

Learning by tagging: The role of social tagging in group knowledge formation¹

Jude Yew¹, Faison P. Gibson², Stephanie Teasley¹

School of Information North, University of Michigan, 1075 Beal Ave.,
Ann Arbor, MI 48109¹

College of Business, Eastern Michigan University, Ypsilanti, MI 48197²

Abstract. This research presents a case study on the use of Social Tagging in an undergraduate classroom at the University of Michigan during the Fall 2005 semester. Students were between 20 and 22 years of age. Students tagged their individual blog posts to contribute to themes and conversations in an online learning environment. Using content analysis of the blog posts and tags as well as semi-structured interviews, the study examines the role of online social tagging for tracking and aiding group knowledge formation.

Introduction

This paper presents a case study from an ongoing research project that investigates knowledge and community formation in online learning environments that employ social tagging. These learning environments allow the user to organize and display online content, such as blogposts and

¹ This work has also been published under the Creative Commons license at the MERLOT Journal of Online Learning and Teaching (JOLT) at the following URL: <http://jolt.merlot.org/vol2no4/yew.htm>

bookmarks, with meaningful keywords or tags presented in a public and collaborative manner. Such labeling of online content potentially allows the individual learner and the community to use technology and social conventions to organize knowledge, coordinate with others, and facilitates the sensemaking efforts of the community (Mathes, 2004).

This study makes the argument that social tagging systems employed within a learning community can both facilitate the process and provide evidence of knowledge formation within the group. To investigate this, we first put forward a theoretical argument for why social tagging systems should be employed to facilitate the production of group knowledge. We then present an analysis of an undergraduate business school class' online learning environment that utilized social tagging.

The case for social tagging

Tagging describes the activity of marking online content with keywords, called "tags", as a way to organize content for future navigation, filtering or search. Tags are not based on a controlled vocabulary, but rather are left to the user's wishes, although as shown in this study group norms and social processes can play a significant role in an individual's choice of tags leading to fairly consistent assignment of specific tags (Mathes, 2004). This act of assigning tags to categorize an object is an act of knowledge production as it makes apparent the mental models, or internal representations of knowledge, that one uses to associate with the object (Pauen, 2002). The argument being made here is that allowing students to associate keywords to objects we are enacting the associative structure of knowledge formation (von Anh & Dabbish, 2004). New knowledge is formed in the allocation of tags, as the individual has to make sense of the new object by associating it with prior understandings and classification of objects. For instance, by categorizing a digital photograph with the tag 'vacation', we are immediately providing information about the content of the photograph without actually having to view it. Also, the tag "vacation" provides information to others about how we have contextualized the photo. Thus, the use of tags can function both as a way to facilitate the formation of new knowledge as well as to provide evidence of how this knowledge evolves over time.

Tagging is social because the tags are visible to the whole group with the potential for influencing the tags adopted by each group member. We

believe that social tagging systems employed within a learning community can facilitate knowledge formation within the group. In addition, social tagging can provide evidence of knowledge formation to both the group members and to researchers/analysts. In a class, the tags used by individual students to categorize online content also functioned as a “repository” of how that particular student made sense of and assimilated the material being taught in the class (Argote, 1999; Weick, Sutcliffe & Obstfeld, 2005). When tags are made public and shared, other students in the class are able to tap into the knowledge being formed by the individual student. Students are able to view the tags used by others and employ those tags to inform their own understanding, creating an iterative learning loop (Russell, Stefik, Pirolli & Card, 1993). Additionally, the tags employed by one member of the class can “self-propagate” and become a “linguistic meme” that enables the entire class to organize and coordinate their online discussion, and in the process of doing so, establishes a common understanding of the material being taught (Heath & Seidel, undated).

Methodology

The setting

This study took place in Business Information Technology 320 (BIT320), a database and Information class offered at the University of Michigan. The class was offered to undergraduates aged 20 to 22 at the Business school and a large part of the class was devoted to group work where students were expected to create information databases based on the technologies taught within the syllabus. BIT320 also used blogs and RSS (an XML format for syndicating blog content) to create an online space where both the professor and the students could share their knowledge. The class website was dubbed the “Class Remix” to encourage participants to improve upon, change, integrate, or otherwise “remix” the group’s knowledge contributions similar to Lessig’s notions of a remix culture (Koman, 2005). Participation in the Class Remix was mandated through a class policy that stipulated 5 blogposts per week that were then aggregated in the site (Here on the web and pictured in Fig. 1). Students were encouraged to create a vibrant learning community where group knowledge was built collectively by sharing relevant links, questions, answers, and observations of the material taught in the class.

In this environment, students could post about new ideas, or they could effectively respond to the contributions of others by writing a response in their own blog and linking back to the original poster. In this way, conversations (initial post, comment, response to comment, etc.) effectively occurred across student blogs. When engaging in these sorts of conversations, students were encouraged to reuse at least some of the tags that previous posters had used, as well as, adding any new tags they might find relevant. In this way, whole conversations came to be grouped by tag and were made findable by tag. A limitation of the system was that once a post was tagged and saved, the tags could not be changed.



Fig. 1: Screen capture of class “remix” website (04/14/06)

Unlike more orthodox and prescribed forms of classification, social tagging allowed the users in the community to assign any keyword/category to their contribution that they deemed relevant. Various visualizations, such as the use of tag clouds on the class website (highlighted in blue lower right corner of Figure 1), helped members of the class to be aware of the current and most frequently submitted topics/posts. The class remix website can be seen as an archive of the students' evolving understanding and knowledge formation that has taken place during the course.

Data and methodology

Data for this study were composed of participants' contributions to the class remix website and in-person interviews. To better understand the role of the remix site in the participants' learning, content analysis was performed on the student blog posts and the tags they employed to describe these posts. Additionally, the students' grades in the class and semi-structured interviews with seven out of the eleven participants in the class provided complementary data. In the following section, the server log analysis, the key findings generated by the interviews, and the content analysis of the blogposts are reported.

Findings

Table 1 outlines the total number of blogposts made by each student in the class during the term, the total number of tags that they associated with their blogposts and the average number of tags per blog post contributed to the class website.

The majority of the students adhered to the instructor's requirements that they contribute five blogposts a week to the class website. With the exception of three students, everyone in the class met the minimum requirements of 5 blogposts a week that was stipulated by the instructor (highlighted in Table 1 by the red line).

Table 1: Total blog posts and tags and avg. tags per post (13 weeks x 5 blog posts/week = 65 minimum required posts).

| Source | Total Posts | Total Tags | Avg. Tags/Post |
|----------------------|-------------|------------|----------------|
| The Blogstar | 36 | 75 | 2.0833 |
| Musings of William h | 41 | 72 | 1.7561 |
| Matt's Musings | 61 | 156 | 2.5574 |
| jb's blog | 65 | 150 | 2.3077 |
| zee124 | 66 | 124 | 1.8788 |
| Shady Waters | 66 | 219 | 3.3182 |
| Supriya | 66 | 146 | 2.2121 |
| Pink Footsie | 68 | 154 | 2.2647 |
| Tigerlily's Blog | 69 | 119 | 1.7246 |

