Harvesting Helpfulness: A Case Study of an Online Farmer's Forum

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ABSTRACT

We present a case study on using geo-location information to help users navigate an online forum for farmers. Working with newfarm.org, we ran a controlled experiment where maps were added to each thread on the forum. One group of users was shown maps with the location of all the thread's viewers; another group the location of both viewers and posters. We then measured how the maps affected users' viewing behavior. For the most trafficked threads, we found that maps showing posters noticeably increased geographic clustering of viewers. However, interviews with forum users revealed that other information, such as soil type or climatic zone, would be more useful for navigating content. Consequently, we believe that further investigation will reveal how best to design contextually-relevant navigation elements.

ACM Classification: H5.2 [Information interfaces and presentation]: User Interfaces. - Graphical user interfaces.

General terms: Design

Keywords: Online forum, geo-location, visualization

INTRODUCTION

Existing work in online communities has focused on studying *why* lurkers lurk [1], rather than finding ways to support lurking behavior. We believe there is value in focusing on the latter. Consider the online forum, newfarm.org. While a small handful of users contribute to the forum regularly, most users simply value the ability to learn about tools and techniques used by other farmers. Similarly, Kline observed that rural communities find "listening in" on phone conversations socially acceptable, and even enjoyable [2]. We are thus interested in what can be done to help lurkers lurk.

We chose geographic location of the user as our element of study for several reasons. First, it is one of the few types of information we can get without asking the user. Second, we believe it may be of relevance to a farmer's forum, since information about farming practice and methodology is highly location-sensitive. Thus, our research question became: Can we use geographic location on an online forum to make it more useful to non-participant viewers?

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HYPOTHESES

H1: Adding location information to threads will increase user satisfaction

H2: Viewing patterns will be affected by the introduction of location information to threads; particularly, users will view more geographically local content

H3: Design of the representation of location information matters

METHODOLOGY

We partnered with the Rodale Institute [3], the operators of www.newfarm.org/forums, to run a controlled experiment. The forum has been live since 2004 and currently has about 1,300 members. Each day it receives about 90 unique visitors and 8 new posts. We ran our study for one month, during which we placed each visitor into one of three experimental groups. For users in Groups A and B, the forum's UI was altered to include maps of the United States next to the thread listings (see Figure 1).

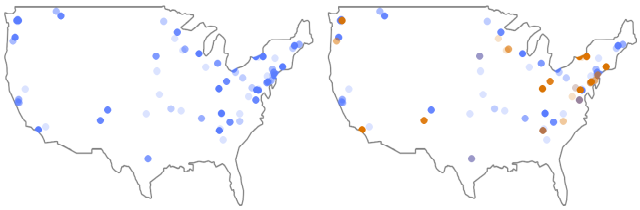

Figure 1: The activity map shown to Group A (left) and Group B (right).

Group A's maps displayed the locations of the viewers of each thread. Group B's maps displayed both the thread's viewers (in blue) and posters (in orange). To explain the activity maps to users we displayed an informational bubble when they first logged in. The control group's interface was not changed.

To test H1, we added a popup to collect satisfaction votes from viewers as they browsed the forum (see Figure 2). It appeared twenty seconds after the user navigated to a thread.

Figure 1: Popup

To complement our quantitative analysis, we interviewed eight of the forum's most active users for approximately one hour each. The interviews were intended to gather information about how they use the forum, get personal reactions to the maps, and to discuss ways

to improve the forum.

RESULTS

Over the course of our 34-day study period we logged 12,400 unique visits, 351 new posts, and 34 new threads. There were 1178 users in Group A, 1161 in Group B, and 1137 in Group C. We recorded 1079 satisfaction votes.

Our data analysis supports H1. While positive votes accounted for 82% and 78% of all votes from Groups A and B respectively, they were 70% of Group C's votes, a statistically significant drop-off ($p < .01$).

To test H2, we analyzed the views logged from users on the Pacific coast and in New England. Comparing the amount of traffic between the two regions to the traffic within each region showed no discernable preference for local content. It should be noted that this analysis measured traffic, not viewers. This was done for two reasons: (1) identifying viewers via geo-coordinates would miscount separate viewers from the same coordinates, and (2) identifying viewers via IP address could misidentify dial-up users, who are often assigned new IP addresses when they dial in.

Topic ID	No. Clusters			Distortion (Degrees)			Blog-like or Forum-like
	A	B	C	A	B	C	
110	9	13	9	12.98	2.19	4.31	Blog
1895	12	11	10	2.3	3.96	6.97	Blog
2703	12	16	14	1.45	0.36	0.75	Blog
2965	10	11	12	0.22	0.47	0	Blog
2940	14	12	15	1.34	2.31	0.65	Blog
1056	12	8	8	2.85	2.17	3.11	Forum
2909	14	14	14	0.93	0.33	0.72	Forum
2855	13	17	12	3.63	1.51	2.78	Forum
939	10	10	9	26.4	16.42	49.6	Forum
973	10	12	10	9.43	3.28	4.4	Forum

Table 1: The k-means cluster analysis results from the most heavily viewed threads. The distortion values are given in degrees; lower numbers indicate more clustering.

Taking the traffic analysis further, we performed a cluster analysis of the most active threads during our study period. We used the k-means algorithm [4] to identify clusters of users in the activity map, and the elbow criterion [5] to determine the number of clusters to best fit the data. We analyzed each thread by experiment group. We then calculated an average *distortion value*—the distance in degrees from each point to its nearest cluster—for each thread by group. We found that across the threads, Group B traffic was noticeably more clustered than the other two groups (see Table 1). Surprisingly, the clustering in Group A was roughly comparable to that in Group C.

DISCUSSION

Our most surprising result was that there was a noticeable clustering effect for users in Group B, but not in Group A. This implies that users' viewing behavior was impacted only by knowledge of the location of posters. This result was consistent with two findings from our interviews. First, interviewees from Group A reported confusion about what the maps meant and expressed a general lack of enthusiasm for them. Second, users stated that poster location is most relevant in determining how local the content is, since the sources of the information are the posters' own farms. This result is also strong evidence to support H4: a seemingly small difference in the visualization generated a noticeable effect on user traffic.

When we analyzed the threads based on their subject matter, we found the clustering effect was most pronounced for threads that discussed idiosyncratic farm issues in a classic Q&A pattern. This is in line with our claim that the maps would guide users to geographically relevant information. In contrast, blog-like threads from the forum's highly active "Daily Journal" section were likely more valuable for their inspirational quality. Daily Journal threads come from a core group of users who dominate the content production on the forum: 50% of all posts are made by the twenty most active members (1.5% of total membership). Thus, the maps did not help users who already knew the geo-origin of the most popular content.

Five of our eight interviewees also reported that geo-location would be more useful if traffic on the site increased to a point where they were unable to read all new content regularly. Finally, several interviewees told us that filtering on farm attributes such as climatic zone, soil type, and farm size would be more relevant than geo-location.

CONCLUSION AND NEXT STEPS

Our work attempted to improve user satisfaction and efficient discovery of content in an online forum for farmers. We ran a controlled experiment which modified the forum to display maps next to each of the threads. These maps either displayed the locations of viewers, or the locations of both viewers and posters. Analysis of the data indicated that viewing behavior was affected in the latter case. However, we learned that geo-location was not a very powerful navigational aid given the forum's content and traffic characteristics. Our future work will explore the design of new navigational elements which more directly reflect this context.

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