Administrivia

• HW 7 due today

• Period for online discussion participation ends on 12/13

• Project presentations & final review next week
Project presentations

- Briefly summarize (in a minute or less) the **purpose** of your app and the key use cases it supports.

- Briefly summarize 2 of the most "interesting" (e.g., far-reaching, unexpected, surprising) **revisions** you made to your app over the course of the semester.

- Reflecting on the project as a whole over the course of the semester, briefly describe 2 **lessons** your group learned about user interface design over the course of working on your project.

- **5 minutes** (6 min max)
Community design

Adapted from Kraut & Resnick (2012), Building Successful Online Communities: Evidence-Based Social Design
Online communities

• Online communities are virtual spaces where people come together to converse, exchange information or resources, learn, play [Kraut & Resnick]

• Supported by technology platforms, such as email, wikis, comments, social networks, automated feedback

• May be public, open community or an internal community inside a company

• Break barriers of time, space, scale that limit offline interactions
A few examples of online communities

- USENET
- Facebook
- Netflix
- stack overflow
- Cisco Support Community
- Kickstarter
- Wikipedia
- change.org
- Linux
- CARCINOID@LISTSERV.ACOR.ORG
- The Carcinoid Cancer Online Support Group
- piazza
- Linux
<table>
<thead>
<tr>
<th>Rank</th>
<th>Website</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Google.com</td>
<td>Enables users to search the world’s information, including webpages, images, and videos. Offers...More</td>
</tr>
<tr>
<td>2</td>
<td>Facebook.com</td>
<td>A social utility that connects people, to keep up with friends, upload photos, share links and ...More</td>
</tr>
<tr>
<td>3</td>
<td>Amazon.com</td>
<td>Amazon.com seeks to be Earth’s most customer-centric company, where customers can find and disc...More</td>
</tr>
<tr>
<td>4</td>
<td>Youtube.com</td>
<td>YouTube is a way to get your videos to the people who matter to you. Upload, tag and share your...More</td>
</tr>
<tr>
<td>5</td>
<td>Yahoo.com</td>
<td>A major internet portal and service provider offering search results, customizable content, cha...More</td>
</tr>
<tr>
<td>6</td>
<td>Ebay.com</td>
<td>International person to person auction site, with products sorted into categories.</td>
</tr>
<tr>
<td>7</td>
<td>Wikipedia.org</td>
<td>A free encyclopedia built collaboratively using wiki software. (Creative Commons Attribution-Sh...More</td>
</tr>
<tr>
<td>8</td>
<td>Twitter.com</td>
<td>Social networking and microblogging service utilising instant messaging, SMS or a web interface.</td>
</tr>
<tr>
<td>9</td>
<td>Reddit.com</td>
<td>User-generated news links. Votes promote stories to the front page.</td>
</tr>
<tr>
<td>10</td>
<td>Go.com</td>
<td>A searchable directory, news, stocks, sports and free e-mail.</td>
</tr>
</tbody>
</table>
Designing online communities

• Interactions with other users are shaped and enabled by the ways in which user interfaces let users interact

• These interactions can be designed
Example: Facebook reactions

• Want to incentivize positive, supportive interactions rather than negative, judgmental interactions

  • Solution: like button that expresses approval

• What about expressions about bad event?

  • Dislike button might turn likes into voting

• Solution: FB reactions
Community design

- Most of course: designing for **task** performance
  - methods & principles derived from underlying **cognitive** psychology of user interactions with interfaces

- Community design: designing for successful **community** behavior
  - methods & principles derived from **social** psychology of how humans interact with other humans
Levers of socio-technical system design

• Community structure
• Size of community
• Homogeneity of member interests
• Presence of subgroup structures
• Relationship of membership to existing social ties
Levers of socio-technical system design

- Content, tasks, activities, external communication
- Presence of self disclosure (e.g., user profiles) vs anonymity; visibility internally or externally
- Presence of professional generated content, imported / exported from other communities
- Welcoming activities & safe spaces for exploration
- Tasks that are independent or interdepend, embedded in social experiences
- Ability to invite friends & share content
Levers of socio-technical system design

- Feedback, rewards, sanctions
  - Feedback telling members how to behave may be informal or structured (e.g., ratings)
  - Give or take away something valuable such as intangible (approval, status) or tangible (community privileges, prizes)
Levers of socio-technical system design

• Roles, rules, access control, & visibility

• Members may have specialized roles as welcomers for newcomers or dispute handlers

• May be rules & guidelines for behaviors

• May be procedures for decision-making & conflict resolution

• May be access controls which limit who can join & actions that can be taken; might require money to perform certain actions

• May be moderators regulating behavior

• Communication choices on visibility of bad behavior & punishment
Challenges in community design

• Starting a new community
• Dealing with newcomers
• Encouraging commitment
• Encouraging contribution
• Regulating behavior
Starting a new community
Difficulties starting a community

- Communicating value to users
  - Does the community offer services or experiences users want?
- Visibility
  - Do users know it exists?
- Competition
  - Why spend time in this community, rather than another community (that might have more users and activity)?
Carving out a useful niche

• Picking a scope
  • Topic and activities (e.g., Minnesota twins fan community)
  • Pre-existing group (e.g., GMU alumni group)
  • Mixed-topic scopes can reduce value of community
    • If most content isn’t relevant, why pay attention?
  • Can subdivide spaces into multiple spaces that are more relevant
    • But don’t want inactive spaces that are dead
  • Better to subdivide spaces after become active than create too many empty spaces
Design techniques for subdivided spaces

- Navigation aids that highlight active spaces
- Recommender systems for spaces
- Schedule of “expected active times” for spaces with synchronous activity
Competing for a niche

- Communities may compete with existing community
  - Eg., introducing enterprise social networking, compete with FB and LinkedIn

- Switching costs creating profile, learning system finding content

- Awareness costs of following multiple communities
Techniques for competition

- Reduce startup costs (e.g., shared IDs and profiles)
- Content sharing
- Advertising & celebrity endorsements

- “The aura of inevitability is a powerful weapon"
Critical mass and effects of scale

- Communities may fail if
  - Not enough members to provide content & interaction opportunities
  - Lack of a shared purpose about the scope of activity and membership
- Why do users use FB?
  - **Everyone else** uses FB
    - The more users join, the greater value space provides of reach individual
    - Costs of joining per user fixed, but value to user increases as more join
- Critical mass - the point at which the benefits of increasing network size dwarf costs
Bootstrapping communities

• Series of community states in which activity of early users is sufficient to attract more users

• Techniques
  
  • Incentives (e.g., epinions paid early users for reviews, but then demotivating when stopped)
  
  • Discounts & free services (less problematic)
  
  • Viral membership spread (e.g., inviting friends)
Making membership visible to non-members

- Post membership to existing social network site
- Post activity to existing social network site (e.g., crossposting twitter feed to FB)
- Referral benefits for members
Early adopter benefits

• Permanent discounts to early adopters

• Promoting the status of being an early adopter to an “undiscovered” community

• Scarce, claimable resources (e.g., user names, URLs)
Encouraging contribution
Challenges of contribution

• Communities rely on **resources** created by community (e.g., YouTube videos, Wikipedia articles)

• Often a contribution **gap** between work to be done & work being done
  • Too much work, not enough workers
  • Users don’t know how to help
  • Users don’t find the task appealing
Visibility of requests for contributions

- Make lists of needed contributions easily visible
  - e.g., Wikipedia has 125,000 articles that need citations
- Let users track and follow work as it is done
  - e.g., FB posts profile changes to newsfeed
- Personal appeals to specific members to contribute (esp. simple requests)
  - Especially requests that are simple, stress benefits of contribution, by high status community member (e.g. Jimmy Wales requesting support for Wikipedia), by likable requestors
Requesting contributions

- Social proof makes user more likely to comply when others have already complied
  - e.g., ESP game announces that over a million labels have already been created
- Provide specific & highly challenging goals
  - e.g., rate 16 movies on Movielens in the next week
Group goals

• Goals for group coupled with specific deadline
  • e.g., apply for Feature Article status on Wikipedia
  • e.g., release cycle on software project

• Offer frequent feedback about performance with respect to goal
  • e.g., thermometer on fundraising site
Increasing motivation for contributions

- **Intrinsic motivation** - activity is an **end** by itself

- **Extrinsic motivation** - activity is a **means** to an end

- Example - slaying monsters in World of Warcraft
  - Intrinsic - enjoy the task or camaraderie
  - Extrinsic - enjoy status that comes from achieving higher level character
Enhancing intrinsic motivations

- Social contact is important intrinsic motivator
  - e.g., Q&A site with interactions between requestor & responders
- Encourage flow: immersive experiences with clear goals, feedback, and challenge
- Performance feedback, particularly positive feedback, as comments or quantitative performance metrics (if viewed as sincere)
  - e.g., like button
Comparative feedback

- Can be especially motivating to beat competitors
  - e.g., leaderboards & lists of top contributors
- But can also be demotivating
  - Reminded how much time “wasted” on site
  - May feel they have done enough
  - Discouraging when success unattainably high (e.g., leaderboard of 10 in population of thousands)
Enhancing extrinsic motivation with rewards

• Rewards increase extrinsic motivation

• **Reputation & status** - change how others interact with them

• **Privileges** - opens new actions
  - e.g., commit privileges on OSS project

• **Tangible rewards**
  - e.g., money, prizes, charitable donations to causes
Perverse incentives: Gaming the system

- Rewards may create the wrong incentives, leading to counterfeit actions
  - e.g., rewards for inviting new members might lead to invitations to fictitious entities

- Gaming particular problem for rewards contingent solely on quantity rather than quality
  - e.g., on Amazon Mechanical Turk, automated quality checks

- Status & privileges lead to less gaming than tangible rewards, as value becomes meaningless with gaming

- Making reward criteria less transparent & more unpredictable reduces gaming
Trade-offs between intrinsic & extrinsic motivation

• Extrinsic rewards can *reduce* intrinsic motivation
  
  • e.g., people less likely to donate blood if offered compensation for contribution

• Extrinsic rewards must outweigh loss in intrinsic motivation to be valuable

• **Tangible** incentives diminish intrinsic motivation when they reduce feelings of autonomy & competence by being perceived as controllers of behavior
Collective outcomes

• Benefits may accrue to individuals based on success achieved by group

• Group benefits motivating when
  • More committed to group
  • Group is smaller
  • People feel they can make a unique contribution
  • Contributions by others are complimentary or contingent rather than substitute
Encouraging commitment
Committed users

• Committed users
  
  • Work harder, say more, do more
  
  • Provide content that others value
  
  • Stick with community
  
  • Care enough to sustain the group through problems
  
  • More likely to enforce norms & regulate behavior
Types of commitment

- **Affective** commitment - *wanting* to continue
  - closeness & attachment to members of community

- **Normative** commitment - *ought* to continue
  - feelings of rightness or obligation to group

- **Need-based** or continuance commitment - *must* continue
  - incentive structure in group & net costs of leaving group

- Can have more than one type of commitment
Types of affective commitment

- Identity-based commitment
  - feeling of being part of community and helping to fulfill its mission
  - attachment to community as a whole

- Bonds-based commitment
  - feeling close to individual members of the group
  - attachment to individual members
Encouraging identity-based commitment

- Recruiting or clustering those that are similar into homogenous spaces
  - e.g., FB group for Mason SWE masters students
- Explicitly providing a name and tagline that articulates shared interests
  - e.g., Wikipedia, “the free encyclopedia anyone can edit”
- Increasing subgroup identity increases commitment to larger community
  - e.g., being part of FB group increases commitment to FB
Encouraging identity-based commitment

- Making community fate, goals, or purpose explicit
  - e.g., want Wikipedia to succeed
- Joint, interdependent tasks to which multiple group members must contribute to succeed
  - e.g., guilds in World of Warcraft
- Highlighting an out-group
  - e.g., want Wikipedia to be of Britannica or better quality
- Making group members anonymous
Encouraging bonds-based commitment

- Recruiting members who have existing ties to the members of community
  - e.g., Piazza site for course
- Facilitating interactions with friends of friends
- Displaying photos and info about individual members and recent activities
- Opportunities to engage in personal conversation
Encouraging bonds-based commitment

- Mechanisms that increase likelihood that members will encounter again those they have previously encountered
  - Places, spaces, groups, friend feeds
- User profile pages that increase self-disclosure & interpersonal liking
  - e.g., profile that includes personal contact information
- Enabling self-disclosure under a pseudonym when sensitive information is shared
  - e.g., revealing daily information on weight in weight loss community
Normative commitment

- Feeling that one has obligations to community to be loyal and act on its behalf
Encouraging normative commitment

• Highlighting community’s purpose & success in achieving that purpose

• Testimonials about other’s normative commitment to the community

• Priming norms of reciprocity by highlighting normative obligations
  • e.g., cancer survivors that participate in forum after their own cancer is in remission

• Highlight opportunities to return favors to other users
  • e.g., someone reviews your commit, review theirs
Needs-based commitment

• Commitment that depends on the net benefits experienced from community

• Benefits include information, social support, companionship & reputation

• Costs include time, effort, frustration

• Members remain due to needs-based commitment when benefits exceeds costs
Encouraging needs-based commitment

- Providing experiences that match motivations for participation
- Requires knowing needs
  - e.g., code fests for OSS projects that satisfy needs of friendship as well as support for planning

<table>
<thead>
<tr>
<th>Community Type</th>
<th>Info. Exch</th>
<th>Companion-ship</th>
<th>Social Support</th>
<th>Fun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>53%</td>
<td>11%</td>
<td>22%</td>
<td>10%</td>
</tr>
<tr>
<td>Health</td>
<td>38%</td>
<td>17%</td>
<td>38%</td>
<td>4%</td>
</tr>
<tr>
<td>Hobby</td>
<td>52%</td>
<td>29%</td>
<td>2%</td>
<td>9%</td>
</tr>
<tr>
<td>Sports</td>
<td>58%</td>
<td>18%</td>
<td>4%</td>
<td>11%</td>
</tr>
<tr>
<td>Pets</td>
<td>48%</td>
<td>36%</td>
<td>3%</td>
<td>9%</td>
</tr>
<tr>
<td>Other interests</td>
<td>53%</td>
<td>26%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Overall Percentage</strong></td>
<td><strong>50%</strong></td>
<td><strong>24%</strong></td>
<td><strong>11%</strong></td>
<td><strong>9%</strong></td>
</tr>
</tbody>
</table>
Regulating behavior
Community norms

• Communities develop norms about what is or is not acceptable behavior

• Communities differ on what behaviors may or may not be normative
  • e.g., personal insults
  • e.g., neutral perspective on wikipedia vs. viewpoint on Huffington Post

• May be conflicts between members in community
  • e.g., flame war
  • e.g., edit war on Wikipedia
Individuals can damage community

- Trolls that derive satisfaction from disrupting community
- Manipulators that want the community to produce a particular outcome
  - e.g., Wikipedia members who want page to show a particular viewpoint
- Producing low quality content that wastes community’s attention
Limiting effects of bad behavior

- Moderating content creation through pre-screening before posting
- Techniques to increase moderation system effectiveness
  - Redirecting inappropriate posts to other places
  - Consistently applied moderation criteria, a chance to argue a case, & appeal procedures
- Moderation by community members seen as impartial
Limiting effects of bad behavior

- **Reversion** tools
  - e.g., Wikipedia lets pages be reverted to past version
- Filters or influence limiters
- Activity quotas limiting spam-like activity
- Gags and bans on bad actors
Encouraging voluntary compliance

- Making norms **clear** and **salient** by publicly displaying examples of appropriate behavior

- Publicly contrasting inappropriate behavior in context of norm with appropriate behavior

  - e.g., examples of uncivil comments on Wikipedia

- Displaying examples of formal **feedback** provided to norm-violators

- Displaying statistic that highlight prevalence of normative behaviors

  - e.g., sign listing the number of days since last workplace injury
In Class Activity
Interaction design critique

• In groups of 2

• Design an online community for students in a course

• Consider mechanisms for encouraging contributions, encouraging commitment, & regulating behavior