Pedagogy in the Information Age: Moodle-based Blended Learning Approach

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ABSTRACT: ***Traditional teaching style has advantage in transmitting large amount knowledge to students with systematic logic and with strong emotional contact between teachers and students. Online delivery system is valuable in providing flexible learning experience and meeting diversified needs of student. Blended learning is a pedagogy that combines the features of traditional instruction and the advantages of E-learning and it is sometimes heralded as the answer to some of the problems which higher education faces. A compulsory course "Fundamentals of Computer" for non-computer major freshman has been delivered on Moodle, a popular free open source learning management system, to find out how blended learning approach can be designed and implemented to meet the learning need of students.***

KEYWORDS: ***course management system; blended learning; moodle***

I. INTRODUCTION

Grasha (1996) identifies there are five teaching styles can be commonly found in a classroom and one of the most popular teaching styles that exist is the 'expert' style, which is typically teacher-centered and heavily relies on lectures and whole-class instruction rather than breaking up the class into small work groups for discussion or collaboration [1]. Such delivery system has its own advantage in transmitting knowledge to large amount of students with systematic logic and with a direct emotional contact between teachers and students. However, the idea that teachers are fountains of knowledge and students are empty vessels waiting to be filled with the knowledge and wisdom from their teacher is untenable in the information age.

With the advent of the network technology and the easy access to the Internet, the concept of web-based instruction becomes so widely spread that today it has become a popular topic in educational field [2-4]. The web-based delivery system is perceived to have advantage over traditional teacher-led instruction and these advantages include meeting student's need, appealing to student's diversified learning styles, providing a flexible learning process [2], and enabling students to engage in peer-communication and collaboration [5]. Despite all these advantages, it cannot take away the value of face to face contact between teachers and fellow students, and as much emphasis have been focus on autonomy of students, such web-based delivery system would become a mere formality if lacking related constraints or supervision from teachers.

As both teaching styles have their strengths and limitations, the best way is to balance between the on-site instruction and web-based delivery system and the term "blended learning" therefore gained considerable attention.

Blended learning is developed based on constructivism, which can be sum up that learning is an active process in which student should take the initiative to construct new knowledge based upon their past and current experience and knowledge [6-8]. Much pedagogy leverages constructivism theory and most of them suggest that teacher's role is no longer deliverer of knowledge, but a counselor, partners and even collaborators of learning and they need to motivate the students to solve the problem with multiple viewpoints. Meanwhile, constructivism requires students to face the complexity of the real world, and complete tasks in such authentic environment, and consequently, students would need to take a new learning style to form their own knowledge and take more control over their own learning opportunities.

Scholars have tried to define blended learning from different perspectives [9-11], according to Valiathan (2002), blended learning is a solution that combines several different delivery methods, such as collaboration software, Web-based courses, EPSS, and knowledge management practices. Blended learning also is used to describe learning that mixes various event-based activities, including face-to-face classrooms, live e-learning, and self-paced learning. No matter which definition, the obvious advantage of blended learning is its potential of maximizing effectiveness by taking advantage of each delivery options.

II. DELIVERY PLATFORM FOR BLENDED LEARNING

Entering the information age, huge sum of moneys have been invested in computer hardware and network construction in most colleges and universities in China. However, the investment in hardware doesn't bring obvious change in teaching styles, the understanding of technologies in education still remain at the level of releasing information and educational resources, some deep-seated applications, such as web-based interactive teaching and learning, online evaluation and teaching management have not receive sufficient attention.

Some course management systems which support teaching management, curriculum management, online interaction, online assessment, collaborative learning and other functions have been successfully developed at home and abroad; for instance, Tsinghua online and Beijing Whaty are well-known commercial delivery systems in domestic market while Blackboard and WebCT are widely used in European and the United States.

In recent years, Modular Object-Oriented Dynamic Learning Environment (Moodle) developed by an Australia teacher Martin Dougiamas has been recognized by educational field from all over the world. "Moodle is a

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course management system--a free, open source software package designed using sound pedagogical principles, to help educators create effective online learning communities"[12]. Apart from being free, the real power of Moodle is the sound pedagogical philosophies behind its development which aim at encouraging student-centered and collaborative learning. An array of functions, such as quizzes, wiki, discussion forums, graded assignments and the like which reflect those pedagogical thought were therefore developed. Such impressive features also make it a popular platform for online course delivery and substantial educational institutions are gradually switching their online courses from commercial platform to Moodle; for instance, the Open University of Britain has delivered part of its online courses on Moodle since 2006. Meanwhile, teachers have come to realize the potential impact that Moodle may bring to their daily instruction and management. Many individual has published their learning resource and designed related pedagogical activities on the platform.

III. MOODLE-BASED BLENDED LEARNING APPROACH

"Fundamentals of Computer" is a compulsory course for all non-computer major freshmen in higher education, it presents an in-depth treatment of introductory computer subjects and students will finish the course with a solid understanding of computers and be able to use computers as a tool to facilitate their professional studies.

Most students have certain understanding to computer before they enter higher education, however, students do not share the same level of computer literacy mainly due to the differences in regional economic development. Apart from that, students also show diverse interest to the subject area of computer, for instance boys are more interesting in hardware configuration while girls are more likely keen on studying multimedia tools.

It's very clear that a sole delivery method could no longer meet the need of learner and blended learning seems to be a pedagogy that heralded as the answer to these problems.

The course is delivered to students with 1 lecture and 1 lab per week and a blended learning approach which combines pre-class online preview, onsite face-to-face instruction and post on-line lab tutorial is designed to meet the diversity need of students.

A. Online Preview

A wealthy form of built in interactive activities in Moodle, such as Survey (a function to conduct questionnaires) and Quiz (a function to conduct tests) can be used to collect students' understanding of relevant concepts before onsite instruction. In addition, Moodle supports different popular multimedia formats and teachers can present information through different formats, such as text, flash, video, audio and other formats, according to the teaching needs. Students can exchange thinking and debates through Wiki (a function which allow users to edit webpage so that collaboration can be achieved) and Forum (a function similar to bulletin board), such vivid and authentic teaching contexts provides a cushion for onsite instruction and enhances students' autonomy in learning.

B. On-site instruction

Different from the traditional lecture-based teaching style, instruction based on blended learning-approach not only focus on giving answer to key or difficult contents, but more concerned about student's own thinking on the issue. Teachers would focus on guiding students to discuss common questions arising from the pre-class online learning and giving feedbacks on the presentation of group collaboration. Such face to face classroom instruction not only effectively promote the emotional communication between teachers and students, but also stimulate students interest and motivation to learning and make up for the limitations of online learning.

C. On-line lab tutorial

On-line lab tutorial would not simply be the repetition of in-class content, but rather consolidation and improvement of what has been taught. On-line lab tutorial can be presented in various forms: providing multimedia courseware in Moodle, so that student can download to review what has been taught; providing more expanded resources so that students have spare capacity can learn higher degree of contents; giving test through the built-in "Quiz" function within Moodle to test student's mastery of basic theory of computer know-how; guiding students to discuss some heat topics of the subject area, such as making friend online, illegal downloading, online-purchase through the built in "Forum" of Moodle; giving feedbacks on student's blog through the "Journal" function; releasing homework through the "assignment" module.

IV. CHALLENGES TO BE FACED

The Moodle-based blended learning approach shows a promising future for teaching and learning mentioned above, however, some challenges need to be raised for attention.

A. Lack of Understanding to Technology

Teachers from primary and secondary school have showed greater enthusiasm in integrating information technology into daily curriculum due to the publicity of New Curriculum Standard by the ministry of Education. On the contrary, teachers from higher education whose major are computer remain reluctant to embrace the use of IT in education, though they have strong technical background, the traditional one-way lecture-based teaching style and multimedia courseware presentation still dominated the classroom. Compared to teachers from other disciplines, they do not fully play the advantages in their own subject disciplines. A possible explanation is that their degree of awareness and acceptance of technology in education are varied. To change such situation, different level of trainings and seminars need to be held to increase the understanding of integrating technology into education. From the perspective of teachers, they need to be aware that keeping up to date with recent research about pedagogy and bringing the

beneficial effect of technology into daily instruction and classroom management are their responsibilities.

B. *Lack of autonomous sense*

Teacher's effort would be meaningless without the coordination of students. Students also resist changes though they are agreed to be as the biggest beneficiary in implementing this new teaching style. For a long time, the conventional teaching style focus on transmitting knowledge and paying less attention to inspire and encourage students to find solutions to problems; students are so familiar with the traditional teaching style which requires only a passive role and any change which requires extra time and efforts would be regarded unwelcome. The shifting of the teaching style from instructor-center toward autonomous and collaborative learning might lead to confusion for some students on the initial stage.

C. *Limitations of the Course Management System*

Moodle's capacity in supporting daily management of teaching activities and providing a collaborative learning environment effectively compensate for the limitation of traditional classroom instruction. However, as foreign educational system, pedagogy and teaching environment are different from that of domestic practice, localization and Moodle-based second development would be more appropriate to the actual situation of each educational institute.

V. CONCLUSION

The integration of technologies into classroom instruction has provided the opportunity to create more interactive and engaging leaning environment for both teachers and learners. The new roles for teachers would be more like a learning facilitator and mentor who provide guide and help for subject mastery than the knowledge provider in the traditional context. Such changes eventually require students to take on more learning responsibilities, to think critically and to work collaboratively with others. The trend of integrating newly developed technologies into education shows a promising future, however, technology itself is only a tool which doesn't foster any teaching or learning, the key to successful use of technology in education lies in the awareness and willingness of teacher and students.

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