

# Inspired by the Audience – A Topic Suggestion System for Blog Writers and Readers

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## ABSTRACT

Employee blogging has benefits both for individuals and the organization. In order to inspire the creation of blog posts, we developed a novel topic suggestion system that connects blog readers with blog writers through sharing topics of interest. We describe our system and the results from an employee survey that informed its design.

## Author Keywords

Recommendations, participation, social software, blog.

## ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## General terms

Design, Human Factors

## INTRODUCTION

Blogging has successfully diffused into the enterprise and been deemed beneficial for work. Huh et al. [5] describe how employee blogging supports knowledge sharing and collaboration across internal communities. Jackson et al. [6] report on benefits for individuals and the community, for example, information sharing, problem solving, getting and giving feedback, engaging in dialog, gaining perspective, networking, developing reputation, or building community. Despite the benefits of employee blogging, participation is very low. In our company about 3% of all employees have written a blog post, which is similar to numbers mentioned in Efimova and Grudin [2]. The number of active bloggers is even lower. Many blogs are abandoned [4], or they do not get much attention in terms of comments or readership [9]. This is often true for less active bloggers; they get the least value out of blogging [6]. Newer, inexperienced users often struggle getting started to blog which is evidenced by

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the large number of blogs with no or only few posts (80% of all blogs inside our company with  $\leq 5$  posts).

Our research attempts to address these problems by providing a novel way of inspiring the creation of blog entries. We have designed and built the Blog Muse, a system that leverages findings from previous research, and in particular capitalizes on the relationship between blog readers and writers. Blogging is inherently social [7,9] and blogs are a communication medium which, by design, is asymmetric in that there is no obligation for blog readers to engage in social interaction. Nonetheless, the role of the reader in blogging is crucial. As Nardi et al [7] state: “*blogs create the audience, but the audience also creates the blog*”. Most bloggers desire connecting to an audience and often write with audience attention and feedback in mind.

In order to inspire bloggers, our system suggests topics they can write about. The audience is given a voice by letting blog readers share topics they would like to read about with the blogging community. Our system then suggests these topics to potential blog writers who can decide whether or not they would like to address the topic requested. The underlying intuition is that users are more likely to blog if they know about their potential audience and the topics of interest. Our system creates a tighter linkage between blog readers and writers and could potentially facilitate connection making and networking across the organization.

Unlike traditional recommender systems [8], Blog Muse aims at helping users generate content, similar to Geyer et al. [3]. Blog Muse also differs in that it involves users directly in the recommendation process. As such it bears similarities to question and answer web sites (Q&A) [1]. While there are structural similarities, the goal of our system is to incentivize users to blog. Bloggers do not typically think of themselves as being part of a Q&A system. In addition to question-posing, topic requests could also collect together different viewpoints of interest to a large, known audience (through voting).

The design of Blog Muse has been informed by a survey of 83 blog users within IBM which has over 400,000 employees. We report the results from this survey, which influenced the design of the resulting system and led to the development of the algorithm for suggesting topics, and we describe the system design and implementation.

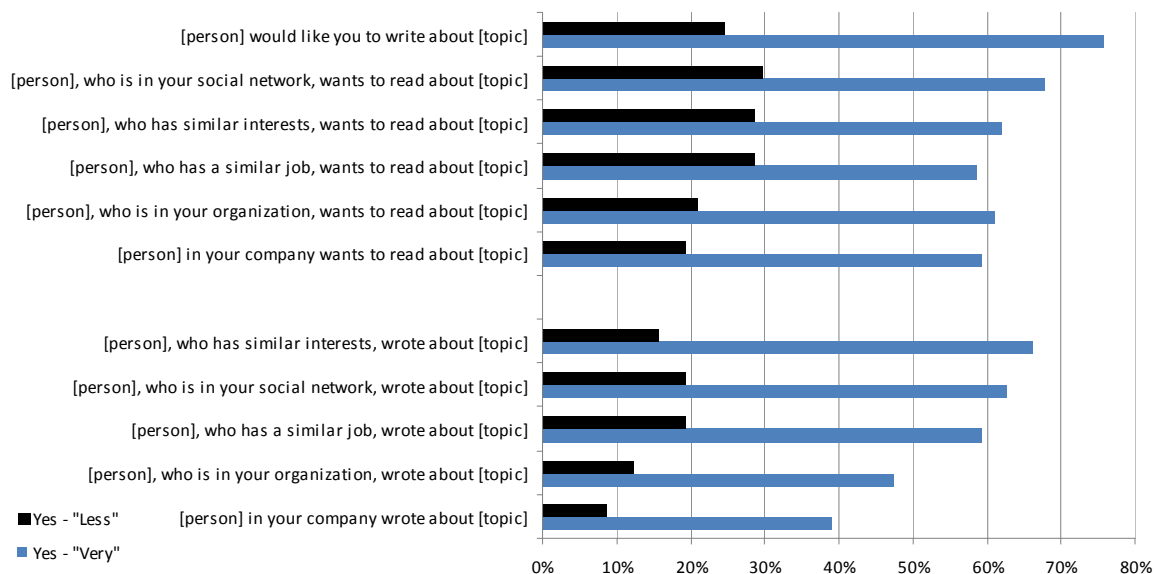


Figure 1. Reasons with percentage of positive responses indicating likelihood of writing for “very” and “less” interesting topics.

### SURVEY RESULTS

The participants for our survey were selected from users of BlogCentral, an IBM-internal blogging site launched in 2003. Since then, 145,768 total blog posts have been written in 16,098 blogs by 14,345 users. The system supports both personal blogs (14,401 blogs; 113,315 posts written) and group blogs (1,697 blogs; 32,453 posts written), and each user can have multiple group and personal blogs. For the purposes of this survey, we chose to focus on users writing posts for personal blogs.

We divided users of BlogCentral into 7 groups based on their level of activity on the site. We then sent an email survey to 100 random users from each of these groups in order to evenly sample from and understand the perspectives of different kinds of bloggers for our research. Surveys were completed by 83<sup>1</sup> users total. The groups are characterized as follows: **1.** users who never blogged on the site, never rated posts, never commented (“**Lurkers**”, **27,381 total, 5 responses to our survey**), **2.** users who only rated or commented, no personal blogs or posts (“**Raters / Commenters**”, **6,179, 6 responses**), **3.** users who set up a personal blog but never wrote a single post (“**Empty Blog**”, **2,297, 11 responses**), **4.** users who wrote a single post in their personal blog (“**Single Post**”, **5,115, 8 responses**), **5.** users who wrote more than 1 personal blog post, at a rate of  $\geq 90$  days/post<sup>2</sup> (“**Occasionals**”, **1,030, 14 responses**), **6.** users who wrote more often than “Occasionals” ( $<90$  days/post) but have not written in the last 90 days

<sup>1</sup> Number of responses to individual questions varied.

<sup>2</sup> The rate chosen to distinguish active from less active bloggers is one of many possible partitions. The mean rate for bloggers is 60 days/post with large variance. We added a 50% margin to cover active but less frequent bloggers.

(“**Stopped**”, **3,965, 8 responses**), **7.** users who write blog posts at a rate of  $<90$  days/post and have written an post in the last 90 days (“**Frequenters**”, **863, 31 responses**).

The survey contained both general questions relating to their company-internal blog writing experience as well as blog topic suggestions in particular (i.e. “Do you think you would be encouraged to blog [more] if these suggestions were made to you?”). Respondents were divided on whether they thought they would blog more because of topic suggestions (41 Yes, 39 No, 2 Maybe). We heard very different reasons from more and less active users in response to “why?” 16 of the “Frequenters” described how they already have topics they write about, are without a shortage of ideas, and find blogging a “personal” activity that suggestions might infringe upon. One went as far as saying, “This would be similar to writing paid reviews for consumer products.” However, we heard different sentiments from those in less active groups. One admitted, “In the beginning, I had no idea what to put on the blog”(Occasional), two others welcomed having an audience for a topic: “Some of the subjects above are important, the real value of blogging in those cases comes from knowing the opinion will be used somewhere.”(Single Post) or “if the interest number was high I would write on the subject of large scale interest. Instead of me building a following, the following is prebuilt.” (Single Post)

Participants were also asked to provide a “Very Interesting” blog topic suggestion they might have received from the system and a “Less Interesting” example. For both of these examples, we asked whether or not (coded as “yes”/ “no”) they would be “more willing to write a blog post about that topic based on the reason given” for 11 possible reasons (see Figure 1). The idea was to inform our suggestion system about which reasons users consider more relevant than others. The total number of responses for each of the

11 reasons varied from 114 to 116. Possible reasons included direct topic requests to a user (*[person] would like you to write about [topic]*), reasons more closely related to audience desires (e.g. *[person], who is in your social network, wants to read about [topic]*) and reasons more closely related to previously written topics (e.g. *[person], who has similar interests, wrote about [topic]*).

While Figure 1 shows that users are obviously less interested in writing a post about a topic that is less interesting to them, it also shows differences in reasons for writing a topic: a direct request from another user was the highest ranked reason to write about a topic. In general, the reasons relating to other users being interested in reading about a topic ranked higher for both “very” and “less” interesting topics compared to those in which a topic was previously written about. These reasons and their relative importance have informed the overall design of the Blog Muse system as well as the routing algorithm for topic suggestions.

### THE BLOG MUSE APPLICATION

The core concept of the Blog Muse is to close the loop between the people who are looking for content on a blogging site and those who write blog posts. Figure 2 illustrates the social interaction model in a simplified way.

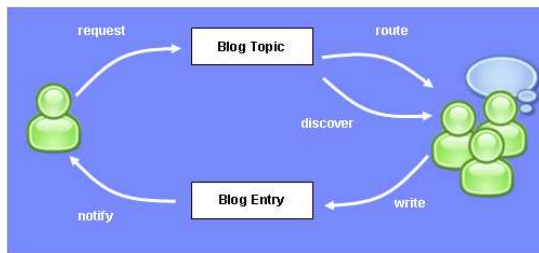


Figure 2. Social Interaction Model.

If users want to read about a certain topic but cannot find any blog posts about it, they can submit a topic request to the Blog Muse. Our system then routes the topic request to users who are likely to write about it, i.e. the system will notify and recommend the requested topic to other users. If a user then decides to write about a requested topic, we notify the requester.

There are three primary tabbed views in the Blog Muse application (Figure 3): (A) “Get Inspired to Write” – where users can see topics recommended to them by the system, (B) “Ask for a Blog Post” – where users can request topics from the community, and (C) “Explore Topics and Vote” – where users can see existing topics requests (i.e. recent, popular, or topics from a user’s social network). We describe the design implications of our survey data, as well as how these impacted the features in our application.

### Creating an Audience of Readers Around a Topic

One of the findings of our survey was that users were more willing to write posts about topics others wanted to read about. To support this, we created the “Ask for a Blog Post”

view where users can request blog posts on a particular topic from other users (Figure 3 B).

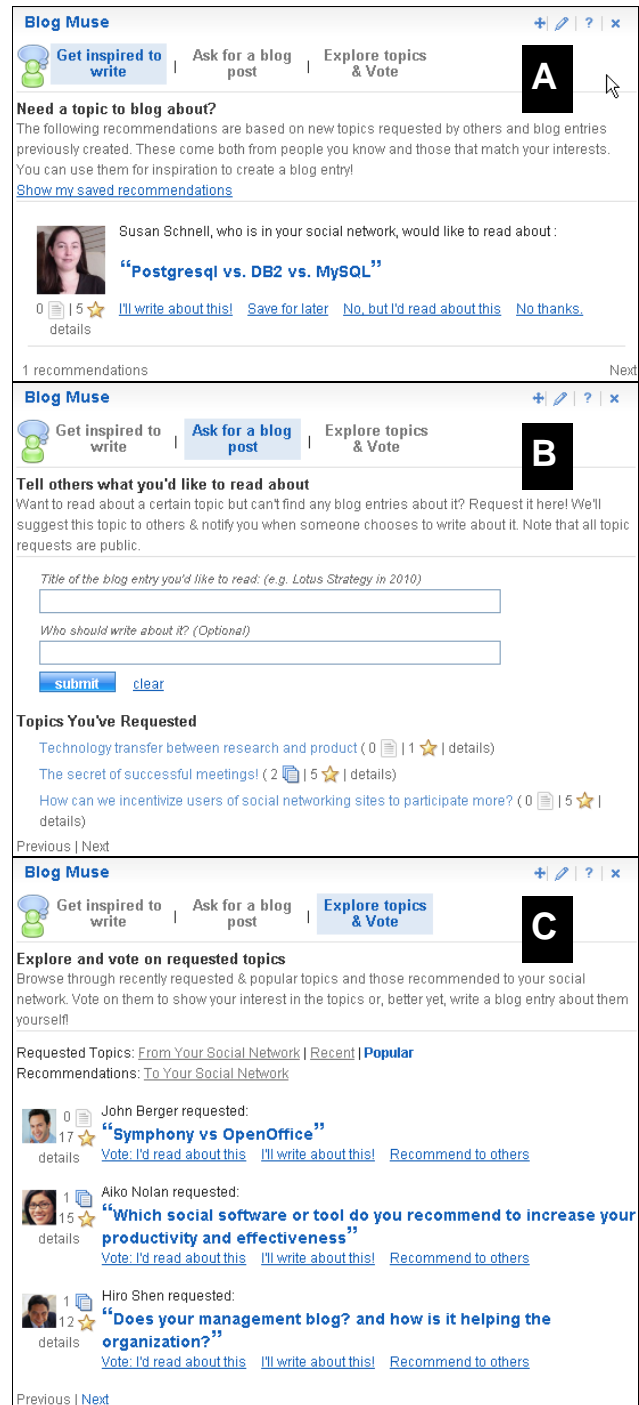


Figure 3. Blog Muse Application Views.

In addition, we also sought to actively support audiences of greater than a single user around a topic request. Therefore, even without submitting topics, users can help potential blog writers by letting them know that they would be interested in reading about a topic through voting. To support this, all topic requests submitted to the system are

public and can be discovered by other users through browsing lists showing recent, popular, or topics within a user's social network (see Figure 3 C). As with submitting a topic request, when a user votes on a topic, we will notify her when someone blogs about it. Throughout the interface, the number of readers (including the original requester) interested in a topic is shown next to a star icon (see Figure 3 C). Clicking on the “details” link shows the complete list of users who have voted for or requested this topic.

In the “Get Inspired to Write” view (Figure 3 A), users are given the following options for a blog topic we have suggested to them: (1) they can write about the topic, (2) they can save a topic and write about it later, or (3) they can decline the recommendation. In addition, because we are constantly seeking to grow the audience for a given topic, users are given an additional option: (4) they can decline but specify that they would read a blog post about this topic, which adds another vote to the topic.

### Encouraging Direct Topic Requests

From our survey data, the most positive reason for choosing to write a blog post was a direct request to write about a topic from another user. Based on that, in the interface, when a user submits a topic request, she also has the option of specifying individuals to whom this request should be directed (Figure 3 B).

Furthermore, when a user browses previously submitted topic requests in the Explore view (Figure 3 C), they are given the option of “Recommending to Others.” If a user discovers a topic that she thinks someone else should write about or knows about, she can recommend it to them directly by entering their names or email addresses.

Finally, in the Explore view (Figure 3 C), a user can also see actual recommendations that were made to her social network. Users are given the option of voting on these if they think they are a good match for their co-workers (e.g. “Vote: I’d like Luis to write this!”). Similar to voting on requested topics, this will increase the “reader” star count on this topic. In addition, we also notify the person in their social network whose recommendation they voted for that the user would like to read about this topic from her.

### Topic Suggestion Routing Algorithm

As previously described, our goal with Blog Muse is to inspire users to participate by writing blog posts based on personalized topic suggestions made to them. The algorithm used for suggesting and ranking topics to users was derived from the relative importance of the 11 possible reasons rated by survey respondents. Our system recommends topics to users based on those requested by other users, as described above. A set of users may be directly specified by the requester at the time of the request. However, we also inform the social network about a user’s topic request as well as people in the system who seem like a good match based on their interests/keywords. While topics with a built-

in audience were valued most in our survey, it can happen that there are no requested topics available for a given user. Rather than showing an empty recommendation queue, we also mine existing blog posts and suggest topics based on those written by a user’s social network or posts that match her interests/keywords using a TF-IDF score. Recommendations from existing topics are presented to users together with the social recommendations. However, informed by our survey, topics requested by users will always rank higher than previously written-about topics.

### CONCLUSION

Based on survey results from 83 users of IBM’s internal blogging site and informed by recent research focusing on the role of blog readers, we have designed and implemented a social topic suggestion system for bloggers. Our goal is to inspire users to write more blog posts and our approach is to involve readers by allowing them to share their topics of interest with the blogging community. Sharing and voting on topics adds a new communication channel to the blogging ecosystem. Our survey findings suggest that our system may be particularly valuable for those starting to blog and less-active bloggers. As the next logical step in our research, we are planning to deploy our system to our blogging community with the goal of measuring its effectiveness in inspiring and connecting users.

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