A Study of A Web 2.0-based Educative Platform

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ABSTRACT

Despite the booming information technology, traditionally one-way teaching/learning mode remains dominating the class. Although there are some education institutes take information system as a supplementary tool and some courses has been taught online, teaching materials in class are in the main the written ones, and online forms of teaching still concentrate in one classroom assisted by programmed media. Generally speaking, textbooks and classrooms are the major vehicles of the education in Taiwan with a main purpose to have face-to-face conveyance of knowledge. The conventional means to education has been criticized as monotonous, depressing and restraining [1]. To orient the situation toward the future that education is a service system with students rather than tutors at the center [2], this paper looks at the application potentials of Web 2.0 technology to be integrated into the teaching frameworks. With the core value of Web 2.0 technology that lies in the empowerment of internet users from sole capabilities to download and reading into one that can upload and share, the paper seeks to construct an educative platform supported by the Web 2.0 technology with a view to transform conventional forms of tutors-centered education and improve teaching and learning effects.

The paper is structurally divided into four sections. Section 1 gives a brief on the Web 2.0 technology. Section 2 frame the current gaps left by digital educative platforms. Section 3 is to construct a preliminary educative model supported by the Web 2.0 technology with four elements—website users, contents, virtual community and tools—put into the flowchart. A discussion and recommendation for further research lies in Section 4, which also serves as a conclusion.

1. THE NATURE OF WEB 2.0

The Web 2.0 technology is said not to have a consensual understanding but a social concept. As it is emphatic of interactive part of human nature on the internet [12], the Web 2.0 technology has been entering the market and expanding its applications with unprecedented speed to the extent that has greatly influenced working pattern, learning modes and ordinary life.

With the idea of Web 2.0 getting momentum, internet software has become one of the focuses of World Wide Web Technology and computer industries. Thanks to enormous consumers and clients who take advantage of these new service models delivered by internet software such as *Amazon*, *eBay*, *Yahoo!*, *YouTube* and *Salesforce.com*, there is a sufficiently manifest trend that internet technology in support of information sharing has already been the mainstay of information industry. Tan [9] presented a Table to illustrate the difference between Web 1.0 and Web 2.0 (see Table 1) In terms of contents, Web 1.0 relies upon clients to set up their individual websites, while Web 2.0 emphasizes the sharing effort of users to co-build websites. O'Reilly defined Web 2.0 as "architecture of participation where users can contribute website content and creates network effects" [1] [14]. There are at least five features that make the Web 2.0 technology a friendly choice: a truly global connection, always online, pervasive internet access, customer engaged with digital contents, and a low cost to start up [7]. Other features include unconstraint, a customer-oriented service platform, open to information from external sources and the rewarding effect [7]. In short, the core value of the Web 2.0 technology is based upon the following pre-assumptions. It presumes that majority of internet users and businesses, although non-specific, are not a passive type of information receivers. Rather, they are active information givers with relentless effort on R& D and open to

information sharing. Here, the non-specific majority refers to the client and provider of information services. Advocates of the Web 2.0 technology argue for an ideal that everyone feels free to develop and even contribute to an information service [4]. Internet service, based upon this presumption, will be turning itself into a torrent of information net by bits of incoming information. What are needed to sustain this torrent is to develop and exploit richer experience of all the online participants. In other words, application and information service on the Web 2.0 platform can be seen as a test version of information and always in the constantly revising stage. It is also anticipated that if the Web 2.0 technology can be integrated with some compact and commonplace software, cost utilities can be significantly enhanced [10].

Digital educative platforms have been increasingly popular on campus. They become one of the major systems in use as a result of the following conveniences that cater to the internet users.

a. Digital educative platforms facilitate seminar-type discussions and feedbacks between the tutors and students as they help send out teaching materials in set books and hand in task assignments via e-mails. They also help organize internet forums.

b. Digital educative platforms help exchange various viewpoints concerning specific topics assigned by the tutors via electronic bulletins and website forums.

c. A student can download information related to curriculums and to those topics he or she is interested in.

d. A tutor can monitor the process of view exchanges on the digital educative platforms.

e. Digital educative platforms facilitate an instant teleconferencing when there are simultaneous several users online.

f. Digital educative platforms may provide other related services such as online databases, photos and a tutor's resource sites.

Table 1 Comparison between Web 2.0 and 1.0

Web 1.0	→	Web 2.0
DoubleClick	→	Google AdSense
Ofoto	→	Flicker
Akamai	→	BitTorrent
MP3.com	→	Napster
Britannica online	→	Wikipedia
Personal websites	→	Blogging
Evite	→	upcoming.org and EVDB
Domain name Speculation	→	Search engine optimization
Page views	→	Cost per click
Screen scraping	→	Web services
Publishing	→	Participation
Content management systems	→	Wikis
Directories (taxonomy)	→	Tagging
Stickiness	→	Syndication

Table 2 The functions of digital educative platforms in three universities, Taiwan

Functions / University	Taiwan University	Tong-hua University	Tamkang University
Background information	V	V	V
Activities updated	X	V	V
Prospectus	V	X	V
Teaching environment	V	X	V
Online service	V	V	V
Attendance	V	X	V
Syllabus	V	V	V
Assignment	X	X	V
Maintenance	X	X	V
Grades	X	X	V
Surveys	X	V	X
Announcements	X	V	V
Contact	V	V	V
Roadmap	V	V	V

In short, it is fair to say that there are a lot of utilities as a result of digital educative platforms in use. It allows student to be in a virtual class and in a learning status at any moment without the need to concern a locality. There is no limitation on the number of students and students can maximize the learning utilities to their own interests. The major functions of digital educative platforms shown in Table 2 are not exhaustive but can be sorted out as follows:

1. background information of an institute: origin, recent development in history, missions, faculty, features of that institute
2. information of current on-campus activities
3. prospectus and enrollment information
4. briefs in school environment including traffic routes and map
5. online service including introduction of a information system's functions, report of troubleshooting, frequent questions, bulletins, the number of users online, and school regulations
6. attendance rates of tutors and students
7. homework management files that show a status of students' assignments and feedbacks given by tutors
8. management of virtual classroom including information about exams and students' grade
9. different kinds of teaching surveys
10. school announcements
11. feedback on school administration
12. roadmaps

2. A REVIEW OF DIGITAL EDUCATIVE PLATFORM

Despite the above strengths, whether these functions are

diversified enough and whether their contents are timely updated will have a causal link to students' learning attitude and willingness to make constant access to the educative platforms. Students willing attitude to be with the educative platform to be sure will be limited by preprogrammed syllabuses that are currently quite common in remote learning platforms adopted by most universities in Taiwan. Instead of the above issues related to diversified functions and updated contents, many digital educative platforms are in lack of a set of precise and detailed explanation for the ways to assess either the teaching materials, curriculums and syllabus or the learning results. As a result of these shortcomings, digital educative platforms have so far remained a lot of rooms for improvement when it comes to reflect the true needs and real performance of the students online.

It is for these gaps left by current digital educative platform that the Web 2.0 technology comes into the limelight. To justify the effort of this paper, it may be a reasonable case to start with the exploration of the impact from the Web 2.0 technology on digital educative platforms because of a review of literature shows that there are some findings supportive of this hypothetical trend. It has been argued that an educative platform supported by Web 2.0 technology may facilitate a website user to establish his or her personal or community-based Blog and maintain a personal wiki-database on certain subjects. This website user may interact with others who are interested in the same subject, via Tag, Rss and SNS, to exchange viewpoints, discuss issues and produce judgment. A virtual platform to exchange information, as was expected, can thus be getting mature, promising a prospect of initiative learning, research-based learning and collaborative learning integrated into one [3]. However, questions remain as to how to improve utilities on three sides—students, tutors and website managers—with the purposes not only to maximize teaching qualities, learning effects but also to minimize unnecessary burden of maintenance cost on the management side.

3. CONSTRUCTING AN EDUCATIVE PLATFORMS WITH WEB 2.0

An educative platform supported by the Web 2.0 technology is expected to have functions to accommodate the following needs: automatically compressed files, basic information security, instant calculation of the online number, automatic player files, software for speedy uploads, instant talks, flexible classification and sequences, the CSS to help readers of web pages to define color, fonts, layout and other aspects of document presentation. With the tools such as *blogs*, personalized *wiki*, *HEMiDENi*, *flicker*, *Picasa*, *podcast*, *YouTube*, google forums, RSS software such as *Bloglines* and

Google Reader, *Twitter* that can be supported by the Web 2.0 technology, both the teaching and learning sides can have wider access to various sources of information. The format of tutors and students simultaneously work online and exchange viewpoint will definitely deliver enormous impact on conventional patterns of tutor-students relations and traditional education discourse. To be specific, tutors on the one hand can take the Web 2.0 technology as the tool to manage their incoming information and the virtual vehicle to communicate with their students. On the other hand, students can take the Web 2.0 technology as a convenient tool in learning and open sources for further references. Taken together, the Web 2.0 educative platform can be seen a new laboratory to strengthen coordination between students and tutors, snowballing knowledge via interaction and eventually elevating learning effects [11].

The paper is of the view that to achieve the above purpose, more constructive effort has to be made. It suggests first of all that the SWOT analysis that looks into strength, weakness, opportunities and threats of a Web 2.0-based educative platform may be helpful to assess the success possibility of it. Table 3 illustrates the results.

Table 3: A SWOT analysis of the current digital educative platform supported by the Web 2.0 technology.

S（strengths）	W（weaknesses）
● To transform the interaction between tutors and students and fulfill the ideal of mutual advancement in education ● Serving as a platform for knowledge management	● Learner equipped with basic information know-how that places limitations to some minority ● Household Broadband internet needed that may exclude some have-nots
O（opportunities）	T（threats）
● A proper educative platform potentially with business values ● To enhance communication and collaboration between tutors and students	● Delivering impact on some tutors with traditional patterns of thought and resistance inevitable ● Unsure of information security and privacy

Secondly, a Web 2.0 business model is also very suggestive. There are generally speaking three kinds of business model supported by the Web 2.0 technology—Cross Service, Inherence and Aggregator—that are divided by sources of contents [7]. The sources of contents of business websites refer to third parties, website managers and website users themselves. The sources of benefits for these business websites can be classified as Table 4.

Different from the Web 1.0 era that information giving was dependent upon website manager to accumulate data and to provide information; the era of Web 2.0 technology will witness website users, instead of website managers, accumulate data and exchange information. With website users as an operating basis, the Web 2.0 technology will transform

the ways of information giving, the access behavior of website users and business operations. Looking into the future, the issues of Web 2.0 technology in application is how the website users reap revenues. It is not until the website users see their

Table 4: Types of Revenue Sources in Online Business

Category	Source of revenues	Instances
Commerce	Around-the-clock business service on the internet with time and cost of interaction reduced	Amazon.com
Membership	To provide common service and privileged service to members who pays	www.xmradio.com
Advertisement	To post various advertisements on the websites	sfbay.craiglist.org
Mobile	To send instant message to websites and blogs via cell phone	nokia-ajax.blogspot.com
Online Auction	Online auction websites attached to popular portal sites	www.ebay.com
Content	To uploading digital contents for business transaction	www.im.tv/vlog
Avatar	Websites posted virtual goods for barter and transaction	www.85913.com

revenues in hand can we are ensure that the business model of Web 2.0 technology is mature. Some search-engine manufacturing sectors are currently making effort to break away from single means of revenue. With wider application of the Web 2.0 technology, it is likely that new integrated form of business models are coming into being.

As it is, the website users in application of the Web 2.0 technology come from two groups. The first group is internet end-users who are free of charge. To this group of website users via internet, there are other forms of commercial businesses running in parallel with the websites such as *Google* service. In other words, the revenues of these websites come from other patronage sources, not the end-users. The second group is businesses with some specific needs and special service supports. SOHO and some small-medium size businesses are cases in point. They are normally charged via On Demand approach.

Take *Google* and *Yahoo!* for instance. For *Google*, the concept of Web 2.0 in the main is an internet platform to provide a business with information and adjust the experience of an internet user. Different from *Yahoo!* that is a portal site, seeking to build an enormous list of catalog (service and products) so that it can attract internet users' attention longer, *Google* hopes to help internet users with speedy information service. For *Google*, it identifies itself as mediator to advance the service so that the amount of online traffic is not the major assessment criteria for *Google*. It is speed to help the internet users to find the information they want that is the main concern of *Google* platform as the speed of search engine will elevate the extent of precision in information targeting. It has to be noted however that advertisements and commercials do

not escape this regard. This is because *Google* is of the view that advertisements also belong to information areas that internet users intend to rummage into.

Given this management philosophy, Web 2.0 provides a potential market as it reinforces the tendency to strengthen website users' independence and to encourage information sharing. That partially explains why the applications of Blog, Wiki and Podcast are currently getting momentums. However, this does not mean that there is not concern about the Web 2.0 technology. For instance, there is a saying that precondition has to be in place if to make good use of the Web 2.0 technology and that is adequate operation modes established by an enterprise. When many enterprises are concerned about how to sustain the clients with Middleware so that they have ready internet software at work, or whether to adopt Widget so that there is a broader picture of information, they need to look at potential markets as a result of the Web 2.0 technology coming into being. The issue here seems less to do with ready information than communicative means. If there exists a platform that is capable of integrating various internet users (consumers) and collecting enormous information on the one hand and providing information security of users on the other hand, the Web 2.0 technology may be one the first choices.

Figure 1 illustrates the relations among elements of an educative platform in application of Web 2.0 technology. These four elements are website users, contents, virtual community and tools. The paper follows Lin [6] and Tan [7] approaches and introduces the four elements into conventional teaching model with the findings illustrated in Figure 1.
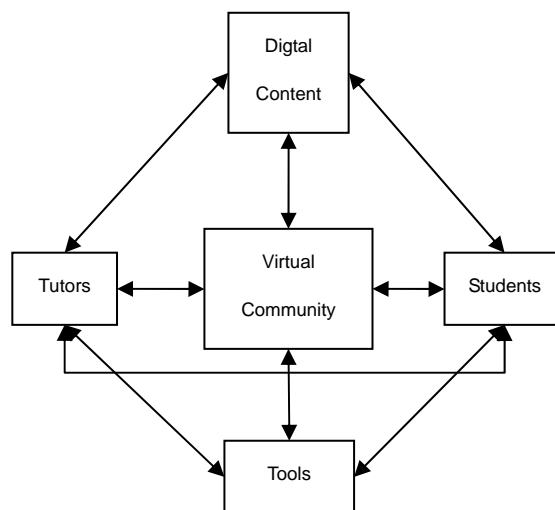

Figure1. A Web2.0-based educative platform in application

4. DISCUSSIONS AND CONCLUSIONS

The Web 2.0 technology is characterized by its wide applications, deep technological penetration, liberal information sharing and closer links to ordinary life and

industrial productivity. Looking into future, the Web 2.0 technology will inevitably enter political, economic, social, military, technological and educational fields. It will become a platform for market business, social service, mass media and daily amusements. SWOT analysis indicates that through the market potentials of Web 2.0 technology, a prospect for better information sharing, viewpoint exchange, coordinative exercise, quality teaching, learning utilities and lower maintenance costs of the digital systems can be expected. Secondly, unit capability of information search and reliable storing can be effectively enhanced while network relations in the form of virtual communities can be greatly developed. And thirdly, ubiquitous learning is no longer a dream when E-learning can be learner-centered.

However, issues related to the application of the Web 2.0 technology remain. SWOT analysis made by this paper also shows that digital educative platforms fail to reach the expected performance levels in that they suffer from a limitation placed by premature hardware development. Another obstacle is that website users making access to these digital educative platforms are found pretty weak in basic computer know-how. Also, self-discipline is an important factor to the success of digital educative platforms. It is found that the senior and juvenile are two groups that often find hard to accommodate themselves to this form of education. Digital educative platforms prove a challenge to the senior and juvenile generations of E-learners.

Seeing that digital educative platforms have already been operating on campus for many years but without satisfactory and convincing results, the paper ventures to bridge the gap among students, tutors and computer industry by introducing the Web 2.0 technology. This model will be most helpful to effectively integrate epistemological systems among internet sources, internet users and internet business with purpose of anticipated learning results and spill-over effects such as virtual communities in shape.

This paper in the end presents a preliminary model that integrates the Web 2.0 technology and digital educative platform with four elements—website users, contents, virtual community and tools—inserted into the model. Hopefully, it not only provides a reference for the latecomers to fill in more case studies but also illuminates the core value of Web 2.0 technology and a direction for future development. Recommendation for further research also includes one through quantitative approach to find out the causal relations among the four elements.

5. REFERENCES

[1] Liang-Ming Wang. *New Interaction Style of Teaching System in Web 2.0 Age*. Moden Computer, 2007, Vol. 267 , pp55-56.

[2] Jyun-yi Liu. *The Current Status and Development in E-Learning*. Inservice Education Bulletin, 2007, Vol. 4, pp.115-123.

[3] Ciou-Ping Wu.*The Applications of Web2.0 in Education*. Science and Technology Consulting Herald, 2007, Vol. 28, pp.241.

[4] Chikuma S., The Megatrend of Internet— The Mega Future You can't miss, Taipei, 2007.

[5] Jian-Hua Su. *The Introduction of Web2.0. Information Society Research*, 2007, Vol.13,   pp.1-124.

[6] Bo-Fong Lin. *The Research of Innovation Application Services and Business Model on Web2.0*. Unpublished dissertation, National Sun Yat-Sen University at Kaohsiung, Department of Business Management. 2007.

[7] Si-Cun Jian, Wei-Ren Su(Ed). *WEB2.0 Money on Internet, Innovation inside*, Market Intelligence Center at Taipei, 2006.

[8] Jia-Jin Liao, Tong-Chuan Huang. *The Practice Discussion of e-learning from Enterprise-T company as an example*. National Central University at Jhong Li, Paper presented at Practice Topics Research of the Human Resource Management in the The Graduate Institute of Human Resource Management., 2004.

[9] Market Intelligence Center. *Trend Research of the Popular Softwares and Emerging Services Model*. Oct 6th, 2007, from the World Wide Web:http://mic.iii.org.tw/intelligence/reports

[10] Market Intelligence Center. *The Research of Business Model in Major Network Company from Web2.0 Trends*. Oct 7th, 2007, from the World Wide web:http://mic.iii.org.tw/intelligence/reports

[11] Shun-Siao Chen, Apirl 4th, 2008, from the World Wide web:http://www.ashaw.org/2007/01/web20.html

[12] Abram, S.. *Web 2.0—Huh? library 2.0*, librarian 2.0. *Information Outlook*, 2005, 9(12): pp.44-45.

[13] LERN (Learning Resources Network), Online education: Growing presence and growing pains., *Lifelong Learning Today*, 1998, Vol. 6(1), pp.6-7.

[14] Tim O'Reilly, "*What is Web 2.0*," O'Reilly Media, Sept. 2005.

[15] Zhi-Jun Tan., *The Structure Model of Network Teaching System Based on Web 2.0*. IEEE Computer Society, p.363-366