

network can capture specialized products related to the buzz query, competing products, similar personalities and products and also current trends.

2.3 Related News, Merchandise for sale

As shown in Figure 1, the left side of the page has a panel with related news which usually reflects the causality of the buzz.

The bottom of the page displays the related merchandise on sale. By default it shows merchandise for the buzz query. When a user clicks on different query recommendations in the query network, the merchandise shown changes according to the recommendation that is clicked on.

There are two emoticons on the page for social feedback, which a user can click to show liking or disappointment sentiments on viewing the page. There is a “Surprise Me” button, which randomly shows one *Buzz of the Day* page from the archives. The temporal graph indicates the intensity with which the query suddenly became popular. Also alongside the query, we show a value of the query, which is calculated based on the value of recent inventory matching that query sold on eBay.

3. CLASSIFICATION AND EVALUATION

Sports Mem, Cards & Fan Shop	54	eBay Motors	2
Other	37	Jewelry & Watches	2
Cell Phones & PDAs	26	Health & Beauty	2
Clothing, Shoes & Accessories	22	Crafts	2
Tickets	21	Electronics	2
Collectibles	20	Sporting Goods	2
Entertainment Memorabilia	19	Home & Garden	1
Video Games	19	Stamps	1
Toys & Hobbies	14	Dolls & Bears	1
DVDs & Movies	11	Computers & Networking	1
Music	10	Cameras & Photo	1
Books	9	Everything Else	1
Coins & Paper Money	3	Live Auctions	1

Figure 2 Recommendations classified into eBay taxonomy

We classified around 284 buzz recommendations from the system using eBay taxonomy. The eBay taxonomy comprises of around 25 main categories. The classification is shown in Figure 2. As seen in the figure, the categories “Sports Memorabilia, Cards & Fan Shop”, “Cell Phones & PDAs”, “Clothing, Shoes & Accessories” and “Tickets” constitute around 43% of total recommendations which shows that these categories are more sensitive to buzz as compared to others like “Home & Garden”, “Stamps” and “Dolls & Bears”. External systems like keywords advertising could leverage this buzz sensitivity information to optimize the price and refresh frequency of keywords. Around 13% of buzz recommendations get classified in the “Other” category. These are buzz queries which cannot be tied to a specific category. They usually pertain to odd and unusual items that get listed on eBay, some examples being “seattle toilet” and “virgin mary pretzel”.

We created a site <http://www.buzzaday.com> and for evaluation opened it up by invitation to 100 users. The evaluation criterion was binary. The user would click on one of the two icons indicating “I like it” and “I don’t like it”. A total of 113 votes were received and recorded. Out of these 113 votes, 83 votes were thumbs up and 30 votes were thumbs down. Around 68 unique recommendations were evaluated. We observe that popular items like “3g apple iphone” and events like “us open

tennis” tend to get votes from multiple evaluators and might have conflicting votes from different evaluators.

3.1 Thumbs Up Evaluations

Bulk of the positively voted recommendations fell in the “Tickets” and “Sports Memorabilia, Cards & Fan Shop” categories. The impression percentage of recommendations in “Tickets” is 7.4%. However, the coverage of “Tickets” in positively voted recommendations is around 29%. Recommendations for tickets related to current sports, music and other events are positively received. The evaluators in general did believe that the quality of the recommendations was good which is indicated by the fact that more than 73% of the votes were positive. An analysis of negative votes is described in section 3.2.

3.2 Thumbs Down Evaluations

An analysis of the recommendations that were voted down showed some interesting facts. It was observed that the recommendations provided for February 14th 2008 (Barack Obama; related to presidential campaign) and April 1st 2008 (Ric Flair; related to his last wrestling game) were given a negative vote. It is possible that the evaluators expected the recommendations to be around Valentine’s day and April Fool’s day respectively. As the recommendations are based on purchase behavior and demand bursts, in fact recommendations related to a seasonal event are usually seen before the event. For example, a recommendation for “valentine post cards” is seen on February 10th 2008, when people start looking for valentine’s day related products as the day approaches. Also, some specific recommendations based on eBay activity tend to get voted negatively possibly because evaluators don’t have sufficient context for it.

4. RECOMMENDATIONS

Timely recommendations for products related to buzz queries can have a significant commercial benefit. eBay is a large and diverse marketplace, and we are able to merchandise inventory pertaining to celebrities and sports stars, historical items, tickets for events, seasonal items and also new products. Depending on external events and time of the year the system might recommend items ranging from cheap easter dresses to expensive dodge cars.

5. CONCLUSIONS AND FUTURE WORK

In this paper we described a social recommender system which incorporates novelty, popularity, serendipity and limited quantity merchandising based on wisdom of crowds. We also showed how some categories are more sensitive to external buzz events than others. As part of future work we would like to personalize buzz recommendations based on user history and recommendations. We would also like to incorporate community reaction and feedback to improve the recommendations.

6. REFERENCES

- [1] Parikh N., Sundaresan N. Scalable and near real-time burst detection from eCommerce queries. KDD 2008. 972-980.
- [2] Parikh N., Sundaresan N. Inferring Semantic Query Relations from Collective User Behavior. CIKM 2008, Napa, CA, October 2008.