WATERFORD INSTITUTE OF TECHNOLOGY

WALT: WEBLOGS AS LEARNING TOOLS

ROSANNE BIRNEY

MARY BARRY

DR. MÍCHÉAL Ó hÉIGEARTAIGH

WALT: WEBLOGS AS LEARNING TOOLS

Rosanne Birney, Mary Barry, Dr. Mícheál ó hÉigeartaigh

WeLearnT E-Learning Technologies Group
Department of Computing, Mathematics and Physics
Waterford Institute of Technology

Abstract: Traditional e-learning platforms have many shortcomings. It has been suggested that Virtual Learning Environments (VLEs) may actually impede learning. Weblogs are a new tool that can provide a means for students to reflect on their learning, and for students to easily collaborate with their teachers and with one another. This research aims to determine whether weblogs can provide effective support for learning in an online environment. A pilot study was conducted with a group of second-year Networking & Communications students over a 10-week period. Data was collected both from the weblogs used by the students, and from a questionnaire administered at the end of the study.

Keywords: Weblogs, social software, e-learning, educational technology, reflective practice, collaborative learning.

1. INTRODUCTION

A weblog (or blog) is a website that contains dated entries (called weblog posts) in reverse chronological order. The content of weblogs can vary greatly, from personal journals to informative collections of information. The majority of weblogs have only one author (90%), and most are used as personal journals (Herring *et al.*, 2004). Dave Sifry of Technorati reported in February 2006 that there were approximately 27.2 million weblogs, and that, on average, 75,000 new weblogs are created daily (Sifry, 2006).

Weblogs are only one of a variety of new tools available that are both cost effective and easy to access. These tools include wikis, e-portfolios, podcasts, collaborative concept maps and social bookmarks. Weblogs are at the forefront of this wave of what has been dubbed 'social software' (Tepper, 2003). Social software refers to various, loosely connected types of applications that allow individuals to communicate with one another, and to track discussions across the Web as they happen.

2. LITERATURE REVIEW

Traditional e-learning platforms have many shortcomings. It has been suggested that some Virtual Learning Environments (VLEs) may actually impede learning (Hotrum, 2005). VLEs can be restrictive in the way they allow students to interact with each other and with their tutors. They often do not provide a dynamic,

user-friendly way for teachers to comment on students' work, for students to peer review one another's work, or for students to reflect on their own work. Kraan (2003) suggested that, in order to cater for all subject communities, we 'forget about monolithic VLEs, and move to collections of specialised tools that do one or two things really well'.

Weblogs are one such tool – they do not provide a replacement for the traditional VLE, but rather an enhancement. Weller *et al.* (2005) suggest that weblogs can support the reflection phase in Kolb's Learning Cycle (Kolb, 1984). Ferdig & Trammell (2004) also suggest that weblogs provide a space for students to reflect on their learning, and for tutors to provide feedback on students' reflections. They propose that weblogs can increase student interest, and provide students with ownership of their learning.

A study at Brisbane Graduate School of Business (Queensland University of Technology) found that students thought weblogs were an effective aid to learning and teaching (Williams & Jacobs, 2004). Williams and Jacobs concluded that weblogs provide students with a high level of autonomy while also providing an opportunity for interaction with peers. Another recent study found that weblogs can be used to support collaborative learning (Du & Wagner, 2005).

Weblogs are a relatively new Internet technology, and although they have received a lot of attention in popular culture, their adoption in educational settings has been quite slow (Du & Wagner, 2005; Weller et al., 2005).

The examination of established learning models and theories may provide a solid grounding for the implementation of weblogs in an educational setting.

Laurillard's Conversational Framework (Laurillard, 2002) is one such established model that may provide guidelines for the incorporation of weblogs into the learning environment. The Conversational Framework states that learning should occur as an iterative dialogue, which must be discursive, adaptive, interactive and reflective.

Figure 1 below shows the conversational framework described by Laurillard; steps 1-4 are discursive, steps 5 and 10 are adaptive, steps 6-9 are interactive and steps 11 and 12 are reflective.
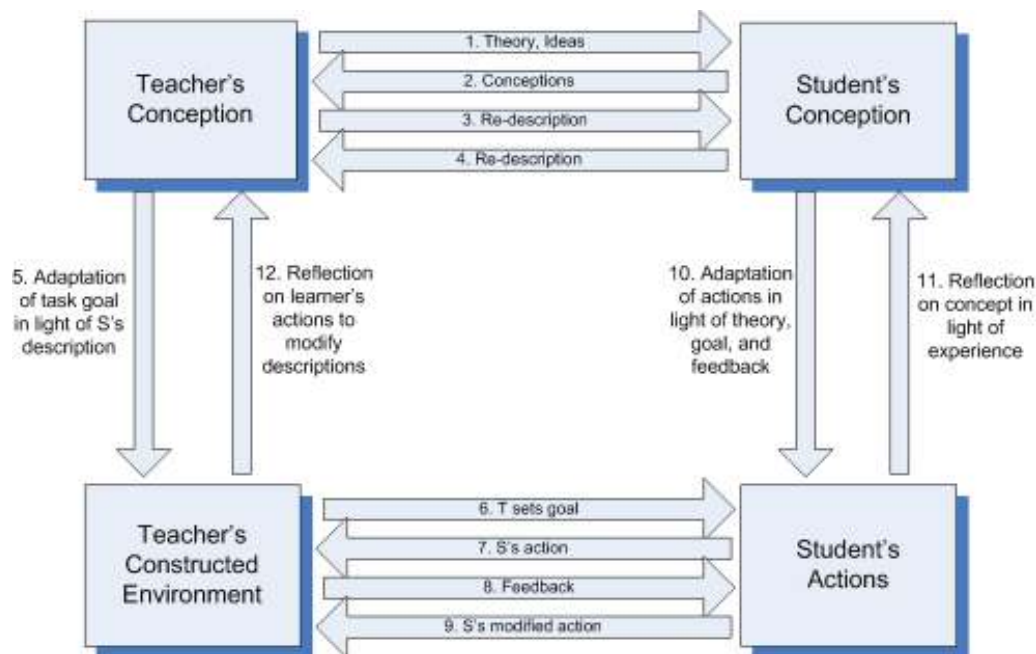

Figure 1: The Conversational Framework with Weblogs
(Adapted from Laurillard, 2002)

Ferdig and Trammell (2004) suggest that weblogs provide a space for students to reflect on and publish their thoughts and understandings. They also state that because weblogs can be commented on, they provide the tutor with an opportunity to easily leave feedback for students. Based on this, it may be possible to incorporate weblogs into both the interactive and reflective phases of Laurillard's Conversational Framework.

Salmon's five-stage model of online learning (Salmon, 2000), although originally designed with computer-mediated conferencing (CMC) in mind, can also provide a valuable insight into how weblogs can be utilized in an online learning environment. Ferdig and Trammell (2004) suggest that many of the research-based findings with regard to asynchronous discussion forums (or online conferences) could hypothetically be applied to weblogs, as both tools are very similar.

As previously mentioned, Ferdig and Trammell (2004) suggest that many of the research-based findings about asynchronous discussion forums (or online conferences) can be applied to weblogs. However, they go on to say that weblogs can provide an environment that is more advanced than discussion forums or online conferences, as they provide students

with a sense of ownership and control over their learning (Ferdig & Trammell, 2004). Weblogs provide students with a personal space; in fact, over 90% of weblogs have only one author (Herring *et al,* 2004). In contrast, asynchronous discussion forums or online conferences are a shared space, where students discuss a pre-defined topic in an assigned area.

Mortensen (2004) suggests that although weblogs are essentially personal spaces, their public nature suggests a need to communicate. The commenting feature allows students to receive feedback from their tutor or their fellow students, or to leave feedback for other students. In this way, a discussion can begin between several weblogs (Efimova & de Moor, 2005), thus providing a similar function to asynchronous discussion forums. The fact that this discussion takes place in several different locations across the Internet may seem inconvenient when compared to an online conference (which occurs all in one place). However, the use of RSS allows both tutor and students to receive notifications of new weblog posts or comments in their RSS aggregator, so that they do not have to visit several different weblogs to follow an online discussion. The use of RSS with weblogs can therefore offer more of the affordances of an online conference,

while still providing students with a personal space that they have ownership over.

While there are several differences between weblogs and asynchronous discussion forums or online conferences, there are also many similarities between them (Ferdig & Trammell, 2004). This makes the Five-Stage Model of Online Learning (Salmon, 2000) a very relevant guide for use when implementing blogs in an online learning environment.

Both stage four (knowledge construction) and stage five (development) of Salmon's Five-Stage Model of Online Learning incorporate a constructivist theory of learning (Salmon, 2000).

Constructivist theory states that learners construct new knowledge internally, and that the way they perceive new knowledge is based on their previous experience and understanding (Bruner, 1966). Rather than simply taking in knowledge and storing it, learners transform information and construct hypotheses. Constructivism asserts that learners use mental models to help them interpret experiences and transform information into knowledge (Brandt, 1997). These mental models allow the learner to conceptualise a particular topic. When the learner receives new information about a topic, she incorporates this information with her existing mental model, thus expanding her knowledge of the topic. Tutors can use the existing mental models possessed by students as an organising framework when teaching them a new concept.

Constructivist theory stresses the importance of collaboration in the learning process. There are several features of weblogs that enable learners to collaborate with and support each other as part of a learning community; these include permalinks, trackbacks (or backlinks) and commenting. In the area of e-learning and online education, a communication tool such as this can prove very useful. Piaget (1928) identified collaborative argumentation as one of the key ways in which learners develop their cognitive processes. The collaborative aspect of weblogs allows tutors and students to interact, and commenting capabilities mean that tutors can easily answer students' questions, or that students can perform peer-reviews of one another's work (Richardson, 2004).

Even when a weblog is not part of a densely interlinked community, it can be useful as a conversational tool. Efimova and de Moor (2005) describe this function as "a conversation with self"; a personal narrative used to organise one's own thoughts. In e-learning, this provides a platform for a student to reflect on their learning.

Reflective practice increases active involvement in learning, enhances problem-solving skills and aids the development of critical thinking skills (Moon, 1999). Reflection can also encourage metacognition by helping students to understand how the learning process works; this has a positive effect on their learning (Schön, 1987). Reflective practice has been employed by Humanities students for many years; its use in a technology subject, however, is quite a novel approach (George, 2001). There is growing evidence that reflection is as valuable to Technology students as it is to Humanities students, and that it encourages deep and lifelong learning.

Traditionally, students reflected on their learning by documenting their learning experiences in a paper journal, or in a file (created by a word processor) stored on their computer. Baker (2003) suggests that a learning log such as this can allow a tutor to examine a student's metacognitive skills, such as the ability to observe, evaluate and criticize their own learning.

While many believe that reflection is an independent activity, others stress that collaboration is an important part of the reflective process (Rose, 1992). The commenting features of weblogs may provide a way to bring collaboration into the reflective process, as students can review and critique one another's reflections. Wagner (2003) suggests that weblogs are a natural extension of traditional learning logs. Wagner discusses several benefits of weblogs in comparison to traditional learning logs. Firstly, students can share their work with one another from the beginning of the exercise. Secondly, new opportunities for feedback are created through commenting. Wagner also mentions several other benefits, including the fact that students have more responsibility over their learning and over the publishing process.

3. CURRENT PROGRESS

An initial study was performed with a group of Second Year W.I.T. students, as part of their Networking and Communications subject. A blended learning approach was taken; the students had already been using a combination of classroom learning and WebCT, and the use of weblogs provided additional support by allowing them to collaborate and to reflect on their learning.

In this initial study, each student was asked to set up his/her own weblog using Blogger, and to make a post to their weblog each week for a 10-week period. The tutor viewed weblog posts using Bloglines (a web-based RSS aggregator), and was able to comment on student weblogs to give feedback or answer any questions on the material. Both the tutor and the researcher were actively involved in the learning community. Students were also encouraged to comment on one another's weblogs.

In the first week of the study, students were introduced to the weblog technology. As technology students, they were already familiar with Internet technologies, and were enthusiastic about learning how to use weblogs. They quickly became engaged with the topic, which was appropriate to their Networking & Communications subject. After the initial orientation to the weblog technology, they set up a weblog and made an initial post.

In the following five weeks, the students were gradually introduced to the features of weblogs. Topics covered included commenting, permalinks, backlinks (or trackbacks), RSS/Atom feeds and RSS/Atom aggregators. In the final four weeks of the study, students presented to the class research essays that they had completed in the previous semester. Each week, students reviewed that week's presentation in their weblogs. As well as this, they used the Internet to find an additional piece of information on the topic that was presented. Students were encouraged to leave a feedback comment on the presenter's weblog, and to read other students' weblog posts to see what additional information they had found on the topic presented.

Finally, upon completion of the study, students were administered a questionnaire that asked them questions relating to their experience with the weblogs. Data gathered from both the questionnaire and the weblogs themselves will be analysed in the next phase of the research.

The schedule of work can be seen in Section Four below; tasks completed to date are highlighted in bold.

4. PROGRAMME OR SCHEDULE OF WORK

Timeframe	Activities & Tasks	Deliverables & Milestones	Presentations & Publications
1st Quarter *Oct – Dec 2005*	**- Write Research Proposal** **- Initial Literature Review**	**- Research Proposal** **- WIT Technical Report**	**- WIT Seminar Presentation**
2nd Quarter *Jan – Mar 2006*	**- Literature Review** **- Design of Pilot Study** **- Conduct Pilot Study**	**- Draft of Literature Review** **- Pilot Study Design Document**	
3rd Quarter *Apr – Jun 2006*	**- Complete Pilot Study** - Begin Data Analysis	**- Initial Findings Report** **- WIT Technical Report** - IRCSET Progress Report	**- Brief Paper accepted for EdMedia, June 2006** **- Poster accepted for EdMedia, June 2006**
4th Quarter *Jul – Sep 2006*	- Framework Design	- Framework Design Document	**- Brief Paper accepted for ALT-C, September 2006** **- Poster accepted for ALT-C, September 2006**
5th Quarter *Oct – Dec 2006*	- Conduct Revised Study - Analysis of Findings	- WIT Technical Report - Analysis of Findings Report	- WIT Seminar Presentation
6th Quarter *Jan – Mar 2007*	- Thesis write-up	- Thesis outline draft	- Paper at E-ducation without Borders, February 2007
7th Quarter *Apr – Jun 2007*	- Completion of thesis	- Submit draft thesis to external examiner	- Paper at EdTech 2006 Conference
8th Quarter *Jul – Sep 2007*	- Revisions to thesis	- WIT Technical Report - Submit final draft of thesis	- Paper at ALT-C 2007 Conference

5. REFERENCES

Baker, J. H. (2003). The learning log. *Journal of Information Systems Education, 14*(1), 11-14.

Brandt, D. S. (1997). Constructivism: Teaching for understanding of the internet. *Communications of the ACM, 40*(10), 112-117.

Bruner, J. (1966). *Toward a theory of instruction*. Cambridge, MA: Harvard University Press.

Du, H. S., & Wagner, C. (2005). *Learning with weblogs: An empirical investigation.* Paper presented at the 38th International Conference on System Sciences, Hawaii.

Efimova, L., & de Moor, A. (2005). *Beyond personal webpublishing: An exploratory study of conversational blogging practices.* Paper presented at the 38th International Conference on System Sciences, Hawaii.

Ferdig, R. E., & Trammell, K. D. (2004). Content delivery in the 'blogosphere', *Technological Horizons in Education Journal*.

George, S. (2001). Learning and the reflective journal in computer science. In M. Oudshoorn (Ed.), *Twenty-Fifth Australasian Computer Science Conference* (Vol. 4). Melbourne, Australia.

Herring, S. C., Scheidt, L. A., Bonus, S., & Wright, E. (2004). *Bridging the gap: A genre analysis of weblogs.* Paper presented at the 37th International Conference on System Sciences, Hawaii.

Hotrum, M. (2005). Breaking down the LMS walls. *IRRODL - International Review of Research in Open and Distance Learning, March*.

Kolb, D. A. (1984). *Experiential learning*. Englewood Cliffs, NJ: Prentice Hall.

Kraan, W. (2003, April 14). The teachers teach the techies. Retrieved May 26th, 2006, from http://www.cetis.ac.uk/content/20030415235439

Laurillard, D. (2002). *Rethinking university teaching: A conversational framework for the effective use of learning technologies* (2nd ed.). London: Routledge Falmer.

Moon, J. (1999). *Learning journals: A handbook for academics, students and professional development*. London: Routledge Falmer.

Mortensen, T. (2004). *Dialogue in slow motion: The pleasure of reading and writing across the web.* Paper presented at the Blogtalk 2.0, Vienna, Austria.

Piaget, J. (1928). *The judgement and reasoning in children*. London: Routledge and Kegan.

Richardson, W. (2004). Blogging and rss - the 'what's it' and 'how to' of powerful new web tools for educators, *Multimedia & Internet @ Schools*.

Rose, A. (1992). Framing our experience: Research notes on reflective practice. *Adult Learning, Jan*.

Salmon, G. (2000). *E-moderating: The key to teaching and learning online*. London: Kogan Page.

Schön, D. A. (1987). *Educating the reflective practitioner*. San Francisco: Wiley.

Sifry, D. (2006, February 6th). State of the blogosphere, February 2006 part 1: On blogosphere growth. Retrieved May 26th, 2006, from http://www.technorati.com/weblog/2006/02/81.html

Tepper, M. (2003). The rise of social software. *netWorker, 7*, 18-23.

Wagner, C. (2003). Put another b(log) on the wire: Publishing learning logs as weblogs. *Journal of Information Systems Education, 14*(2), 131-132.

Weller, M., Pegler, C., & Mason, R. (2005). Use of innovative technologies on an e-learning course. *Internet and Higher Education, 8*, 61-71.

Williams, J. B., & Jacobs, J. (2004). Exploring the use of blogs as learning spaces in the higher education sector. *Australasian Journal of Educational Technology, 20*(2), 232-247.