Learning by Tagging: Group knowledge formation in a self-organizing learning community

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Abstract: This research explores the use of Social Tagging as a means by which group knowledge is formed within a learning community. A study of an undergraduate Business School class that utilizes Social Tagging is undertaken to analyze the patterns and evolution of use of tags in order to make a case for Social Tagging as a viable means to visualize and facilitate group knowledge formation.

Introduction:

Social Tagging describes the collaborative activity of marking shared online content with keywords, or tags, as a way to organize content for future navigation, filtering or search. It is proposed that Social Tagging systems employed within a learning community can both facilitate and provide evidence of knowledge formation within the group. Social Tagging facilitates the sensemaking efforts of the individual and the learning community through the collective act of associating keywords with documents/artifacts and by sharing those terms with the rest of the community. The use of Social Tagging systems also provide learning communities with a means to visualize and be made aware of the tags used by the group. By extension, this provides learners with an indication of the patterns of cognition taking place within the class on a particular topic. This study will analyze of the use of Social Tagging in an undergraduate Business School class. Analyzing the content of the students' contributions and correlating that with the frequencies and patterns in the use of certain tags, this study traces the evolution of this learning community's knowledge-formation. Such a study makes a case for Social Tagging as a viable means through which group knowledge can be tangibly visualized and formed.

Characteristics of learning community:

BIT 320, a Database and Information class being offered at a large Midwestern university, utilizes various technologies to create a shared online space in which group learning can occur. The class, dubbed the BIT 320 Remix by its instructor, is so named based on Lawrence Lessig's notion of a "remix culture" which describes a society that allows and encourages efforts to improve upon, change, integrate, or otherwise remix the work of copyright holders. (wikipedia, 2005). The class aims are to convey the latest principles in Business Databases and Information systems through a philosophy of "learning by doing". Participation in the class is mandated through the weekly submission of 5 blog posts and 10 bookmarks to the class "remix" site (see http://thecommunityengine.com/bit320/remix/) that aggregates all the students' contributions. Students maintain individual blog and social bookmarking accounts, and are encouraged to contribute their knowledge by sharing relevant links, questions, answers, and observations of the material being taught in the class. This open sharing of information is promoted to create a vibrant learning community where group knowledge is built collectively through the efforts of the individuals in the class.

Figure 1. Portion of the BIT320 tag cloud (10/30/05)

The formation of group knowledge is facilitated in the class through the use of Social Tagging systems. The goal of the instructor here is to create a system where students are able to make contributions so that they are aware of each other and are able to find pertinent information from the pool of contributions. Students in the class are encouraged to assign categories, or tags, when contributing their blog and URL submissions. Unlike more orthodox and controlled forms of classification, Social Tagging allows the users in the community to assign any keyword/category that they view as relevant. Various visualizations, such as the use of tag clouds (see Fig.1) helps members of the class to be made aware of the current and most frequently submitted topics/posts are by way of the tags. This paper argues that Social Tagging is a means by which new information submitted to the class is made sense of by the entire community. (Weick et al, 2005).

Social Tagging as evidence of group learning:

Tagging is essentially a process of mapping meaning and personal understanding to the essential characteristics of the entities that are being organized. The tags associated with a particular item are a representation of how a learner has activated related knowledge in his/her mind and associated it with the item. Social Tagging expands this notion to a community of learners where each tag associated with an item provides "immediate self and social feedback" (Sinha, 2005). Social tagging systems allow anyone in the community to freely attach keywords/tags to content. These tags are "socially translucent" (Erickson et al, 1999) meaning that they allow each student an awareness of both their individual tags as well as the tags and content that others contribute to the class. In other words, there are at once both personal and public aspects to collaborative tagging systems that make it easier for students to make individual contributions of one's understanding as well as to build on the knowledge that others have contributed. These are essential to the formation of a learning community and the group learning that takes place within them. This paper proposes that the tags being used in a learning community such as BIT 320 can be utilized to assess the scope and the content of the knowledge being formed by the class. Tag clouds, which aid visualization of what current tags are being used and what their frequency of use is. Thus, studying the evolution of the tag clouds of a learning community over time will provide one with an ideal representation of the evolution and change in group knowledge formation.

Methodology of the study: Tracing the evolution of the tag clouds

This study will attempt an analysis of the use of Social Tagging utilizing the following methods:

- *Content analysis* of the students' blog and bookmark contributions will be related to the tags. It is expected that there will be a variety terms that are being used by different members of the class for a particular content type/topic. Examining the range of vocabulary used for a particular topic will allow insight into the group knowledge being formed around particular topics.

- *Analysis of relative frequencies and patterns* in tag use will provide an indication of two contrasting effects: the popularity of certain topics, and the stabilization of certain tags used to categorize particular topics. Patterns in the use of tags will also reveal insights in to group cognition. For example, having a certain topic tagged differently by two distinct clusters of the class might indicate opposing viewpoints on a particular topic.

- *Citation & Social Network Analysis* will be used as a method to surface the interaction patterns of the students in the class. Such an analysis provides a picture of the community structure in the class through visualizations called sociograms. These visualizations help us to identify key "idea leaders" in the class who generate tags that are adopted by a large proportion of the students. As such, being able to picture who generates the ideas and who is likely to adopt them will allow insight into the dynamics of group knowledge formation for BIT 320.

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