Community Design

SWE 632, Spring 2018
Administrivia

• HW 7 due today

• 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.

• **6 minutes** (7 min max)
Community design

Adapted from Kraut & Resnick (2012), Building Successful Online Communities: Evidence-Based Social Design
Crowdsourced content creation / curation

• You'd like to build a site that lets users share their favorite news stories with their friends.

• Help users discover news stories that are more relevant to their interests.

• Help users become more informed by reading more news.

• Raise money from news publishers, who want more readers

• Sounds like a simple app with great potential.

• What could possibly go wrong??
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
- Amazon
- Stack Overflow
- Cisco Support Community
- Kickstarter
- Wikipedia
- Linux
- Change.org
- Carcinoid@ListServ.ACOR.ORG
- The Carcinoid Cancer Online Support Group
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
Dimensions 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
Dimensions 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
Dimensions 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)
Dimensions 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 w/ 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 unattainable (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
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
Fix Facebook

• In groups of 2

• Imagine you were invited to be CEO of Facebook for a day.

• What problems would you try to solve

• What approaches would you use to solve them