The Use of Weblogs as a Tool to Support Collaborative Learning and Reflective Practice in Third-Level Institutions

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Abstract:
Weblogs can be used as a tool for learning support, providing additional features that are lacking in many Learning Management Systems (LMSs). This research aims to demonstrate that weblogs can enhance the learning experience by allowing students to reflect on their learning, and by allowing students to easily collaborate with their tutors and with one another. Laurillard's conversational framework is used a basis for describing how weblogs should be incorporated into the existing learning environment. In an initial study, students set up weblogs and created a weblog post each week over a 10-week period. Analysis of this study has begun, and preliminary results show that the use of weblogs with RSS (Rich Site Summary) helps to reduce tutor workload in comparison to the use of a Learning Management System, and helps to increase student involvement in learning.

1. Introduction

Traditional e-learning platforms have many shortcomings. It has been suggested that Learning Management Systems (LMSs) may actually impede learning (Hotrum, 2005). LMSs 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 tutors to comment on students' work, for students to peer-review one another's work, or for students to reflect on their own work. LMSs are often costly and difficult to implement on a large scale.

There are a variety of new tools available that are both cost effective and easy to access. These include weblogs, 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). Weblogs can respond to several of the shortcomings of traditional LMSs by allowing students to reflect on their own learning and review the work of their classmates. When used in conjunction with RSS (Rich Site Summary), weblogs can reduce the tutor's workload by allowing them to view student posts concurrently using an RSS aggregator.

This research aims to demonstrate that weblogs have the potential to be valuable learning tools that support both reflective practice and collaborative learning. An initial study was performed involving a group of technology students in a third-level institution. This study examined the use of weblogs as a tool to support their learning, in addition to using traditional teaching methods and WebCT. Although this research is still in its early stages, initial results have been promising (discussion below).

Weblogs are a relatively new technology (less than ten years old), and although there are millions of weblogs, adoption of the new technology in the higher education sector has been slow (Du & Wagner, 2005). By demonstrating that weblogs are a valuable learning support tool for both students and tutor, it is hoped that this research will provide a rationale for the wider adoption of weblogs to third-level institutions. This could ultimately enhance the learning experience for students, in particular technology students in third-level institutions.

2. Weblogs in Education

2.1 Collaborative Learning

There are several features of weblogs that enable learners to converse 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).

2.2 Reflective Practice

Weblogs can also be useful as a tool for personal reflection. In e-learning, this provides a platform for a student to reflect on his/her 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 long been lauded by Humanities students; 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.

2.3 Established Learning Models as a Background Framework

There are several established models that can provide guidelines for learning support in an online environment. Laurillard's conversational framework states that learning should occur as an iterative dialogue, which must be discursive, adaptive, interactive and reflective (Laurillard, 2002). Figure 1 below shows the conversational framework described by Laurillard; steps 1 to 4 are discursive, steps 5 and 10 are adaptive, steps 6 to 9 are interactive and steps 11 and 12 are reflective.

For this study, Laurillard's conversational framework has been adapted to demonstrate the areas where weblogs provide support for learning. In the diagram, the shaded arrows (steps 7, 8, 9, 11 and 12) represent the steps in the framework where weblogs can be incorporated. Weblogs are useful in both the interactive and the reflective phases of the framework. In the interactive phase (which encompasses steps 6 to 9) they can be used as follows:

Step 7: Student's action – student makes post to weblog, relating to task goal (goal previously set either in class or using WebCT).
Step 8: Feedback – tutor collects student posts using RSS aggregator, and can then provide feedback to students if necessary.
Step 9: Student's modified action – student modifies action based on feedback received (makes additional post to weblog if necessary).

This allows tutors to easily examine weblog posts and leave feedback if necessary. In the interactive phase of the framework, students may also view one another's weblogs, either to work collaboratively or to peer-review one another's work. In the reflective phase of the framework (steps 11 and 12), weblogs can be used as follows:

Step 11: Reflection on concept in light of experience – student uses weblog to reflect on task and how it has helped their understanding of the concept.

Step 12: Reflection on learner's actions to modify descriptions – tutor can review weblog posts to ensure student understands concept; descriptions may need to be modified to aid better understanding.

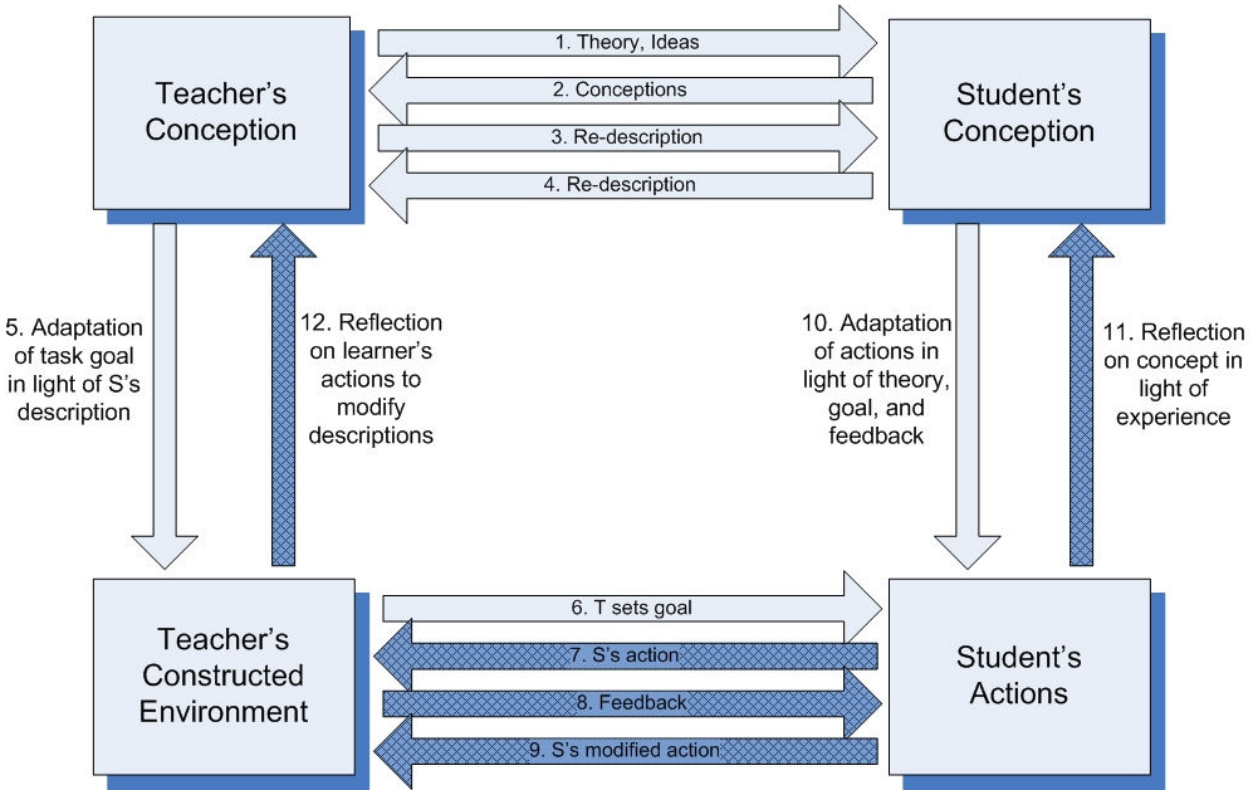

Figure 1: The Conversational Framework with Weblogs (Adapted from Laurillard, 2002)

The use of an established model such as Laurillard's conversational framework provides a solid grounding when deciding where weblogs should be incorporated into the existing learning environment. Weblogs are useful in both the interactive and reflective phases of this model, providing additional support to both students and tutor.

3. Method of Investigation

As previously discussed, this research focuses on technology students in third level institutes. An initial study was performed with a group of Second Year university 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.

The schedule of the initial study is described in Table 1 below. The phase of the Laurillard Conversational Framework that each task corresponds to is also indicated in this table.

Week	Tutor/Researcher Activity	Student Activity	Phase
1	Introduction to Weblog Technology	Set up weblog using Blogger	*(Introduction)*
		Make initial post to weblog	
2	Introduction to Commenting Feature	Comment on another student's weblog	Interactive
		Make post to own weblog	Reflective
3	Introduction to Permalink Feature Introduction to Backlink Feature	Create permalink to another student's weblog	Interactive
		Create backlink to another student's weblog	Interactive
		Make post to own weblog	Reflective
4	Editing your Blogger profile Upload picture feature	Edit Blogger profile, upload picture	
		Make post to own weblog	Reflective
5	Introduction to RSS and Atom	Set up link to site feed using Blogger	Interactive
		Make post to own weblog	Reflective
6	Introduction to Bloglines	Subscribe to other feeds using Bloglines	Interactive
		Make post to own weblog	Reflective
7 - 10	Class presentation of Research Essay	Reflect on what you learned from presentation	Reflective
		Leave feedback on presenter's weblog	Interactive
		Find additional information on topic presented and view other blogs to see additional information found by classmates	Interactive

Table 1: Schedule of Initial Study

Finally, upon completion of the study, students were administered a questionnaire that asked them questions relating to their experience with the weblogs.

3.1 Data Collection:

The unit of analysis used was the message (weblog post). Quantitative data collected in the initial study includes the following:

i. the number of permalinks to other student weblogs in each weblog post
ii. the number of permalinks to external sites in each weblog post

iii. the number of backlinks to each weblog post
iv. the number of comments on each weblog post (left by other students)
v. the number of comments on each weblog post (left by the tutor)
vi. the number of comments on each weblog post (from external source)
vii. total number of weblog posts (from all weblogs)

Some comparative data was collected from a 10-week period during the semester previous to this study, when the students had used WebCT without the added support of weblogs. Data collected includes the total number of messages in the discussion area and the number of replies left for students by the tutor.

Finally, data was collected using a questionnaire, which was administered to students upon completion of the study. A mixture of open and closed questions was used.

4. Evaluation

As discussed earlier, this research is still in progress; however, following data collection, some initial analysis has begun. Firstly, the total number of weblog posts was compared with the total number of messages in the WebCT discussion area. Although the total number of messages in the WebCT discussion area and the number of weblog posts were roughly the same, the tutor found that the use of an RSS aggregator reduced the workload when reviewing the weblog posts. In the WebCT discussion area, the tutor was required to follow or 'click-through' two steps in order to view a message and another two to get back to the discussion area in order to view a message by a different student. Once logged into Bloglines, the tutor was able to view weblog posts with just one click, and could also switch between updated weblog feeds with one click.

The data relating to the number of permalinks, the number of backlinks and the number of comments was collected with the intention of analysing the levels of interaction between students, between student and tutor and between students and external sources. This examination has now begun, and SPSS is being used to analyse the data collected. Initial analysis, coupled with an enthusiastic response from students, suggests that further results will be positive.

In the second phase of the evaluation, it is planned to perform qualitative analysis on the text in weblog posts. NVivo, a software tool for analysing rich text, will be used for this purpose. This phase of the evaluation will analyse the use of weblogs as a tool for reflective practice. As well as this, it is hoped that the analysis of the blocks of text taken from weblog posts will help to add meaning to the quantitative data collected relating to the levels of interaction between students, between student and tutor and between students and external sources. The second phase of the evaluation will also include the analysis of the questionnaire administered to the students.

5. Concluding remarks

Preliminary findings show that the use of weblogs in a blended learning environment, in conjunction with classroom teaching and WebCT, can enhance the learning experience for both students and tutor. The use of weblogs with RSS can greatly reduce the workload for the tutor by allowing them to view updated student weblogs concurrently using Bloglines, a web-based RSS aggregator.

Initial feedback from the students is positive; they readily engaged with the new technology and were enthusiastic about its use. Further evaluation to be performed will include the analysis of the quantitative data collected relating to the levels of interaction between students, between student and tutor and between students and external sources. Also, the results of the student questionnaire will be reviewed, and a discourse analysis approach will be taken to the examination of the text in weblog posts.

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