A longitudinal analysis of the behavioral patterns in teachers using blogs for knowledge interactions

Introduction

Compared to traditional online forums, blogs have features such as knowledge-filtering, personal logs, and digital notebooks (Blood, 2002). Many researches explored the applications of blogs in education (e.g., Churchill, 2009), and the feasibility of using blogs as a tool for professional development was discussed (e.g., Hou et al., 2009). By analyzing interactions recorded on teacher-blogs, we may explore the behavioral patterns of teachers using blogs. However, long-term, large-scale empirical longitudinal researches on teachers’ interactions in blogs are still quite limited.

Using cluster analysis, we can place interaction behaviors into different clusters, and this allows us to explore different types of interactions as well as their proportions, characteristics and limitations. Therefore, this study applied cluster analysis to explore the behavioral patterns among 11,724 teachers on the 107 teacher-blogs for 46 months in Taiwan and discuss potential interaction-related limitations. We then propose suggestions for teacher-trainers in their use of blogs for professional development.

Method

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Participants and Tools

We have established a blog environment in a teacher community website. The blogs have basic interactive features (including posting of and responses to articles, a message board, and layout configuration) (Hou et al., 2009). The participants in our analysis were 11,724 teachers throughout Taiwan who registered and accessed the blog prior to April, 2010. For a longitudinal analysis, we held a workshop in June 2006 to introduce the blog environment. We analyzed the blogs of 107 teachers who joined the workshop and posted articles on their blogs after the workshop, and recorded the interactions among 11,724 participants on the 107 teacher-blogs for 46 months (from 2006/6 to 2010/4).

Data Analysis

This study analyzed the 107 blogs with the following indicators to explore the behavioral patterns: (1) number of articles posted, (2) frequency of one responding to one’s own articles, (3) frequency of others responding to one’s own articles, (4) frequency of one responding to others’ articles, (5) frequency of one leaving messages on one’s own message board, (6), frequency of others leaving messages on one’s message board, and (7) frequency of one leaving messages on others’ message boards. We then conducted a cluster analysis using the aforementioned indicators. To ensure the accuracy of the number of clusters, we conducted a two-stage cluster analysis. We
first conducted a Hierarchical Cluster Analysis, then a Ward Method’s Dendrogram to
determine the appropriate number of clusters, and lastly, we conducted a K-Mean
Cluster Analysis.

Results and Discussion

After the analysis, we determined the appropriate number of clusters was three.
The result of clustering is shown in Table 1, which lists the number and proportion of
the blogs in each cluster as well as the indicators.

(Table 1 about here)

Table 1 shows that the interactions of the teachers can be divided into three clusters:
most of the blogs are in Group A (94.4%), and the other two groups only had about 6%.
The frequencies of indicators within Group A allow us to understand the interactions in
most of the blog use by teachers. The result indicates that the overall number of articles
posted in Group A was low. However, we also discovered that if a teacher was willing
to post an article, it would receive a certain percentage of responses (about 50%). This
indicates that if the teachers were motivated to post articles, other members would
respond to a certain degree, allowing more knowledge-sharing.
Though there are not many teacher-blogs in Group B (only 4.7%), it is a unique and crucial group. The common feature of this group is that the number of posts is far greater than in the two other groups. However, in this group the “frequency of others responding to one’s articles” is lower than the other two groups (only 35%), and the teachers in this group are more likely to respond and add to their own articles. The above indicates that teachers of Group B generate more articles and are more motivated to express themselves.

There is only one teacher in Group C (0.9%) whose number of articles in the range between those of the two other groups. However, 96% of the articles by this teacher were responded to by others, and many messages were left on the message board. In terms of interactions with others, that teacher’s frequency of actively responding to articles by other teachers and leaving messages on message boards belonging to other teachers were also far higher than the teachers in the two other groups. This kind of teacher can be categorized as a popular teacher who actively interacts with others and gets more responses from other teachers.

From the above analysis we can see that most teachers (i.e., Group A) have limitations in terms of actively posting articles. However, a small number of teachers enjoy expressing themselves, and one of them is extremely popular and enjoys actively interacting with others. Such a pattern meets the past findings of interactive behaviors.
of online communities; that is, most interactions and resources are concentrated on relatively few members. These members are more likely to attract others who share the same interests and, in turn, form the core of the community (Mislove et al., 2007). The community-core (such as Group B and C) is an important factor that affects intra-community interactions. Therefore, designing interactive strategies and tools that encourage interactions between the majority of teachers (Group A) and the community-core is an important topic of research. These strategies and tools may expand the scope of the community-core, tighten the network, or form more sub-community cores.

Suggestions

We suggest planners/managers of teacher communities may evaluate the frequency of teachers’ interactions or the number of articles on blogs. Teacher-educators may determine the potential community-cores and design online knowledge-sharing activities/workshops. The members of the community-core may share their experiences of professional development with other community-members in the activities. This may reinforce the relationship between different clusters and may encourage most teaches to continue the use of the blog and interact with each other. It is also recommended that cluster analytical methods be combined for evaluating community interactions in the blog community system.
This will allow an instant or scheduled automatic analysis of an interactive-behavior grouping within a community. Such information provides dynamic patterns on teachers’ interactions and serves as an important reference for the design of physical or online professional-development activities.

References


