Online communities: a framework for exploring relationships between online comunity characteristics and regulation principles

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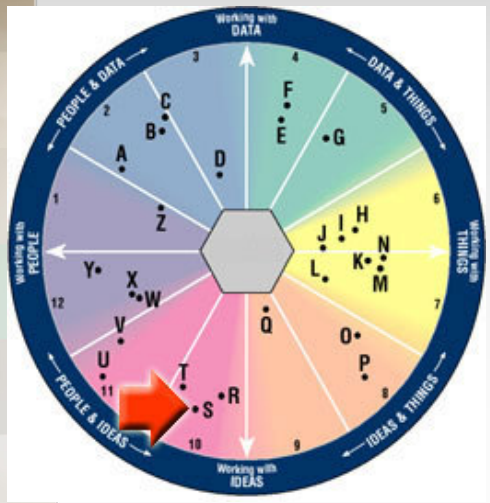
Background

- Can design enhance participation?



Social Sciences

Design (choices)

Profiling online communities → website features

Design for participation ?

- Butler, 1999:
  - hobby, mailing lists: 50% inactive
- Adar, Huberman, 2000:
  - Gnutella: 10% of members provide 87% of all music files
- Lakhani, Hippel, 2003:
  - open source communities: 4% of designers develop 88% of the new code, and 66% of all 'fixes'

Research goal and strategy

- Goal: model for predicting appreciation of community sites from website features

- Strategy:
  - Find appreciation factors of community sites: website features
  - **Construct community profiles** (types)
  - Find relationships between specific appreciation factors and specific types of communities

Appreciation factors: 'common pool resources' → website features

Principle	*Website feature*
Identification	Profile
Individuals will meet again	Communication tools
Information about past behavior	List contributions
Clearly defined group boundaries	Support for meetings, ranking
Rules match local needs and conditions Those who are affected by these rules can participate in modifying them	Submit, react to content
Monitoring system (by community members) Graduated system of sanctions Low-cost conflict resolution mechanisms	Netiquette, report-to-moderator function

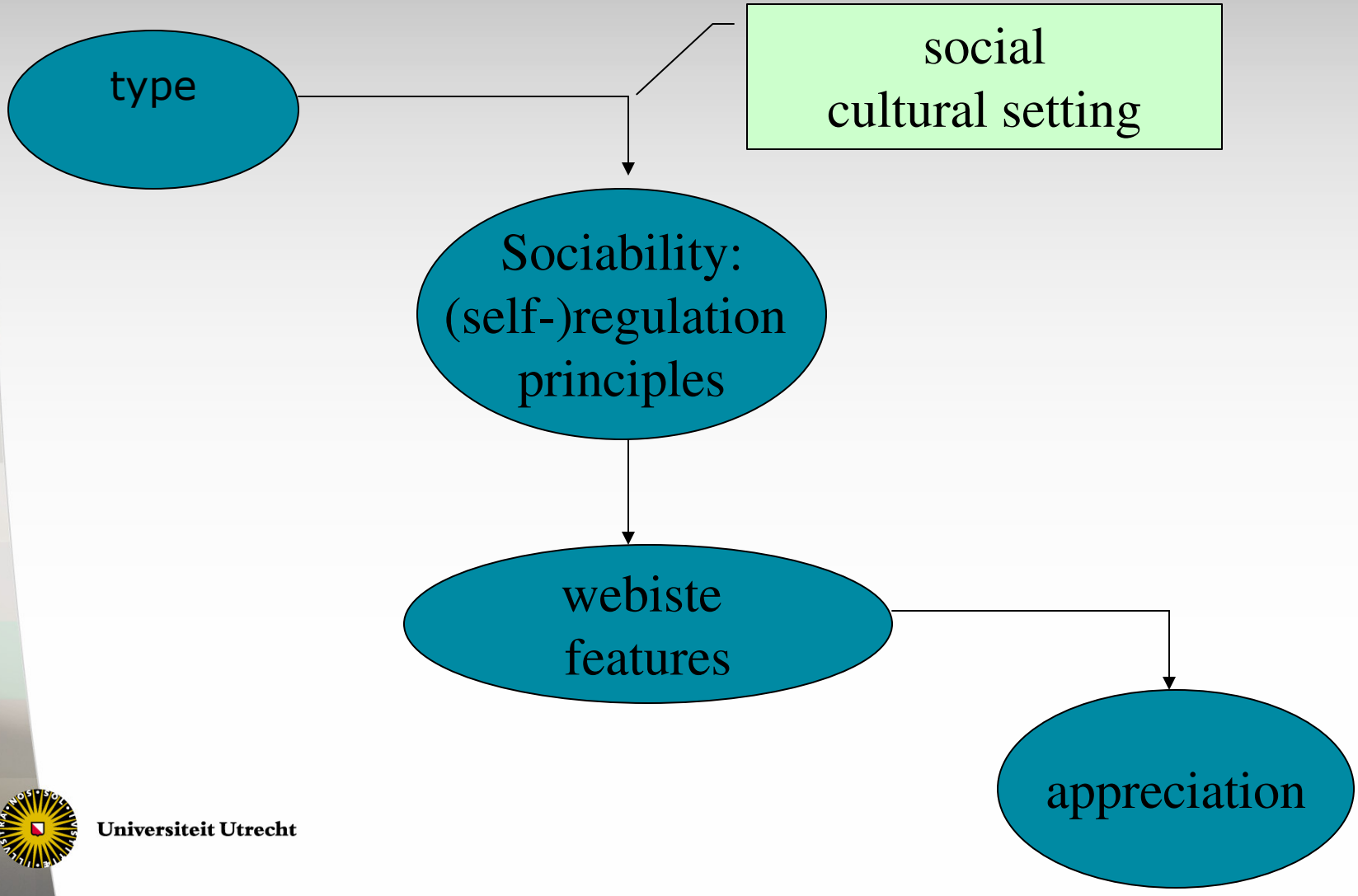
(Ostrom, 1990)

Previous results

- factor [illegible] explained

1. Identi[illegible]
3. Gover[illegible]plied
5. Group[illegible]acting
7. Resou[illegible]

Model for predicting appreciation community sites from website features



Construct Community Profiles

- Which characteristics discriminate between different kind of online communities?
- Website features are closely related to (self-)regulation principles (sociability)....
- (How) Are (self-)regulation principles affected by (other) community characteristics?
- (How) Are they differently affected in different social-cultural settings??

Typologies online communities

Author(s)	*Categorization principle: purpose*	*Categorization principle: orientation of interaction*
1. Hagel, Armstrong (1997)		consumer-focused {geographic, demographic, topical}, business-to-business {vertical industry, functional, geographic, business category}
2. Stanoevska-Slabeka & Schmid (2001) purpose:	discussion (information exchange), task- and goal-oriented, virtual worlds (creating complex online societies), hybrid (variety of purposes)	
3. Burnett (2000)		non-interactive, collaborative interactive, hostile interactive
4. Carlén (2002)		educational, professional, interest
5. Bakardjieva (2003)		infosumer, rational interactionist, chatter, communitarian
6. Preece & Maloney-Krichmar (2003)	patient support, education e-business	
7. Preece, Maloney-Krichmar & Abras (2003)	trade-professional, hobby, fans-sports, fans-entertainment, local, health, beliefs, political, religious, sports team, ethnic-cultural.	
8. Ridings, Gefen (2004)	health, interests, pets, professional, recreation	
9. **Hummel & Lechner (2002)**	gaming, interest, consumer-to-consumer, business-to-consumer, business-to-business	
10. **Porter (2004)**		member-intiated {social, professional}, organization-sponsored {commercial, non-profit, government}

Research Method: Community Characteristics (based on Porter, 2004)

- **Purpose**
  - R=relation; E=entertainment; A=action; S=support; M=multiple purposes
  - News items on front page
- **Place**
  - O=online; H=hybrid
  - Signs of organized events, discussing meetings
- **Platform**
  - S=synchronous; A=asynchronous; H=hybrid
  - Communication tools
- **Population**
  - O=weak ties → no recurring user names, apparent relationships;
    S=small group/strong ties → < 100 members, small number re-ocurring user names, discussing private life;
    N=network → 100 – 300 members, loosely coupled relationships, spam and occasional flame
    P=public → > 300 members, sub groups, threads dedicated to flaming and/or spamming
- **Outcome**
  - R=relations; S=support; C=content

Research Method: (Self-)Regulation principles based on Van Wendel de Joode, 2005, Ostrom, 1990

- **Boundaries**
  - *B(registration)*: 1=no registration; 2=short procedure; 3=extensive registration, with profiling system
  - *B(speficity)*: 0=general; 1=dedicated user group

- **Collective Choice**
  - *C(development)*: 1=centralized control; 2= 'participation by opinion'; 3=moderators, forum section, poll
  - *C(content)*: 1=posting content not allowed on crucial web pages; 2=posting allowed to selected members; 3=posting is allowed for everyone

- **Appropriation and Provision**
  - 1=no explicit netiquette rules, no formal rules implemented (for consuming resources); 2=few explicit netiquette rules, basic rules for controlling consumption of resources; 3= extensive netiquette rules, specific rules controlling consumption of resources for specific groups

- **Commitment**
  - 1=no extra benefits; 2=basic (rss, news letter); 3=extra benefits (events)

Research Method: population and analysis

Research population: 31 online newspaper communities

- National origine: UK (7) and NL (6)
- Coverage: UK, regional (9) and NL, regional (9)
- Platform = asynchronous
- Purpose = Information, Support, Multi purpose

Analysis

- Chi-square: relationships between individual community characteristics (CC) and individual (self-)regulation principles (SRP)
- Latent class analysis: relationships between patterns of community characteristics and patterns of (self)-regulation principles (class CC= class SRP, class = pattern = type)

Latent Class Analysis (Lazarsfeld, 1968, Vermunt, 1997)

- Every cluster can be described by chance distribution over the attributes (Purpose, Place, Population, Profit)
  - assumption: attributes are independant
- Estimate models with different number of clusters
  - Model with lowest BIC-score is best

BIC(M) = -2*L(M) + npar(M) * log N

L(M) = value of log-likelihood function under model M, evaluated in the maximum

npar(M) = number of parameters

N = number of observations

Results: relationships between individual CC and SRP within different settings

- **UK versus NL**
  - UK multi-purpose (purpose), NL more specific (boundaries)
  - UK more extensive explicit rules (appropriation)
- **Coverage**
  - National: more often advanced ruling system (appropriation)
- **Purpose**
  - *Control*: posting content not allowed in 'Information' and 'Multi purpose', allowed in 'Support'
  - *Commitment*: no extra benefits in 'Information'
- **Population**
  - *Control*: weak tie communities (O=no group, N=network) more often less centralized
- **Outcome**
  - *Appropriation*: 'Content' less extensive explicit rules than 'Relationship' and 'Support'
  - *Commitment*: no extra benefits in 'Content'

Results: patterns of Community Characteristics (types)

Cluster 1 Information oriented	*Cluster 2 Multi-purpose*
AD	Volkskrant Parship
Metro	Daily Mail
NRC Handelsblad	Daily Mirror
Telegraaf	Daily Express
Trouw Moderne Manieren	Nieuws Op Urk
Daily Telegraph	Texelse Courant
Financial Times	The Argus
Sunday Mirror	Cambridge News
Guardian Unlimited	East Anglian Daily Times
De Stentor	Herts & Essex News
Leeuwarder Courant	Manchester Evening News
BN De Stem	The Cumberland
Brabants Dagblad	
Goors Nieuws	
Noordhollands Dagblad	
De Gooi- en Eemlander	
This Is London	
Daily Record	
Reading Evening	

BIC (log-likelihood) = 262.10

Contribution to clustering CC

Variable	*Chi-square, sig.*	*Fisher exact, sig.*
Purpose	.0003	0
Place	.0000	0
Population	.9102	1
Profit	.0010	0

- Most: *Purpose* and *Place*
- Hardly: *Population*

Results: patterns of (self-)regulation principles

- No different patterns or classes found, one class solution had best BIC-score!

Preliminary conclusion

- Framework does discriminate between types, especially on the basis of Purpose and Place
- Framework is able to relate individual community characteristics to individual (self-)regulation principles
- Different social-cultural settings may affect relationships
  - Boundary, Appropriation and Provision (third place?)
- Framework can not yet relate community types to patterns of (self-)regulation principles
  - No such relationships exist: Platform, Purpose, stages in development??
  - Refining (measuring) framework

Refining (measuring) framework

Construction of variables

- Purpose, Boundary specificity: ordinal

Measuring

- Member input: Purpose, Population, Outcome, Collective Choice, Appropriation and Provision
- Social Network Analysis: Population

Capturing Dynamics

- (automated analysis of) Level of Interactivity
- (automated) Social Network Analysis

Thank you…!

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