

## **Blogs – Collaborative Learning for the Next Generation**

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### **Abstract:**

This study aims to determine the effectiveness of weblogs as a tool for collaborative learning in an online environment, with a particular focus on technology students. Some of the VLEs currently in use in third-level institutions restrict the way in which students interact with one another and with their tutors. The use of weblogs as a tool for collaborative learning can help to overcome several of the shortcomings of traditional VLEs by providing a dynamic, user-friendly way for students to peer-review one another's work and to communicate with their tutors and with one another.

An initial pilot study was conducted over a 10-week period. Salmon's online learning model was used as a theoretical basis for describing how weblogs could be incorporated into the existing learning environment. The first six sessions focused on the technical aspects of blogs (e.g. permalinks, backlinks, RSS feeds and RSS aggregators). The focus on weblog technology and related technologies (e.g. RSS, XML) was felt to be appropriate for the group as part of their Networks course. In the remaining four sessions, students used their blogs to review one another's class presentations and to share additional information on their own research with the rest of the class.

Preliminary findings show that the use of weblogs in a blended learning environment, in conjunction with classroom teaching and a VLE can enhance the learning experience for both students and tutor. The level of interaction between blogs was high, with students frequently commenting on and linking to one another's blogs, suggesting that weblogs promote collaborative learning in an online environment.

### **Keywords/Phrases:**

Weblogs, VLEs, RSS aggregators, blended learning, peer-review.

## 1. Introduction

This study aims to determine the effectiveness of weblogs as a tool for collaborative learning in an online environment, with a particular focus on technology students. Some of the VLEs currently in use in third-level institutions restrict the way in which students interact with one another and with their tutors. The use of weblogs as a tool for collaborative learning provides a dynamic, user-friendly way for students to peer review one another's work and to communicate with their tutors and with one another.

## 2. Background

A weblog (or blog) is a website that contains dated entries (called weblog posts) in reverse chronological order. 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. Weblogs are often part of a larger community, as they link together using the permalink, trackback and commenting features described above. In e-learning, these weblog communities can provide support for collaborative learning.

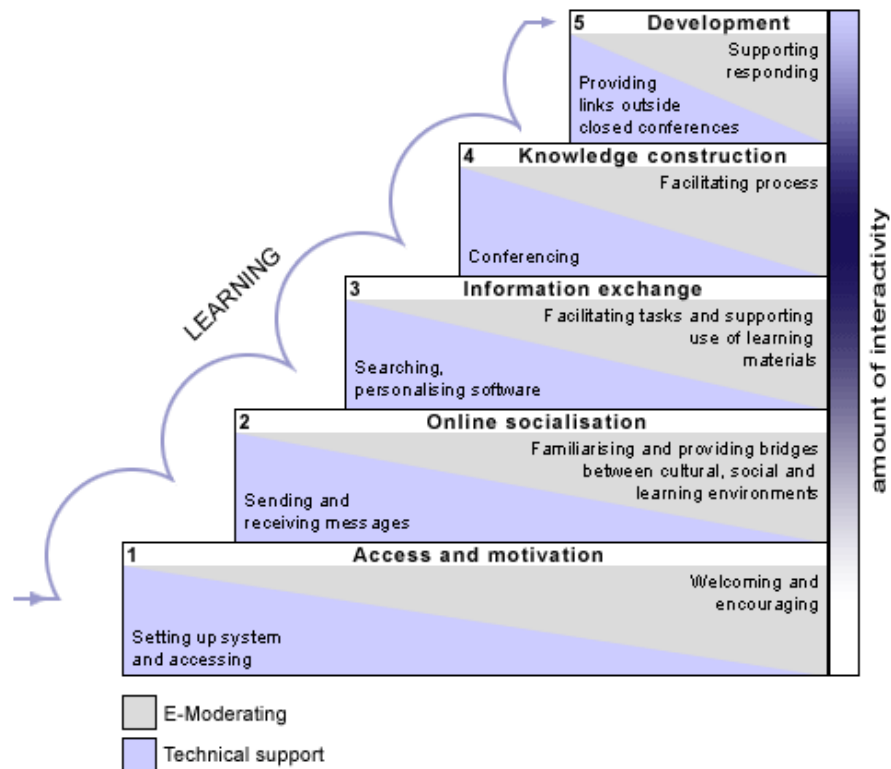
Collaboration is an important part of the learning process. Piaget (1928) identified collaborative argumentation as one of the key ways in which learners develop their cognitive processes. Vygotsky also believed in the importance of human interaction for learners, and proposed that social interaction profoundly influences cognitive development. He stated that a student could perform a task with the help of an adult (or a more highly-developed peer) that they would not have been able to accomplish alone (Vygotsky, 1978).

Current e-learning applications have several limitations in the way they allow students to interact with their peers (Bouras, Giannaka & Tsiatsos, 2005). It has been suggested that some Virtual Learning Environments (VLEs) may actually impede learning (Hotrum, 2005). Weblogs can offer new opportunities for the development of online learning communities (Farmer, 2004). A recent study by Efimova and de Moor concludes that weblogs serve as a true conversation tool, supporting fast and meaningful reactions, exchange of multiple perspectives and joint development of ideas (2005).

The examination of established learning models and theories may provide a solid grounding for the implementation of weblogs in an educational setting. Salmon's five-stage model of online learning, although originally designed with computer-mediated conferencing (CMC) in mind, can provide a valuable insight into how weblogs can be utilized in an online learning environment (Salmon, 2000). This model also describes how the levels of interaction between students increase as they move through the five stages of the model.

At each stage of the model, the technical elements of that particular stage are shown (for example 'setting up system and accessing' at stage one). The tasks that the tutor/e-moderator must take at each stage are also shown (for example 'welcoming and encouraging'). As the learning progresses through each of the five stages, the amount of interactivity also increases.

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. The five-stage model is represented in Figure 1 below. The actions required by both student and e-moderator (or tutor) are illustrated at each stage.



**Figure 1: The Five-Stage Model of Online Learning  
(Reproduced from Salmon, 2000)**

### 3. Initial Pilot Study

In this initial study, each student was asked to set up his/her own weblog using as part of their networking studies, and to make a post to their weblog each week for a 10-week period. The tutor viewed weblog posts using an RSS aggregator. Students were encouraged to comment on one another's weblogs. This study took place in a face-to-face environment.

The researcher acted as e-moderator, according to Salmon's Five-Stage Model of Online Learning. During the initial session, the e-moderator gave detailed instructions as to how to set up and access a weblog (Stage 1). In the second session, students were encouraged to send and receive messages, i.e. leave comments for one another. At this stage, the e-moderator ensured that all students were participating in the community (Stage 2). Then, the students personalized their weblogs by adding pictures to their profiles and editing various settings of their weblogs. They were guided through this process by the e-moderator (Stage 3).

Following this, students began to use their weblogs to review class presentations of research essays they had completed the previous semester. The levels of interaction between students were higher at this point, as they gave feedback to one another by leaving comments on one another's weblogs. The e-moderator continued to facilitate this process, but behaved more like a participant than a teacher (Stage 4). At Stage 5 of the model, participants become responsible for their own learning. Upon completion of the pilot study, students (who were nearing their final exams) used their weblogs to write up and share answers to sample exam questions. As this was an activity outside the realm of the pilot study, it may show that students found weblogs to be a suitable forum for independently developing their learning.

#### 4. Data Collection

Several methods of data collection were used. A questionnaire was given to students at the end of the study to determine students' experiences with the weblogs. Qualitative data was taken from the weblogs in the form of the textual content of weblog posts.

Quantitative data collected from student weblogs includes:

- Total number of weblog posts per student;
- Total number of comments left by a student;
- Total number of comments received per student;
- Total number of links per student weblog.

This paper focuses on the analysis of the quantitative data collected from student weblogs.

#### 5. Results & Discussion

Quantitative data from weblogs was analysed using SPSS. There are several findings from this initial analysis, some of which are discussed briefly here.

##### a. Interaction with own weblog

There appears to be a positive correlation between total number of posts and attendance at sessions – see Chart 1 below.

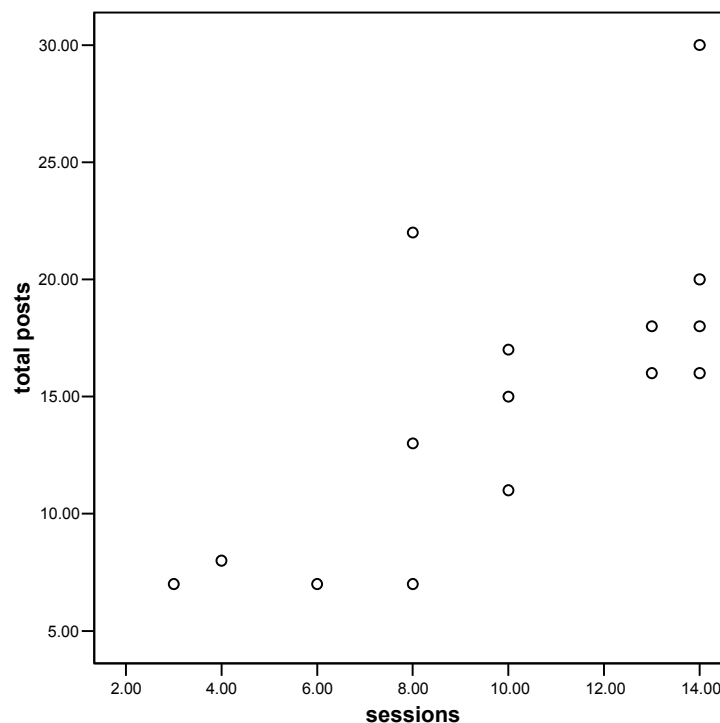


Chart 1 - Scatterplot: Total Posts/Session Attendance

A Pearson's Correlation Test shows that the correlation between number of sessions attended and total number of posts is a large one (.723) as defined by Cohen (1988). The correlation is also significant at the 0.01 level. Not surprisingly, this correlation shows that the better a student's attendance is, the more posts their weblog is likely to have.

However, several students often created posts to their weblog that were not related to the class material. If the posts which are not related to class material are discounted, there is a much stronger correlation between the attendance at sessions and number of posts. The Pearson's Correlation then becomes .826 (significant at 0.01 level).

This shows that there is a very strong correlation between attendance at sessions and the number of weblog posts related to class material. This suggests that, although some students were posting about non-class-related topics outside of class time, the majority of students focused on class-related topics when in class.

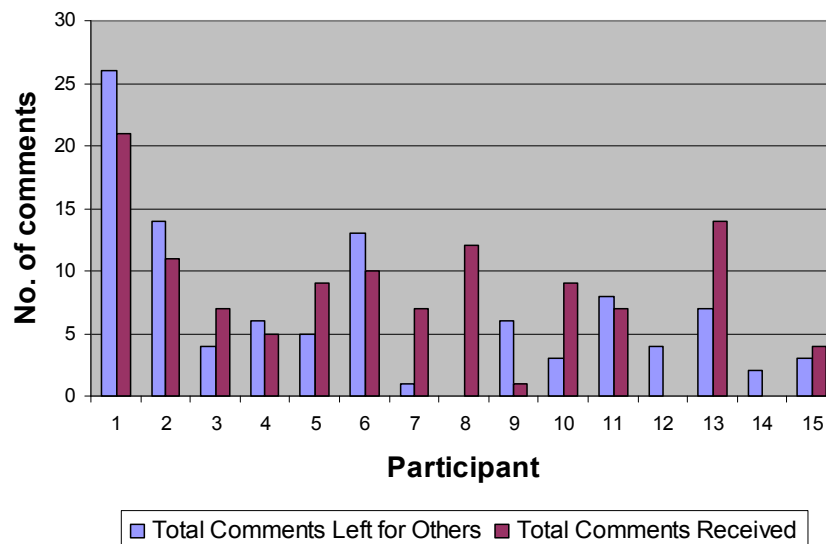
The levels of attendance at sessions appear to be an important factor in the level of interaction a student had with their weblog. Like many other e-learning tools, high levels of participation are required to achieve maximum benefits. The tutor should carefully monitor student attendance and participation levels.

### b. Interaction with Peers

Most of the interaction on the weblogs took place between peers. The average number of comments a students received from peers was 7, compared to only 1 from their tutor. This high level of interaction between peers may suggest weblogs are a suitable tool for collaborative learning and groupwork.

In Chart 2 below it can be seen that the number of comments a student left and the number of comments a student received were reasonably similar, suggesting that the more a student interacted with others, the more feedback they received in return.

**CHART TWO: Number of Comments Left/Received by Each Participant**



## 6. Conclusions & Further Study

This initial study focused on the use of weblogs as a tool for collaborative learning. Results show that the level of interaction a student has with their own weblog depends on their levels of attendance at class sessions. This suggests that, like many other e-learning tools, high levels of participation are required to achieve maximum benefits.

There was a higher level of peer-peer interaction on the weblogs than peer-tutor interaction, which suggests that weblogs are a suitable tool for groupwork. Also, results show that the more a student interacted with others, the more feedback they received in return.

A further study will focus on a group of students in a distance learning course, which may show higher levels of interaction than the face-to-face environment. Social network analysis may provide further insight into weblog communities of learners.

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