graduate written work: Using Bloom's taxonomy as a pedagogical tool to improve literature reviews. *Counselor & Supervision, 40*, 292-307.

Hastie, P., Casey, A., Tarter, A. (2010). A Case Study of Wikis and Student-designed Games in Physical Education. *Tecnology, Pedagogy and Education*,19 (1), 79-91.

Heide, A., Henderson, D. (2001). *Active Learning in the Digital Age Classroom*. Canada: Trifolium Books Inc.

Hulsizer, M. R., & Woolf, L. M. (2009). *A guide to teaching statistics: Innovations and best practices.*Malden, MA: Wiley-Blackwell.

Hughes, J.(2004). *Follow instructions for giving instructions. Guardian Weekly,10 December 2004.* Retrieved from http://www.guardian.co.uk/education/2004/dec/10/tefl

Jerry, P. & Collins, S. (2005). Web-based education in the human services: Use of Web-based video clips in counseling skills training. *Journal of Techology in Human Services, 23*, 183-199.

Jonassen, D., Davidson, M., Collins, M., Campbell, J., & Bannan-Haag, B. (1995). Constructivism and computer-mediated communication in distance education. *American Journal of Distance Education, 9*(2), 7-26.

Ladner, S. (2007). *When to do qualitative and quantitative research*. Retrieved from http://copernicusconsulting.net/when-to-do-qualitative-and-qualitative-research/

Leuf, B., & Cunningham, W. (2001). T*he Wiki Way: Quick Collaboration on the web*. Boston: Addison-Wesley Professional.

Ma, A. (2009). Computer Supported Collaborative Learning and Higher Order Thinking Skills: A Case Study of Textile Studies. *Interdisciplinary Journal of E-Learning and Learning Objects, 5.* Retrieved from http://ijello.org/Volume5/IJELLOv5p145-167MA657.pdf

Mok, J. & Khor, L.L. (2001). *Implementing problem based learning in computer mediated learning environment.* Retrieved February 27, 2009, from http://pbl.tp.edu.sg/PBL-Resources/articles/PBLonline/KhortMok-PBL-2.doc

Nys, Jason. (2008). *Two Ways to Integrate Technology in Our Teaching* [Powerpoint slides]. Retrieved from http://www.slideshare.net/jasondenys/wikis-and-blogs-in-education

Seitz, A.R., Kim, R. & Shams, L. (2006). Sound facilitates visual learning. [Blog version]. *Current Biology,* 16, 1422-1427.

Sijbrandij, S., Bruin, Jelle. (n.d.). Wikispaces. Retrieved from http://www.appappeal.com/app/wikispaces/ para1&8 Raghaven, P. (2007).

Stacey, E. & Rice, M. (2002). Evaluating an online learning environment. *Australian Journal of Educational Technology*, *18*(3), 323-340. Retrieved January 20, 2009, from http://www.ascilite.org.au/ajet/ajet18/stacey.html

Steps and Methods used in Qualitative Observational Research. (1993). Retrieved January 30, from http://writing.colostate.edu/guides/research/observe/pop4a.cfm

What is the difference. (2010). Retrieved March 14, 2011, from http://www.teachersfirst.com/content/wiki/

Young, E. (2008). *Focus on Global Education: A Report from the 2007 PDK Summit.* PHI DELTA Kappan, 89(5), 350.

Rafiza Abdul Razak; Borned in 24 January, 1974. The first degree earned is Bachelor in Education, in teaching of English as the second language (B. Ed. TESL (Hons.)) in 1998 from the National University of Malaysia. Masters in Educational Technology earned in 2001 from the University Malaya and in 2011 earned Ph.D in Instructional Technology from International Islamic University of Malaysia. Area of research is instructional design, knowledge management and education.

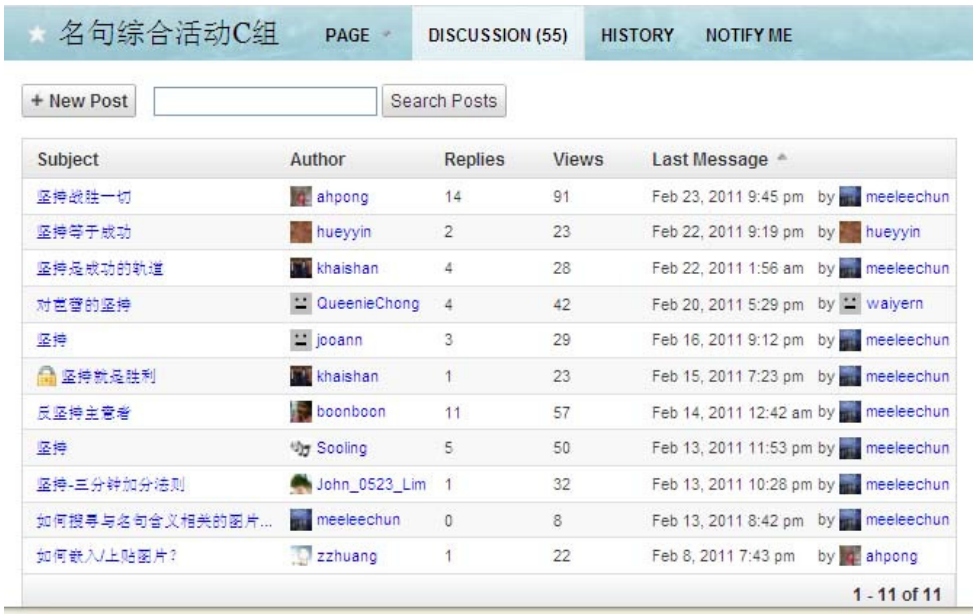

Figure 1:Print screen of discussion posts.

Figure 2: Print screen of the video clip (Group A).

Figure 3: Print screen of the video clip (Group B).

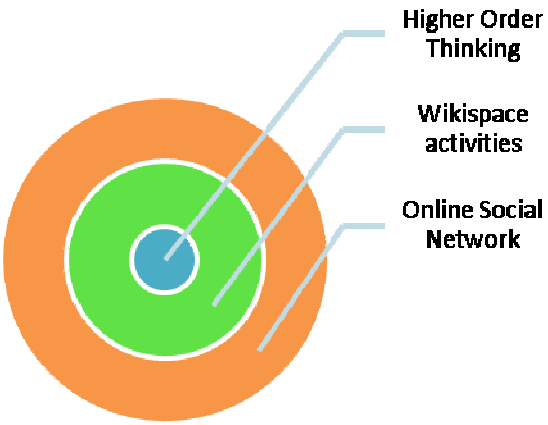

Figure 4 : Higher Order Thinking in Online Social Network