SWE 632 - Design & Development of User Interfaces

Class will start in:

20:00

George Mason University

Instructor:
Dr. Kevin Moran

Teaching Assistant:
David Gonzalez Samudio

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Fall 2020

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Week 14:

Community Design

Administrivia

- Project Checkpoint 7 - *Due Today*
- Final Project Presentation - *Due Dec 1st (1 Week)*
- Final Exam - Take Home, Out on Dec 9th, Due on Dec 15th
- No Discussion Question This Week - Happy Thanksgiving!
- Extra Credit Opportunity - Posted to Piazza Tomorrow
- Course Evaluations - *Posted on November 26th*

Final Project Presentations

Description

In the Final Project Presentation, your project group will give a brief **6 minute presentation** on the process you used in shaping the interaction design of your app.

- Your presentation should contain 3 sections:
  a. Briefly summarize (in a minute or less) the purpose of your app and the key use cases it supports. Include a link to the final version of your app. This might or might not take the form of a brief demo. It should be clear from your summary the primary use cases that your app supports.
  b. Briefly describe 2 of the most "interesting" (e.g., far-reaching, unexpected, surprising) revisions you made to your app over the course of the semester. For each revision, describe (1) the original design and behavior of the app (a screenshot may help), (2) the method used to identify the issue (e.g., heuristic evaluation, visual design guideline), (3) the issue, and (4) how the issue was addressed in the revised design.
  c. Reflecting on the project as a whole over the course of the semester, briefly describe 2 lessons your group learned about HCI through working on your project. Lessons learned can be anything related to user interface design, including, but not limited to, when or how to use various HCI methods, an important design consideration you discovered, or the pros and cons of a particular design tradeoff. Your goal here is to offer two interesting insights into user interface design from which others may learn.
  d. Your presentation should be short and be approximately 6 minutes. To ensure sufficient time for all groups to present, presentations cannot exceed 7 minutes. To help you keep track of time, you'll be notified at the 5 min, 6 min, and 7 min marks. If your presentation exceeds 7 minutes, your group will lose points, and you may be stopped. You should think carefully about how to cover each of the 3 sections within 6 minutes and should consider practicing to check the timing of your presentation.

Final Exam

- Free response, essay questions
- Will include definitions, key ideas & concepts, how to use methods
  - May link multiple ideas together in applying them to a scenario
- Lectures, assigned readings, tech talks
- Will include 5-7 questions
- ***Exam will be Take-Home***
  - The Final Exam will be released on ***December 9th***, and due on ***December 15th***.

Class Overview

1. *Overview of Community Design:* Fostering an Online Community
2. *Starting a New Online Community:* Visibility, Scope, & Competition
3. *Encouraging Contributions:* Many Hands Make Light Work
4. *Encouraging Commitment:* For a Healthy Community
5. *Regulating Behavior:* Mitigating Bad Actors
7. *7 Minute Break*
8. *Final Group Activity:* Evaluating a Real Site Design
9. *Selenium Tech Talk:* Sara & Farbod

Overview of Community 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

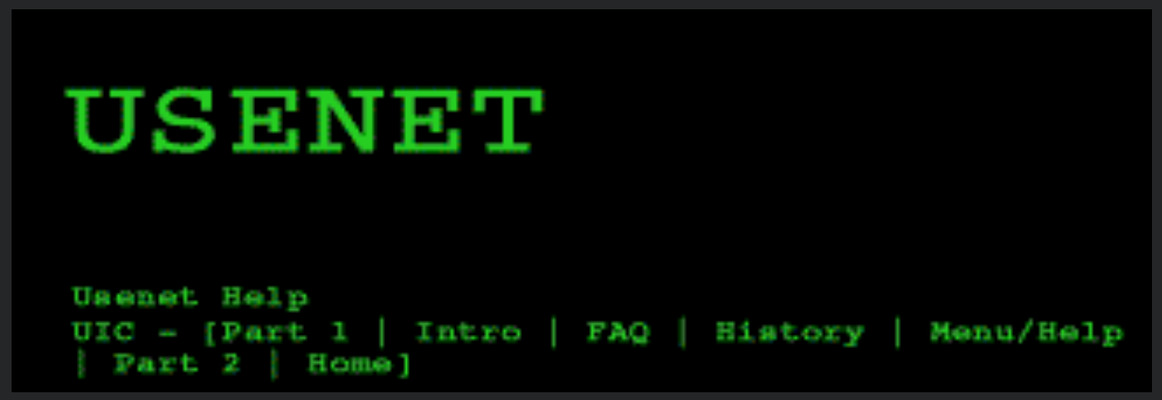
- Online communities are virtual spaces where people come together to converse, exchange information or resources, learn, play [Kraut & Resnick]

- 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



facebook

NETFLIX

amazon

stackoverflow

cisco Cisco Support Community
Community Directory Expert Corner

KICKSTARTER

WIKIPEDIA
The Free Encyclopedia

change.org

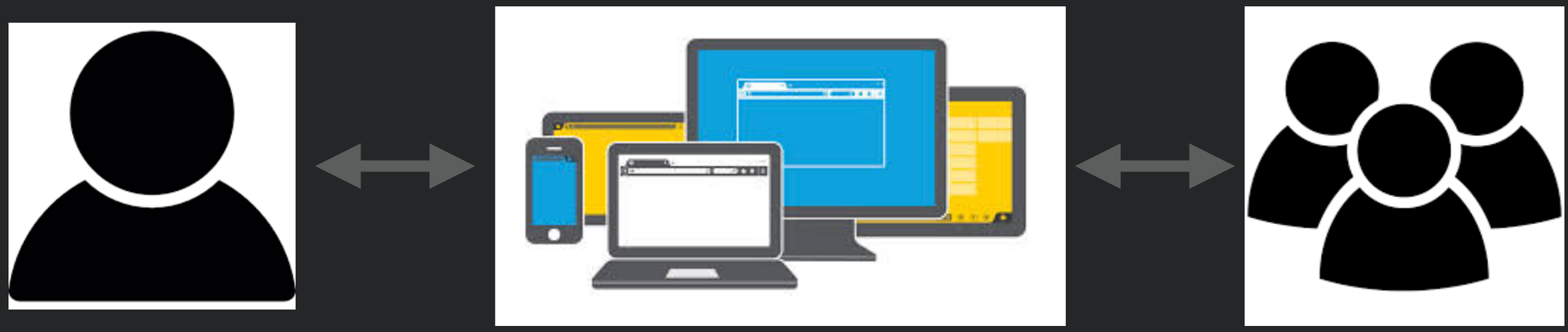
Linux

CARCINOID@LISTSERV.ACOR.ORG
The Carcinoid Cancer Online Support Group

piazza SWE 632

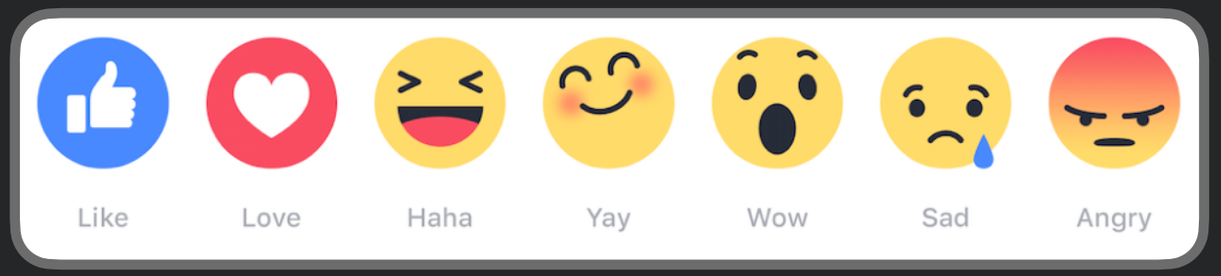
Designing Online Communities

- 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

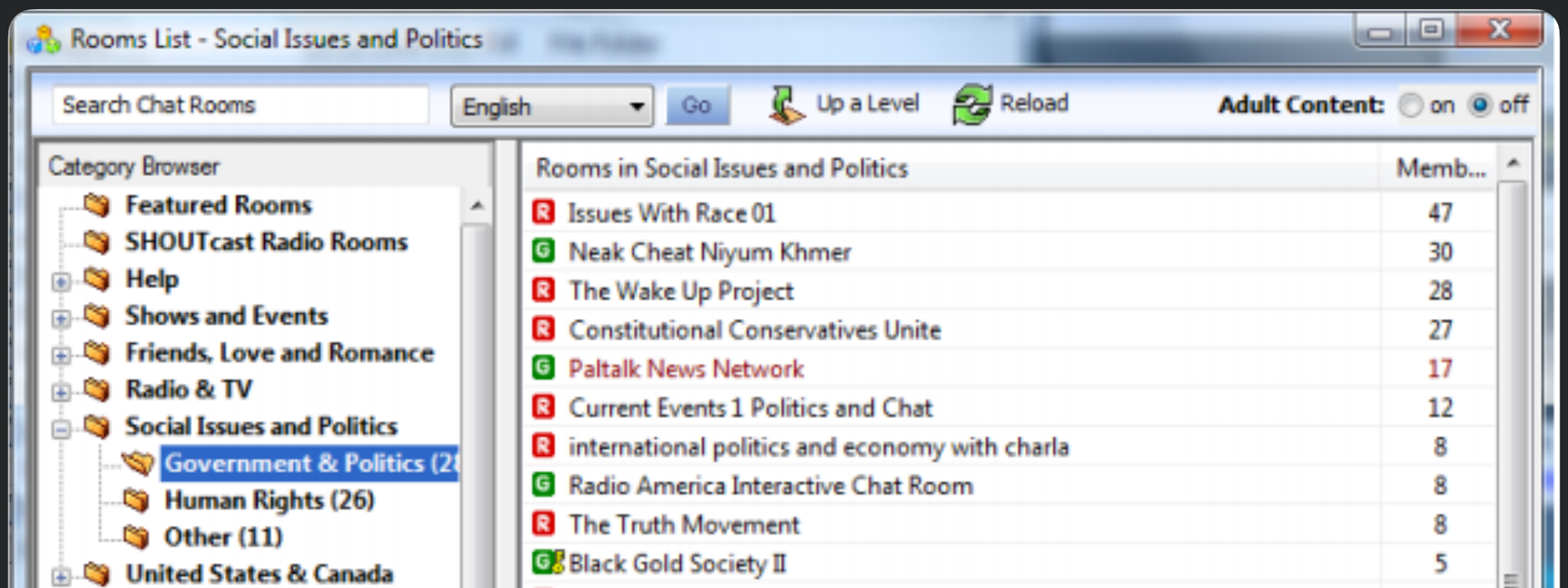
- Communicating value to users
  - Does the community offer services or experiences users want?
- Visibility
  - Do users know it exists?
- Competition
  - Why spend time in this community, rather than another community (that might have more users and activity)?

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

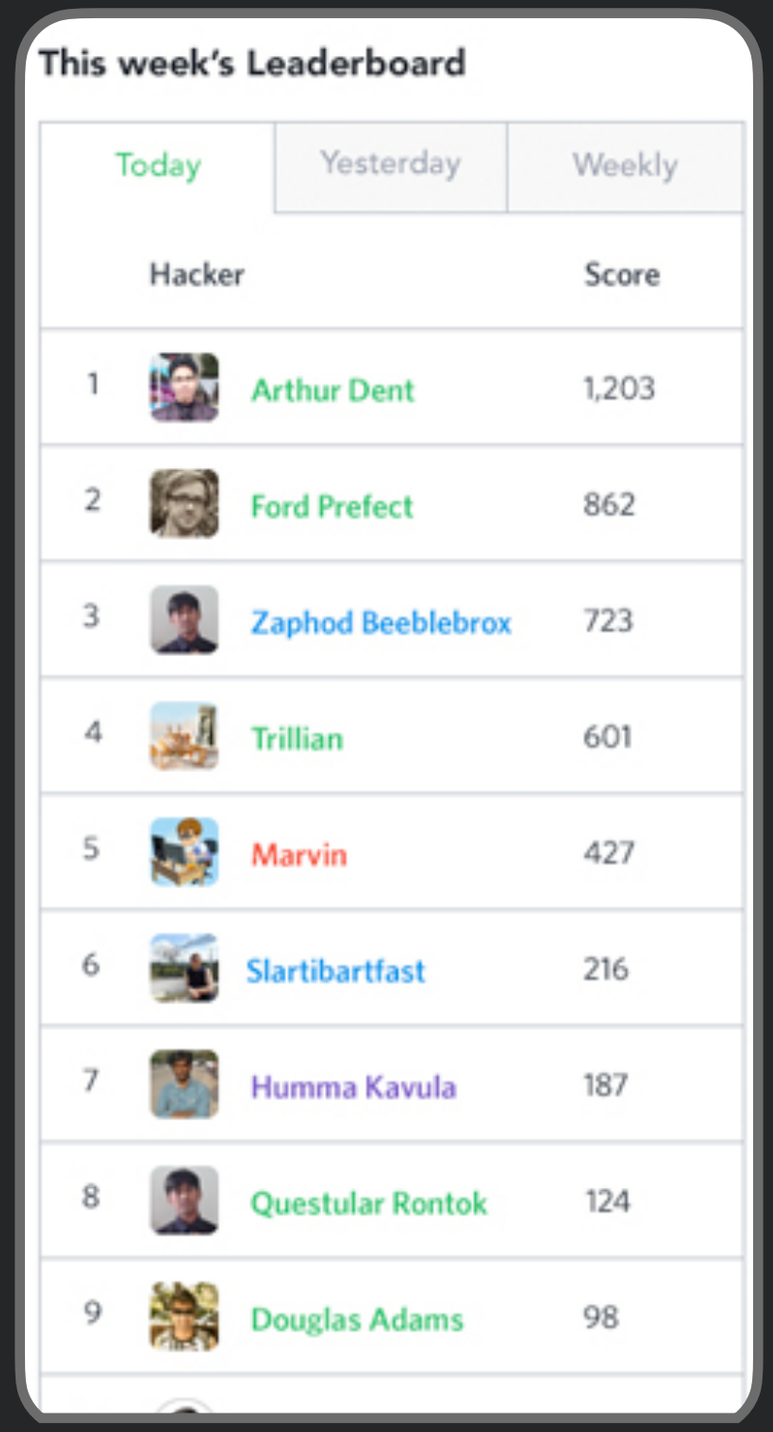
- Example - slaying monsters in World of Warcraft
  - Intrinsic - enjoy the task or camaraderie
  - Extrinsic - enjoy status that comes from achieving higher level character

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 quantitive performance metrics (if viewed as ***sincere***)
  - e.g., like button

Comparative Feedback

- Can be especially motivating to beat competitors
  - e.g., leaderbords & 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

	Motivational Category			
Community Type	Info. Exchg	Companion-ship	Social Support	Fun
Professional	53%	11%	22%	10%
Health	38%	17%	38%	4%
Hobby	52%	29%	2%	9%
Sports	58%	18%	4%	11%
Pets	48%	36%	3%	9%
Other interests	53%	26%	0%	9%
Overall Percentage	50%	24%	11%	9%

- 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

7 Minute Break

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Think of an ***online community*** that you participate in, then in the chat, name one aspect of that community that makes it ***engaging***

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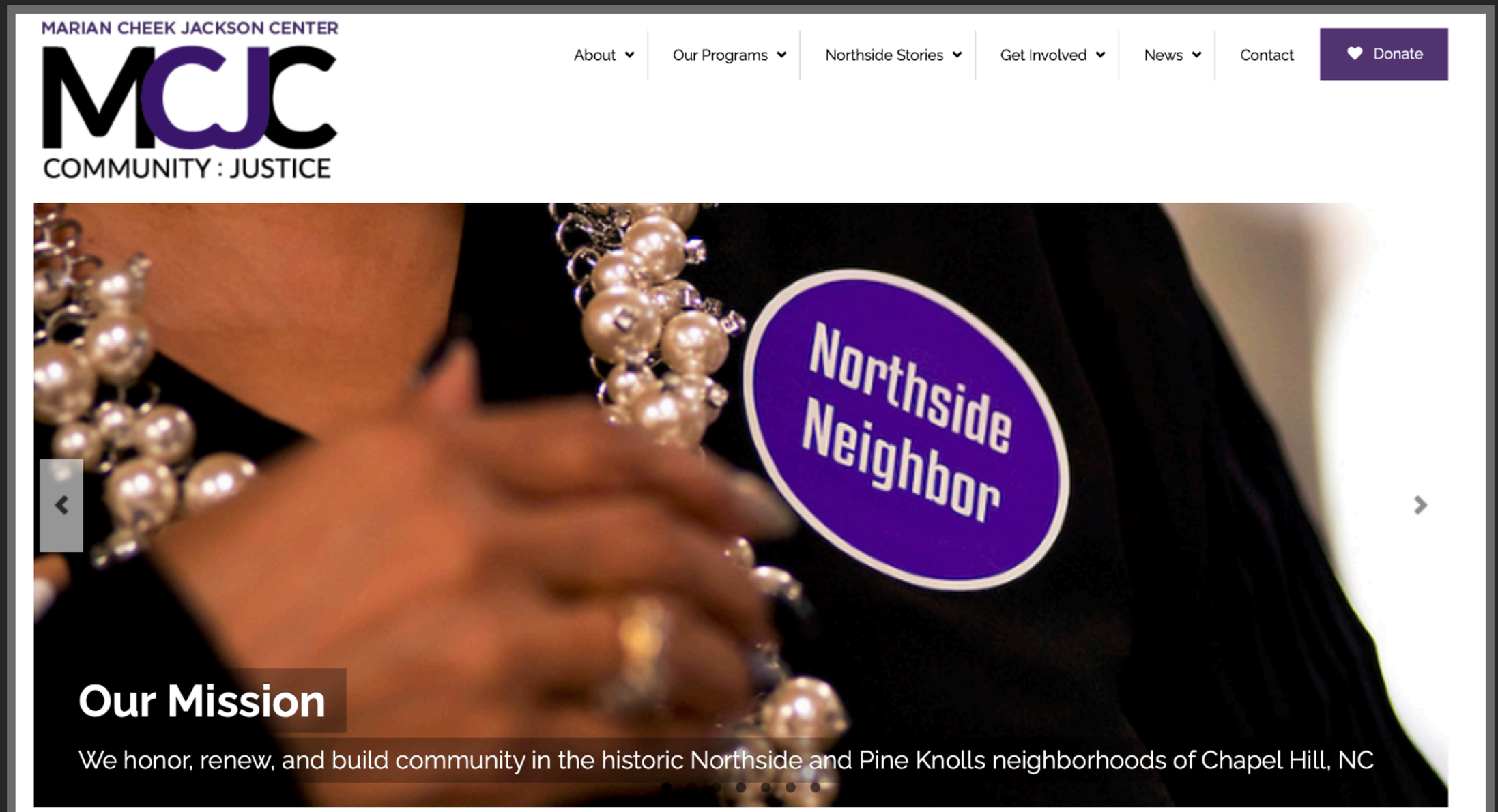
In Class Activity

Case Study: Assessing an Oral History Website

- In Breakout Groups:
  - Please visit: https://www.fromtherockwall.org
  - First, Identify any two Principles from the course that this website violates, and suggest potential improvements
  - Next, specifically from the point of view of community design, critique the current site and offer suggestions for improvement
  - We will send this feedback to the site creators!

Some Background



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Acknowledgements

- Slides adapted from Dr. Thomas Latoza's SWE 632 course