

# **The Effects of Interface Design on Mobile, Group Behaviour**

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Thesis Topic:

Extensions to User Centred Design (UCD)  
methods for mobile, group technologies.

# What are mobile groups?



<http://library.thinkquest.org>



<http://www.zenithecuador.com/airlinespecials.htm>

# Group Behaviour

"a group is defined as two or more persons who are interacting with one another in such a manner that each person influences and is influenced by each other person." (Shaw, 1976)

## **Social loafing** (free riding):

where you can benefit off of others work (Olson, 1965)

## **Conformity:**

Normative: adhering to norms to gain acceptance

Informational: following what we see others doing

## **Groupthink:**

tendency to make poor decisions because of group interaction methods

Baron, R. S. and Kerr, N. L. (2003). Group process, group decision, group action. Buckingham England ; Philadelphia, Open University Press.

Shaw, M. E. (1976). Group dynamics : the psychology of small group behavior. New York, McGraw-Hill.

# Group Behaviour

## Stages:

1. forming
2. storming
3. norming
4. performing
5. adjournment

- Truckman and Jenson 1977



# Group Structure

## Centralized

- Enhance leadership emergence
- Reduction of member satisfaction
- Clear structure and roles

## Decentralized

- Copes well with changing environment
- More difficult to control



<http://balder.prohosting.com/~starrier/swarm/swarm1.jpg>

Swarms

Flocks

Herds

Colonies



<http://www.searchtexas.com/melphillips/hunting/flock.jpg>

# Group Structure

## Types:

- **Hierarchical**  
Example: court system
- **Heterarchical**  
Example: citizenship
- **Ad-hoc**  
Example: riding the bus
- **Distributed**  
Example: delivery personnel
- **Co-located**  
Example: scuba divers

## Characteristics:

- **size**
- **structure**
- **roles**
- **status**
- **subgroups**
- **cohesion**
- **communication networks**
- **norms**
- **leadership**
- **saturation level**

# What's in the network?

## **Community:**

"Networks of interpersonal ties that provide sociability, support, information, a sense of belonging, and social identity." *–Barry Wellman*

- **Ties**

- Material (instrumental)
- Informational or emotional (non-instrumental)

- **Trust**

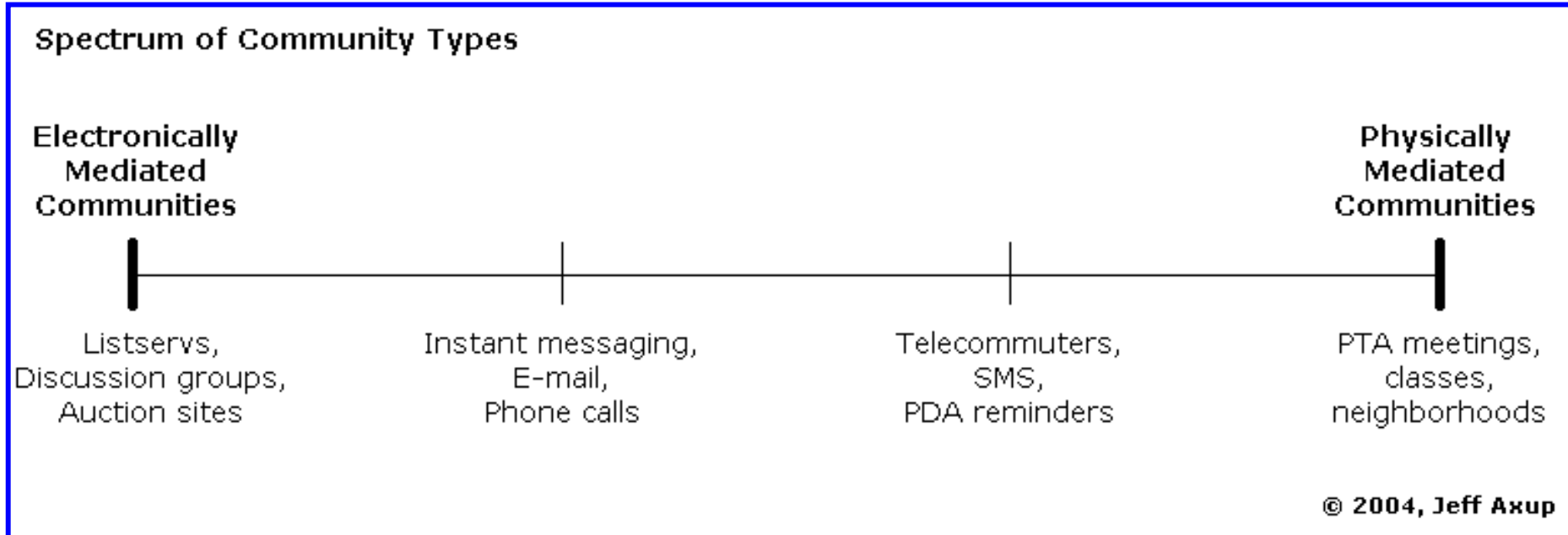
- **Reputation**

- **Cooperation**

- Distributed reciprocity

# Is the network virtual?

- **Examples of different ranges of distance and technology**



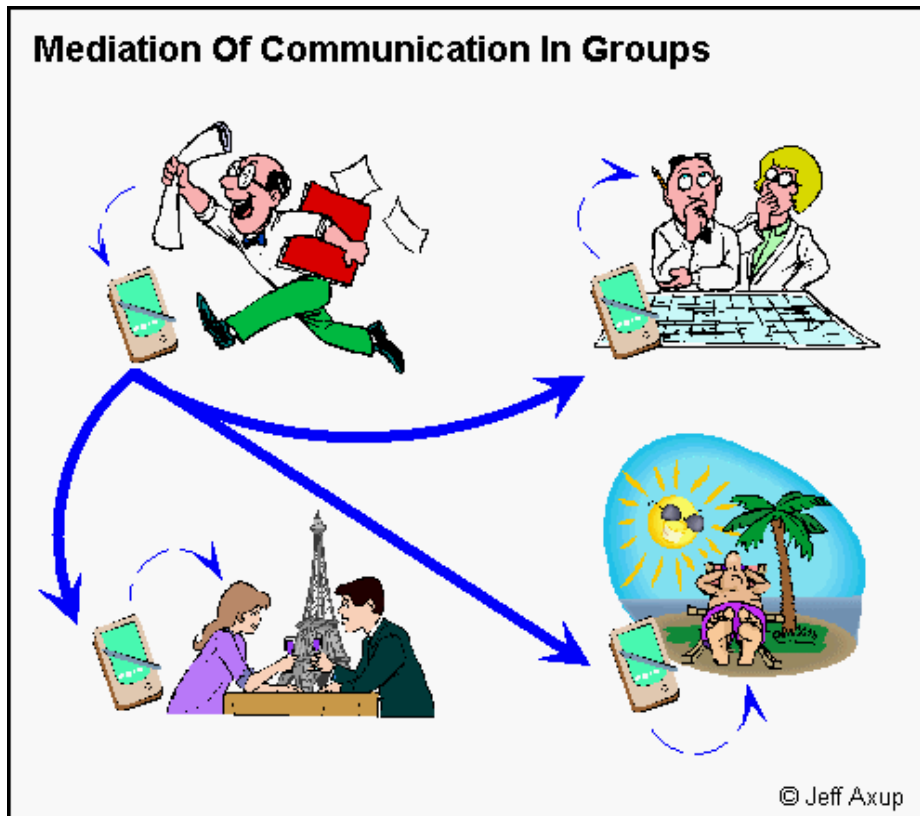
- **A rich range of communication is used**
- **Augmented groups**

# How does the interface affect groups?

## What I mean by “interface”

The portion of a piece of technology which a user interacts with.

(This may be hardware, software or underlying structure.)



“The degree of freedom with which the individual may function in the group can be affected by accessibility of information, situational factors, actions of other group members, subjective perception of situation.”

-Shaw 1955

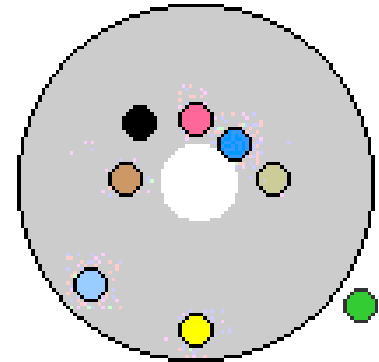
# Case Study 1

## Babble

- Instant Messenger style service developed at IBM
- Social proxies
- Awareness of group activity

## How does the interface change behaviour?

- Enables waylaying
- Ability to not disturb encourages communication
- Peripheral awareness
- Ability to think publicly
- Better knowledge of who is interested



Erickson, T. and Laff, M. R. (2001). The Design of the 'Babble' Timeline: A Social Proxy for Visualizing Group Activity over Time. Human Factors in Computing Systems: The Proceedings of CHI 2001, ACM.

Bradner, E., Kellogg, W. A. and Erickson, T. (1999). "The Adoption and Use of 'Babble': A Field Study of Chat in the Workplace." European Conference on Computer-Supported Collaborative Work (ECSCW), September, 1999.

# Case Study 2

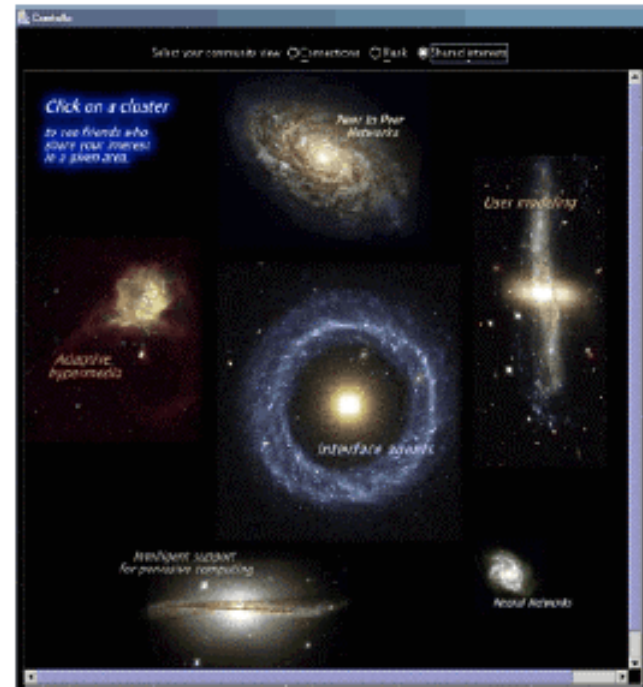
## P2P free-riding

- File sharing networks have leeching problems
- Users may not understand the technology
- Cooperative norms may not have developed

## 4 strategies to promote community:

- 1) encouraging altruism
- 2) reward with visibility/reputation
- 3) allow relationship development between users
- 4) tangible reward such as better download rates

“Free-riding problem is not so much an economic issue as a socio-psychological one due to a paradigm shift the user community is undergoing.”



Bretzke, H. and Vassileva, J. (2003). Motivating Cooperation on Peer to Peer Networks. UM 2003. P. B. e. al., Springer-Verlag: 218–227.

# Case Study 3

## Institute For Applied Autonomy (IAA)

- TXTMob service for setting up mobile discussion lists
- Public or private lists
- Designed to aid protestors at US government conventions
- Similar to Dodgeball and emergency notification services
- Used at Republican National Convention in New York

## How does the interface change behaviour?

- Fast medical support
- Legal support
- Observers
- Strength in numbers
- Police using helmet cams in response

"TXTMob was great! When the cops tried to arrest one of our people, we were able to get hundreds of folks to the scene within minutes."

- *anonymous protestor*

# Augmented Behaviour

- **Swarming from farther distances, for different reasons**
- **Increasing probability of happenstance meetings**
- **Increased awareness of the environment**
- **More frequent group connections**
- **Efficiency through decentralization**
- **Overcoming limitations of the environment**
- **Increased coordination between people with limitless applications**
- **Increased swarming behaviour**

# Scenarios of Mobigroup Collaboration

## E-bay on Steroids

- Gift-economies which allow free barter without taxation.

Sterling, B. (1999). *Maneki Neko. A Good Old-fashioned Future*. New York, NY, Bantam Books

## Whuffie

- Social-capital, replacing money and collective reputation

Doctorow, C. (2003). *Down and Out in the Magic Kingdom*, Tor Books.

## Mobile Ride Share

- The “smart” way of hitching a ride

Resnick, P. (2004). Impersonal Sociotechnical Capital, ICTs, and Collective Action Among Strangers. *Transforming Enterprise*.

# Ethics For Mobigroup Technologies

“Many new information technologies intentionally change our work and lives. Wireless technologies were long intended to increase the efficiency of distributed and mobile business. Our research addresses some of the unintended social effects, and perhaps unexpected effects, of this technology.”

–Diana Gant and Sara Kiesler

- How do we design ethically?
- How can we predict effects?
- What is current practice?
- What should we do for the future?

Gant, D. and Kiesler, S. (2002). Blurring the Boundaries: Cell Phones, Mobility, and the Line between Work and Personal Life. Wireless world : social and interactional aspects of the mobile age. B. Brown, N. Green and R. Harper. London ; New York, Springer: Chapter 9, 121-131.

# Contact Information

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Blogs:

<http://mobilecommunitydesign.com>

(This presentation will be available at the above site.)

<http://smartmobs.com>

<http://www.corante.com/many/>