Linking Local Communities of Interest into Networks of Communities

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There are several common organizing principles for online communities, notably people, places, and topics. Notable examples include: Facebook and Twitter organize around people, Foursquare organizes around places, and PatientsLikeMe and CNet organize around topics. Of course, these are only a few examples. Moreover, few communities organize solely around any one principle. Most topic-oriented sites support social interaction. Social services like Twitter can – with proper filtering and interfaces – be useful sources for topical information. And some sites combine a local geographic and topic orientation. This is the space my work is situated in and extends.

Our research group created and maintains Cyclopath, a site for bicyclists (topic) in the Twin Cities metropolitan area (place). Geographic place scopes the system: the interactive map covers the seven county metropolitan area. Bicycling defines the content of the system: the network of roads and trails used by cyclists along with various annotations relevant to the activity of cycling. Cyclopath also enables several forms of social interaction:

- Cyclopath is a wiki, so users can interact around the revision history by providing comments for their revisions and giving feedback on other users' revisions.
- Cyclopath includes a built-in discussion space. Users may (if they choose to) *geolink* messages in the forum to objects on the map (places, regions, or road/trail segments).

From one perspective, bicycling is an intensely local, geographically constrained area: cyclists ride mostly close to their homes. It also is a knowledge intensive activity, and one of the best and most frequently consulted sources of knowledge about riding is other local cyclists (Priedhorsky and Terveen, 2008). Thus, it is natural for a bicycling online community to focus on a single geographic area, as Cyclopath does for the Twin Cities. However, we are expanding Cyclopath to cover other geographic areas. As we do so, our strategy is to add more distinct local instances (we already have created one for another the Denver / Boulder metro area, which currently is in closed alpha testing). However, bicyclists also have a lot in common, regardless of where they live, such as interest in new bicycles and gear, training regimens, ways to coexist safely with cars, etc. Further, different Cyclopath instances use the same software, so Cyclopath system knowledge, e.g., of editing policies and interface tools, transfers across instances.

Therefore, as we develop new Cyclopath instances, we have a potential opportunity to investigate the types of social interaction and knowledge sharing that are constrained by geographic bounds and those that are not. We have made design decisions and are

developing interaction techniques that will let us conduct studies to address these issues. We have made user identities global across all instances, meaning a single person can log in to any instance under the same identity. We also have encouraged experienced Twin Cities Cyclopath users to help out with the startup process in Denver. We are observing this process informally currently by analyzing usage data and monitoring discussion forums. We will first examine differences between the roles played by local and non-local people in a Cyclopath instance.

We will create new algorithms and interface mechanisms to support the roles we observe. For example, discussion topics in Cyclopath already can be *geolinked*, i.e., associated with geographic objects such as a trail or area of interest. We will augment geolinking with geographic filtering, letting users specify discussion viewing preferences like "Only show me discussions that are not geolinked or that are linked to objects within 20 miles of my region of interest." This mechanism will let different geographically local communities that share an interest (e.g., bicycling or parenting) share a common discussion forum, yet let users see only those topics that are relevant to them.

We then plan a set of natural experiments to investigate which types of tasks and patterns of social interaction take place mostly within a local community and which span community boundaries.

- We will examine how people use the geolinking and geofiltering features of discussions. Will it enable local communities to share local information within their scope, while reaching beyond their boundaries for general topic-related information? We will analyze usage of these features, the structure and content of the discussions that result, then follow up with surveys and interviews as appropriate.
- As we create new instances of Cyclopath, we will explicitly invite members from established instances to participate in the new instances, sharing general bicycling information as well as knowledge about the Cyclopath system. We will investigate a number of key issues, including:
  - o How much time do "long distance" users devote to a new local instance?
  - o Do they take on different roles in the two instances? For example, do they contribute more content in their "home" instance and do more "community maintenance" work (Bryant et al. 2005; Panciera et al. 2010) in the "away" instance?
  - o How do things change over time? For example, do "long distance" users take a prominent role early in the lifecycle of a new instance, then step back as the new instance matures?
  - o How are "long distance" users affected by their participation in a remote instance? Do they decrease their participation in their home instance while they participate in a new one? And after their participation in the new instance declines (as we assume it will), will their participation in their home instance be different than it was before their participation in the remote instance?

Note that bicycling is just one topic domain—we could substitute other domains and make the same observations and carry out the same types of research. We intend to do just that, focusing first on the domain of parenting, which we think is an exciting domain for social media research. As a demographic, parents' needs and requirements for social computing technology are not widely studied; therefore, work in this context may reveal new requirements for the technology. Further, research shows that social networks play a crucial role in parental decision making. Third, parents need both very local ("which indoor play space is best to take my toddler to get some exercise on this rainy day?") and completely general ("How do I get my toddler to sleep through the night?") knowledge.

Finally, as the figure below suggests, we also could hold geographic area constant and substitute in a new topic, and see which social interactions are constrained by and which cross topic boundaries.

Framework for studying constraint of geography and topic social interaction
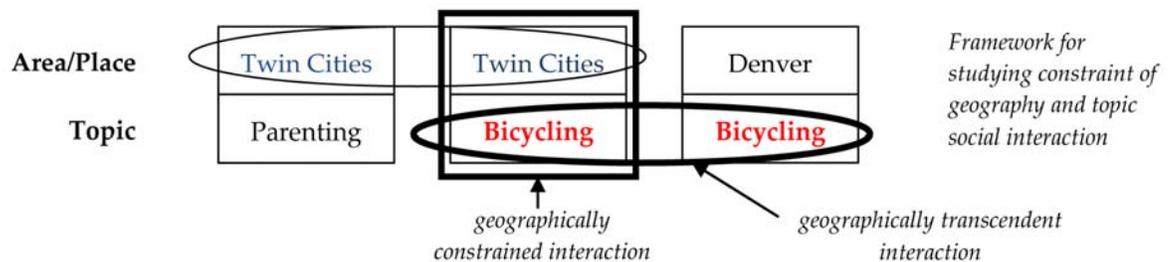
References

Bryant, S. L., Forte, A., and Bruckman, A. (2005). Becoming Wikipedian: Transformation of participation in a collaborative online encyclopedia.

Panciera, K., Priedhorsky, R., Erickson, T., and Terveen, L. (2010). Lurking? Cyclopaths? A Quantitative Analysis of User Behavior in a Geowiki, in CHI 2010.

Priedhorsky, R., and Terveen, L. (2008). The Computational Geowiki: What, Why, and How, in CSCW 2008.