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# 3 Parts Inspiration-3 Parts Participation

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**Abstract**

Beehive, a social networking site used internally at IBM, has grown to over 50,000 registered users. To get and keep our users engaged, we intentionally designed for user-creativity and customizability, added “reuse” features to support inspiration by others, and built recommender systems to coax participation.

**Keywords**

Social networking, participation, customizability, reuse, recommenders

**ACM Classification Keywords**

H5.3. Group and Organization Interfaces: Collaborative computing, Evaluation/methodology, Web-based interaction

**Beehive**

Beehive is an opt-in social networking site behind IBM’s firewall [1]. It was first launched on May 31<sup>st</sup>, 2007 to 50 members within IBM Research and has since grown to over 50,000 users from all divisions of the company in locations around the world. Similar to other social networking sites, Beehive has an individual profile page for each user, and supports features like connecting to other people (“friending”), setting status messages, sharing photos, lists (called “Hive5s”) [3], and events, and commenting on users and content.

### Inspired by Me: Creativity & Customizability

While working on Beehive, our users have taught us that if the system allows, they will find ways to be creative. For example, our system was not designed to support style changes, such as the background of a profile page. But we decided to allow HTML content (including Javascript) in user-generated content such as comments or status messages, given that Beehive resides inside the protected boundaries of a firewall and despite possible security concerns. Once a few users found out how to alter their profile background, many followed and they even created an unofficial manual on how to customize Beehive profile pages, including YouTube videos, blog feeds, and more. Beehive also supports more structured customizability: rather than displaying static thumbnails for shared lists and events, we allow users to choose their own. 42% of all shared lists and 60% of events have non-default icons. Yet we still hesitated when users asked for a feature to customize their display names, as authenticated identities are important for accountability in social networking behind the firewall. After allowing some limited customizability, rather than “Easter Bunny”, however, we saw John “job-seeking” Smith posting on the site weeks later, effectively internally advertising his availability. While these exact choices may not be appropriate or fit other sites, we believe that more often than not, designing ways for users to be creative has a positive effect on such systems.

One of our first profile page features, “About You’s”, was designed with such user-customizability in mind. Traditional social networking sites such as Facebook, Linked In, and MySpace provide a set of predefined questions such as “Hobbies”, “Favorite Books”, or “School”. Research has shown that these profiles are

important for the formation of personality impressions, and that users intentionally craft their profiles to convey a desired impression (e.g.[5]). However, the ability to express oneself in a diverse way is limited. With an About You entry, a Beehive user can enter not only responses but contribute their own questions or topics as well (see Figure 1).

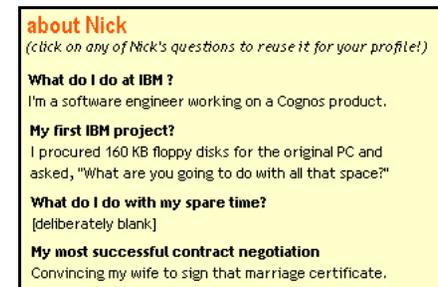


Figure 1 Example ‘About You’ section on a user’s profile page.

To date, users have created more than 43,000 About You entries with over 4,500 unique questions, ranging from business (“Why is unit testing important to me?”) to personal (“What’s your desert island food?”). In interviews with users we heard that “[the internal corporate directory] is hardly my idea of figuring out who somebody is, [...] because it doesn’t allow for much more personalization.” And: “I’m not a follower [...] so some questions I asked, are unique to me, very individual.” We analyzed the About You diversity of the overall population and found that 50% of our users fall into a “high” diversity group. Furthermore, these users tended to be significantly better connected than those in the “low” diversity group (23.3 friends versus 12.1,  $p < .001$ ) independent of length of membership and number of About You entries [2]. All of which suggest that About You customizability was an important feature in Beehive.

### Inspired by Others: Reuse

Customizability may be important in getting users to creatively express themselves, but it alone is not enough. We have all looked outside ourselves for inspiration at times. To support this behavior, on every list page, users are given the option to “Reuse this hive5,” as shown in Figure 2..

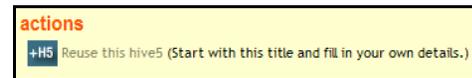


Figure 2 Detail of “Reuse” action shown on every list page.

By “reusing,” a user can create a Hive5 with the same title as the original list, but fill in his own five items [3]. When viewing a reused list, we display a “reuse map” which presents the history of reuse of this list and others in the same tree (see Figure 3). The purpose of the reuse map is to provide, in one glance, information about who reused a list topic and to allow for easy discovery of the other reused lists in the tree. Today, nearly 4,000 of over 18,000 total lists were created through the reuse feature.

With reuse, we also wanted to present users with an alternate way to react to a list as compared to commenting. We found that users were more likely to reuse than comment on a list created by someone they were not connected to [3]. In interviews, we heard from users that they reused a list based on the topic rather than the author. And, in particular, how others’ lists inspired them: *“When I reuse it, I say, ‘wow, very difficult to create a good hive5, [...] what a creative idea. [...] I want to use it to talk to my audience,’ ‘Reuse is a statement of ‘I found this interesting’ [...],’ ‘I reuse a list if I looked at the topic and thought I had something of value [to share].’”*



Figure 3 Reuse map showing the “tree” of reuse for a given list

Beehive users are also able to reuse About You questions they see on other users’ profiles. However, unlike the reuse feature for shared lists, this feature did not exist when the site was first launched; it was only added after we observed manual duplication behavior during the first 4 months of use (duplicates of 34 distinct questions made up 60% of the total entries created at that time)[2]. Entries created through the About You reuse feature now make up 50% of the 43,000 total About You’s in the system. Interviews also suggest that users were able to reuse questions and still feel they were creative or unique: *“I started looking at different profiles, seeing what people had on their profiles, picked and chose [the] ones I thought were interesting [and] hadn’t thought of.”* And *“I picked questions that were funny or I could give a funny answer to, my guide [was] mostly humor.”*

By adding the reuse feature for multiple content types across the site, we have tried to have Beehive users constantly view others’ content with an eye towards contributing their own, thereby keeping an individual’s profile and content rich and up to date, as well as keeping the site itself fresh and lively.

Figure 4 About You recommender interface in Beehive.

### “Inspired” by the System: Coaxing Participation with Recommenders

About You entries in Beehive allow users to creatively express themselves and we found evidence that users were being inspired by the questions asked by others. However, we observed that the average number of About You entries among users with entries was relatively low (mean 3.33, median 2) and only 25.9% of all Beehive users had About You entries in their profiles [4]. Also, our data showed that users rarely changed their About You entries once they had created an initial set, i.e. profiles become stale (average time between the first and last entry was 7.18 days, median: 3.3 minutes). Additionally, some users, when interviewed, indicated that they would be more likely to add more if prompted to do so. In response to this, we ran a controlled experiment with 2,000 Beehive users to determine the effect of an About You recommender system on users' profiles. Figure 4 shows the recommender interface we added to the system.

We found the recommender was effective at increasing participation: there was a 7.8% increase in the number of users with About You entries and for those who previously had About You's, there was a 20% increase in the number of entries. We also found that users in the experimental groups added more About You entries over time than those in the control group, which had only a slight initial increase due to advertisement [4].

Recommender systems have traditionally helped users discover information, but we have found them effective in encouraging users to create new content as well. And have since applied them to other content types, such as recommending people for users to connect to.

### Conclusion

Our design choices regarding customizability, reuse, and recommendations helped engage Beehive users. Our Beehive recipe for engagement shows that designing for inspiration can translate into viral adoption and vibrant communities.

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