PROMOTING STRONG LOCAL COMMUNITIES THROUGH TECHNOLOGICALLY MEDIATED SOCIAL INTERACTION

Introduction: From Transcending Distance to Strengthening Local Communities

One compelling theme of online community research and development has always been transcending distance. People who shared a passion for obscure 60s garage rock music could swap information and trade tapes, and people who were in preparation for or recovery from knee surgery could share information and offer support – regardless of where they were located. Of course, these are just two of countless such examples.

But an equally compelling (though sometimes not as prominent) counter-theme has existed in parallel throughout the history of online communities: using online communications technology to create community networks that link people and organizations within a city or geographic region. In the 1970s, there was Berkeley’s Community Memory Project, in the 80s came Montana’s Big Sky Telegraph in the 1980s, and the 90s saw the Blacksburg Electronic Village among others. An important recent trend is the marriage of community networks and map-based interfaces. NeighborsForNeighbors.org lets residents of Boston connect, share information, and organize to improve their community. FidoFactor.com lets dog lovers share information with each other, obtain expert pet care information, and learn about places like pet stores in specific communities. SeeClickFix.com (in the US) and FixMyStreet.com (in the UK) let users post neighborhood problems – e.g., broken traffic lights, potholes on roads, dangerous intersections – to a map, which then can be discussed with others, and which are routed automatically to the responsible local government agency. Parenting sites such as PlayspaceFinder.kaboom.org and parents.berkeley.edu have a local orientation.

My research group created a system within this approach: Cyclopath (Cyclopath.org) is an interactive bicycle routing site (currently) for the Twin Cities metro area. Cyclists can get routes over bicycle paths and roadways. The most novel aspect of Cyclopath is that it is a geographic wiki. It does for map-based web sites what Wikipedia did for textual web pages: all of the site’s content is user-editable. Cyclopath extends techniques developed for editing textual content to the more difficult problem of editing geographical content. In addition to entering textual notes, points of interest, and ratings, users can edit the road and trail network. Cyclopath also adapts the monitoring functionality of text wikis. Users can define “watch regions”, get notified of edits within those regions, view geographical “diffs”, and revert problematic edits. Cyclopath has been publicly available to Twin Cities cyclists since August 2008 and has over 1500 registered users. Users have entered over 60,000 ratings and made about 10,000 edits to the map. Each day during riding season, several dozen registered users and a hundred or more anonymous users visit the site and request more than 150 routes.

Strengthening Local Communities with Social Information Systems

Cyclopath already is a positive factor for the Twin Cities community simply by proving the most comprehensive – and personalized – bicycle mapping and routing system available. It thus promotes and encourages people to bike, which reduces pollution, traffic congestion, and improves the health of those who participate. In addition, however, we have a number of efforts either in initial stages of implementation or in planning that tackle issues of community health more directly.

Cycloplan: Facilitating Interaction among Transportation Planners and the Public

Local government agencies and non-profit groups in Minnesota are very interested in Cyclopath. Most notably, the Metropolitan Council (www.metrocouncil.org), which operates the Twin Cities’ transit
system, is engaged in a collaborative project with my research group to create Cycloplan, a set of
extensions to Cyclopath to support transportation planners in planning new bicycle trails, communicating
with the public about their plans, and receiving input from the public. Local government transportation
planners want to build bike paths where they are most needed. Cyclists want to provide feedback on these
plans. Cyclists and walkers want to let government officials know about problems like rough patches on
bike trails, unplowed trails, unsafe intersections, etc. Such communication is possible today, but it isn't
easy. For example, who do you call when a snowplow has left a bike lane covered, thus making a safe
cycling route unsafe? You would have to find the web site for the community you live in, search for the
relevant department for the specific problem and neighborhood, and then look for a telephone number.
However, we can include in Cyclopath the contact information for the responsible government officials
for cycling-related issues in all regions of the metro area. Finding the right person will be as simple as
clicking on the segment of road you're interested in.

We are implementing this functionality using some existing Cyclopath features and some new
features. For example, we will use the existing “watch region” mechanism to facilitate citizen-
government interaction. First, we can create watch regions for local officials who are interested in and
responsible for specific areas so they can monitor activity in those areas. Second, we can record in our
database the responsible official (and contact information) for all regions of the metro area, and let users
route messages directly to the official responsible for any given area (for example, the consistent broken
glass on a bicycle trail that I ride frequently). And we are creating new functionality to support “What if’
analysis by transportation planners, for example: “What if I build a new bicycle path here? What will the
effect be on cycling?” We can answer such questions because (a) Cyclopath is a wiki, so every state of its
database is saved, and (b) every route request ever issues — well over 40,000 at this date — has been saved.
Thus, we can compute how many route requests would receive new routes and whether the new routes
would improve over previous routes (in both distance and quality).

Safe Routes to School

50 years ago, the vast majority of kids walked to school. Today, most get to school by car or bus. This
has significant negative societal impacts, including contributing to childhood obesity, particularly among
minority children, increasing busing costs for school districts, increasing pollution and traffic congestion,
and weakening community ties. Studies show that one of the main barriers to kids biking or walking to
school is that their parents are not sure what routes are safe (http://www.ci.minneapolis.mn.us/dhfs/
saferoutes.pdf). The Minneapolis Public School District has a Safe Routes to School program that is a
national leader in trying to promote riding and walking to school, in part by getting information to kids
and parents about what routes in their neighborhoods are safe. I have been in touch with stakeholders in
the Minneapolis Public Schools, the city of Minneapolis, and other local non-profits and governments to
find ways to use Cyclopath as a vehicle for finding safe routes to school. A number of current and
planned features of Cyclopath will be useful:

- **Tag-based routing.** Users can tag road trail segments with labels like “scenic” or “hilly” or
  “heavy traffic”. Users can request routes that avoid, penalize, or give a bonus to a certain tag. For
  example, I might want to avoid segments with the tag “construction”, penalize segments with the
tag “unpaved”, and give a bonus to the tag “scenic”. Relevant to Safe Routes, users might enter
tags such as “SafeRoute” for certain segments, and then anyone could request routes that prioritize
segments with the “SafeRoute” tag. For this to work well requires an extension to the basic wiki
open editing model, as sketched next.

- **Privileged information.** The pure wiki approach allows any user to edit any information. Thus,
currently in Cyclopath any user can edit any of the places, notes, tags, roads, or trails. However,
both the Cycloplan and Safe Routes stakeholders require that certain information be privileged,
with the right of editing limited to authorized users. For example, perhaps only school district
official could apply the tag “SafeRoute” to a road or trail segment. This may increase parents'
confidence that a route really is safe. We are in the process of implementing a limited access model that will allow certain information to be edited only by certain users and groups.

- **Manually defined routes.** Currently, Cyclopath automatically generates routes from an origin to a destination. However, we are working on a feature to let users manually define routes and make them publicly available to other users. Neighborhood activists could define best routes through their neighborhood, and school officials could define approved routes for biking from local landmarks (a bus stop or library, for example) to their schools.

**Beyond Cyclopath: Using Geographically-focused Online Communities to Strengthen Families**

I’ve also begun collaboration with a colleague in Family Social Science to address the social networking and information needs of parents of young children. While there are a number of web sites targeted at parents, these sites have a number of shortcomings: (a) many are commercial, and thus put business needs above those of parents; (b) many are designed to communicate expert information to parents, not to allow parents to share information and connect with each other; (c) none have been the subject of systematic research, so it is unclear how well they support parent needs and improve parenting skill. Helping parents and building strong families is of great societal interest: good parents and healthy families enhance their children’s outcomes, creating better citizens for tomorrow; and good parents have more social capital and help strengthen communities.

We aim to create a web site to address parents’ information and social support needs. It will let parents connect with each other, find and share information about places and activities in their neighborhoods, exchange parenting advice, and interact with experts. Realizing this vision requires solving problems of general interest in social computing, for example: (a) How can experts and expert knowledge be integrated into open content systems without stifling the easy exchange of ideas that has made sites like Wikipedia so successful? (b) How can several powerful interaction paradigms – map-based interfaces, social networking, and text conversation – be combined into a seamless whole? (c) How can we create recommendation algorithms that suggest additions to a person’s social network that both improve the network composition and are likely to appeal to the recipient? It also requires close collaboration with parents and educators; my collaborator has the necessary connections to enable this.

The web site will benefit directly the parents who use it and their families. The information parents obtain will help them find suitable activities for their children; the information and the social support parents offer each other will help improve parenting skills and decisions. Children exposed to enrichment activities will have better developmental and academic outcomes. Families with more opportunities for engagement and quality time have stronger relationships, which also aid children’s growth. Low-income families, whose children often have the greatest needs, will be a target of outreach. Effective parents also participate more in their community; thus, another anticipated outcome is tighter knit, safer, and more vibrant communities. Further, a new model of technologically-mediated communication between parents and educators will be demonstrated.