MetAgora – A Meta-Community Approach to guide Users through the Diversity of Web Communities

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Abstract
Online communities have become an essential instrument for obtaining valuable information on the web. With today's community jungle, however, users find it increasingly difficult to find and decide on appropriate online communities. Therefore, we propose the concept of a meta-community conceived as being a social gateway to guide users through a vast number of different online communities within a certain domain. We present a proof-of-concept study of our meta-community prototype and discuss implications for the community landscape as well as for the satisfaction of user needs.

Keywords
Online Communities, Web Searching, Meta-Community

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Group and Organizational Interfaces: Web-based Interaction

General Terms
Design, Human Factors, Algorithms

Introduction

Online communities [8] have become an essential instrument for obtaining valuable information on the web (cf. [10]). Such communities have one major advantage over key-word based search engines: Members can formulate their information need using natural language. Thus, they can ask very open and complex questions and can add specific information about their personal backgrounds. Also, other community members can help to refine a previously fuzzy information need. Supporting this advantage, research on search engines shows that users have difficulties in adequately expressing their information need using key-word based interfaces. Some users even deteriorate their search results by an erroneous use of Boolean operators [4].

Despite these advantages, we see two problems, largely ignored by previous research, when Internet users interact with online communities:

1) How do Internet users find online communities that are appropriate for their information needs?
Most research on user behavior and interaction with online communities starts at a point where the users are already members of certain communities. However, how Internet users actually find communities and how they decide which one to join, has rarely been investigated. The community landscape today appears to lack transparency and is very unstructured. Users often do not have the possibility to obtain an overview of available communities within a certain domain. There are only few platforms that aggregate online communities[1] but none have gained widespread use. Thus, we assume that users find their communities more by coincidence, by word-of-mouth, or by search engine queries that are not specialized for finding communities.

2) How do Internet users assess the information quality of a found community?
Up-to-now, the user is offered very few cues as to whether a found online community is actually suitable for her information need and how helpful the future answers to her questions will be. Research on the answer quality of online communities in the travel domain has shown considerable variation in information quality between communities [9], and this is most likely the case for all knowledge domains. This problem is especially crucial since the switching costs of changing from one disappointing community to the next one are relatively high for the Internet user.

The aspect of answer quality in online communities and Question and Answer (Q&A) sites has recently gained considerable research attention (e.g., [5][7]). All of these approaches, however, focus on the interaction of users with only one or very few communities. Thus, they take an "intra-community perspective" rather than an "inter-community perspective." This perspective neglects important differences in quality between communities and ignores the potential of predicting quality differences on this broader scale. For the user, it fails to realize the potential of interacting with more than one community, not leveraging the real potential that the existing variety of online communities could offer for the Internet user.

[1] For an exception see the www.boardtracker.com platform that is, however, not conceptualized as a meta-community

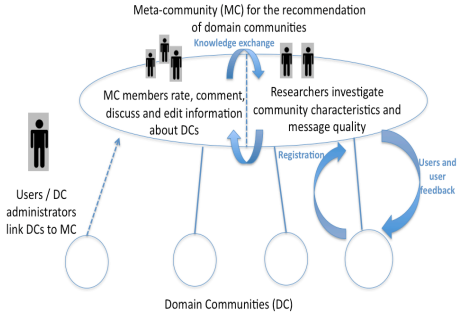

figure 1. The MetAgora meta-community concept

figure 2. Screenshot of the MetAgora prototype

The MetAgora approach

Based on this analysis, we propose the concept of a meta-community. The meta-community can be conceived as being a social gateway that is connected to a vast number of online communities within a specific domain. The discourse in this meta-community is not supposed to be about concrete domain-relevant questions, but rather about entire communities or sub-communities. Members of the meta-community can add new communities, can rate and comment on communities and can engage in a discourse about them. In addition to this, it is a research platform to investigate inter-community differences and to identify features that allow the finding of high-quality communities (see Figure 1).

The MetAgora prototype

We have developed such a meta-community prototype, called MetAgora, to demonstrate the feasibility of the described approach for the domain of online tourism communities. Technically, the prototype was realized by using Drupal 6, an open source web content management system (see Figure 2). Thus far, MetAgora contains about 120 different tourism forum communities (see [1] for a more detailed description of the gathered communities.). The prototype allows users to filter the displayed communities according to a region (e.g., Asia) or a certain category (diving, low-budget, etc.). In addition, the user is able to rate the communities using a 10-point scale visualized by stars. Members are then able to sort all available communities according to the mean user ratings. Additionally, the user can add comments on a specific community that can be seen by other meta-community members.

Further, we have implemented a quality rating, called the MetAgora rating. This rating is fueled by ongoing research on the characteristics of online tourism communities (for first results see [1]). The goal is to identify forum characteristics that allow an automatic prediction of information quality in forum communities. This rating serves as another cue in addition to the user ratings and it also serves as a solution to the cold start problem for those communities that have not been rated by any user yet. For the first prototype, we implemented a rating based on activity measures (such as mean number of persons online). The assumption behind this approach is that there are findings that indicate a relation between the activity level of forum members and the perceived usefulness of answers in a respective forum [9]. The validity of this connection, however, as well as the consideration of additional influencing variables, has to be substantiated in further research.

User evaluation

We evaluated our prototype with 12 participants in order to get feedback on the perceived usefulness of the idea and the prototype, as well as being able to elicit further requirements. Most test users were students or had received a higher education degree and were paid for their time. Students of Computer Science were excluded to avoid a usability bias.

Procedure. We asked participants to imagine that they were planning their summer vacation and would like to use online tourism communities for information, after which they completed five tasks. For the first task, we did not specify the scenario much further. We asked them to look for travel communities that were of personal interest to them. We also allowed them to

take their time to get acquainted with our website and browse through the available communities. The remaining four tasks were described more specifically to control the interaction scenario for different use cases. Here, we asked participants to search for specific pre-given communities, countries or domain categories. After finding a community on our MetAgora website, we asked participants to follow the link, visit the specific site and develop a first impression of the respective community. We then asked the participants to return to the MetAgora platform to rate the community with the five star scale and to formulate a comment. The entire procedure with the five tasks lasted about 60 minutes.

Measures. After each task, as well as at the end of the entire procedure, participants were asked what they liked and what they disliked about the interaction with the prototype (free text fields). In addition, participants were asked how they had coped with each task (5-point Likert scale) and filled out the SUS usability scale [3] after all tasks had been completed. We also asked for suggestions for improvement, and what cues the users had used to select their communities. Finally, we asked: How useful did you find the MetAgora website? and: How useful do you find the idea of presenting a number of online communities in this way, independent of our specific website? (5-point Likert scale).

Results. In general, the results showed that users had almost no problems using our website or completing the tasks we gave them. On the repeating questions of how users coped with our prototype after each task, the mean ratings were all between 3.9 and 4.75. The overall SUS score amounted to 87.9, indicating an excellent usability according to [2].

Concerning the free text fields asking what participants liked, most mentioned that the site was well structured (named by 11 participants) and that communities could easily be found. One participant mentioned the fact that there was an "official" rating by the MetAgora researchers that was independent of the user rating. With respect to the negative aspects, participants mostly commented that there were still too few communities available on the platform and that they would like additional information about communities (mentioned by five participants).

Regarding the cues that participants used to select a specific community, seven mentioned the ratings (the stars), whereas five did not specify which exact rating they had used. One user specifically referred to having used the MetAgora ranking, and another specifically mentioned the user ratings. Additional cues were the comment fields, as well as the community title.

The question: How useful did you find our prototype? was answered with a mean of 4.0 on the 5-point Likert scale, and the question: How useful did you find the idea of presenting communities in this way in general? was answered with a 4.66. In addition, our participants gave a lot of valuable input for the further development of the prototype.

The comment fields showed that participants instantly found the intended level of discourse, and as described above, some mentioned that the reading of others' comments was helpful in selecting their communities. Examples of participants' comments on specific communities were: "*very bad oc. threads are flooded with off-topic posts…*"; "*...good information on beaches*

and surfing…" or "*..too much advertisement..too few information.."*

Discussion

Even though online communities have proven valuable for the satisfaction of information needs, we identified problems from a user's perspective, especially with regard to finding and selecting helpful communities on the Internet. As a solution to this situation, we proposed the concept of a meta-community that guides users to Internet communities relevant to their information needs. In a proof-of-concept study of our meta-community prototype, we show that users easily engage in a discourse level that describes advantages and disadvantages of domain communities. In addition, users give high marks for the usefulness of our prototype, as well as for the concept in general. In the following sections we offer several implications of our approach.

Implications for the domain communities:

We see a benefit for domain communities in the fact that our approach can lead to a better allocation of users (or expertise) to the knowledge domain of different communities. It has been known for a long time that rather passive members can account for a considerable share of the total members in an online community [6]. This might be the general nature of communities and is not necessarily a problem. However, for a sustainable development, every community needs to acquire a minimum number of active users who must provide a sufficient share of useful contributions. With the MetAgora approach, we see the chances increased that a person that is genuinely interested in a topic finds the right community and, thus, will be more likely to actively contribute to this community than to an arbitrary community found by chance.

In addition, the MetAgora platform can present valuable user feedback for domain communities. It shows all the positive and negative comments about a certain community and creates a feedback level that has not been realized before. Administrators, community developers, as well as members, can acquire relevant input for the further development of the community. On the other hand, the approach might also lead to disadvantages for (some) domain communities. If the MetAgora platform successfully increases the transparency among Internet communities, this might favor some communities and discriminate against others. It might lead to a situation where successful communities become more successful, and less successful ones become even less successful. Finally, we are aware that a meta-community could have considerable influence regarding the incentive structure of domain communities (like social status and expectation of reciprocity.)

Implications for the Internet user:

The Internet user has the obvious advantage that the meta-community presents her with an overview of available online communities for respective knowledge domains. The platform functions as an aggregator for possible social places to visit on the Internet. In addition, the user receives qualitative and quantitative feedback for the communities. She can take this as base for her decision as to which community she should become a member of.

In addition to this, the approach creates a new aggregation level for finding relevant information. The

users can be guided directly to a helpful answer if this answer is stored in the community's archive. But the user is also guided to a discourse space where the topic of interest is discussed. The Internet has become more and more dynamic over the years, especially since user-generated content accounts for an increasingly bigger share of content. The fact that anyone can create content about anything in real-time leads to the situation that the content is of varying quality and that many facts are outdated shortly after publication. Thus, we see it as an advantage that users are provided not only with some kind of stored answer, but also with the location where the discourse takes place, and where questions can be answered more precisely than with conventional search engine queries.

Implications for Community Researchers:
Finally, the MetAgora prototype provides a promising platform to research the community landscape and to develop prediction models of information quality in online forum communities. Further research has to focus on a better understanding of user interaction with the meta-community prototype as well as on the potential to expand the concept to other knowledge domains.

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