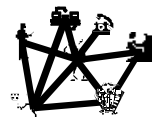# Living Networked in a Wired World

Barry Wellman

Keynote Address to the Inaugural Conference of the Association of Internet Researchers

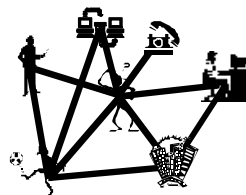Lawrence, Kansas, USA, Sept 14 2000

Coordinates

- Department of Sociology
- University of Toronto
- Toronto, Canada M5S 1A1
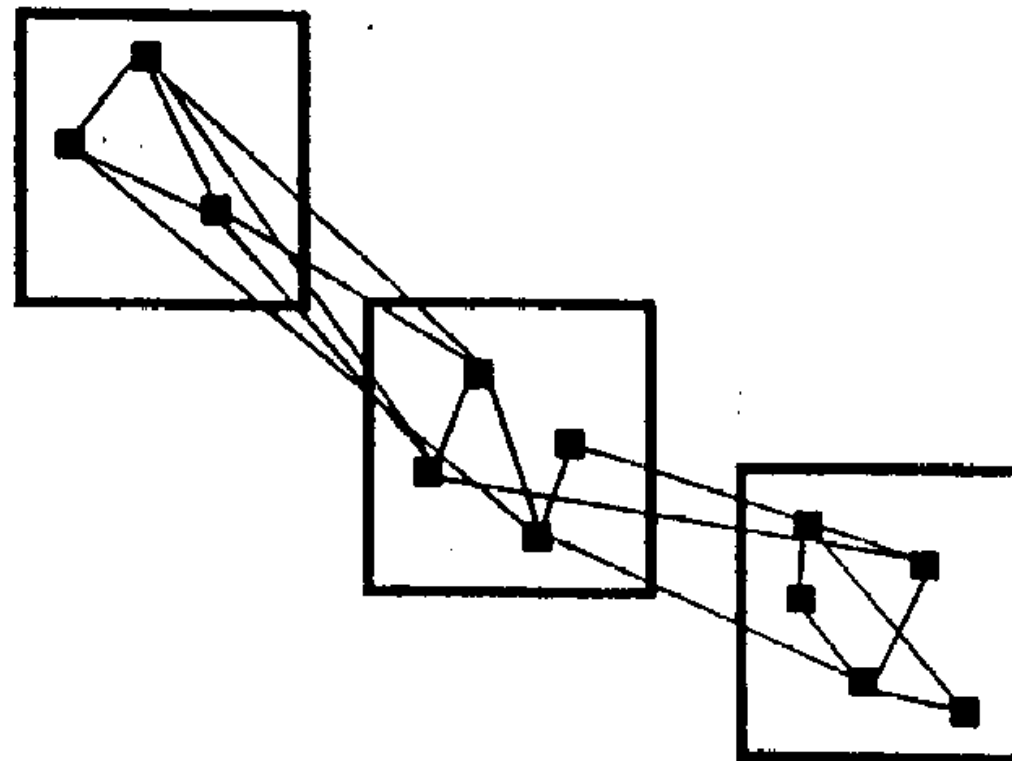- wellman@chass.utoronto.ca
- www.chass.utorotonto.ca/~wellman

THE ARGUMENT

Internet Change is Part of Societal Change

Cause and Effect

There is a Paradigm Shift:
From Little Box Society to Network Society

✓Barry Wellman,
Social Structures,
JAI Press, 1998

The Song Provides
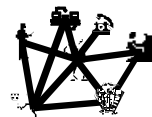# The "Little Box Society" Image

- ■ "Little Boxes made of Ticky-Tacky

- ■ Little Boxes, Little Boxes, Little Boxes

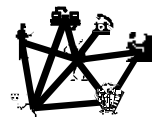- ■ All the Same"

    Malvena Reynolds 1960

    But

- ■ "The Times They Are a-Changing"

    Bob Dylan/Robert Zimmerman, 1960s

Groups to Networks
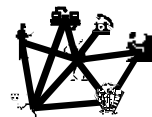
- **The World is Composed of Networks –**

    Not Groups
    - Whole Networks
    - Communities
    - Whole Networks and Personal Communities

- **Changing Connectivity**
    - Sparsely-Knit
    - Loosely-Bounded
    - Multiple Foci
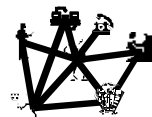
How a Network Society Looks

- ■ **Multiple Communities / Work Networks**
  - ■ Multiplicity of Specialized Relations
  - ■ Management by Networks
  - ■ More Uncertainty, More Maneuverability
  - ■ Find Resources in Interpersonal Specialized Boutiques, Not in Broadly Supportive General Stores
  - ■ Networks Less Palpable than Traditional Solidarities
    Need Navigation Tools

  ✓ **An Electronic Group is Virtually a Social Network." Pp. 179-205 in** *Culture of the Internet,* **edited by Sara Kiesler. Mahwah, NJ: Lawrence Erlbaum, 1997.**

The Social Network Approach

- Networks provide flexible means of social organization and of thinking about social organization

- Networks are a major source of social capital mobilizable in themselves and from their contents

- The world is composed of networks
      - not densely-knit, tightly-bounded groups

- Moving from a hierarchical society bound up in little boxes to a network – and network*ing* – society
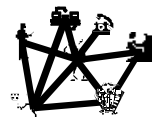
The Social Network Approach

- **Networks have emergent properties of structure and composition**

- **Networks scale up to networks of networks**

- **Multiple communities / work networks**
  - **Multiplicity of specialized relations**
  - **Management by networks**
  - **More alienation, more maneuverability**

- **Loosely-Coupled Organizations / Societies**
  - **Less Centralized**
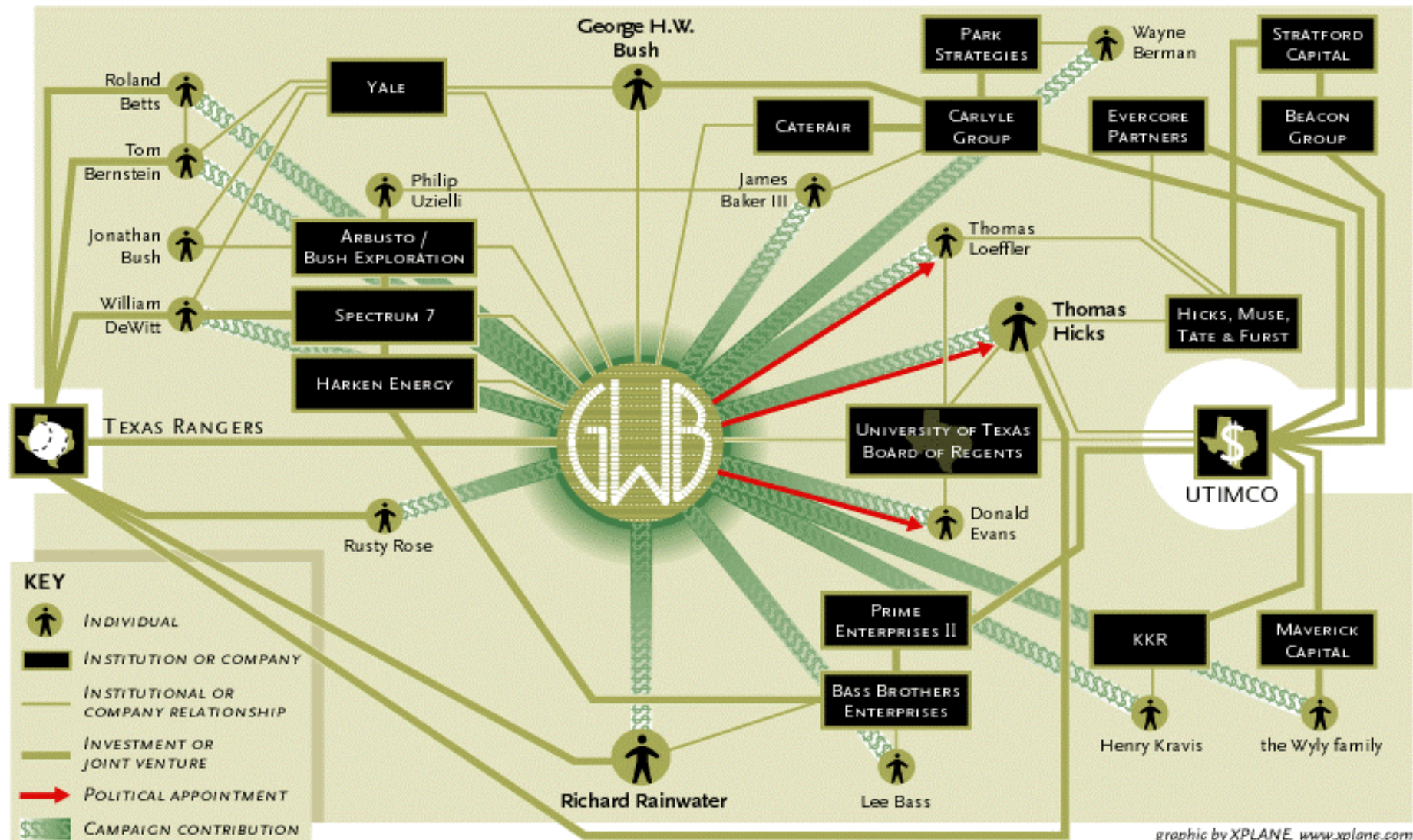 - **The Network Society**
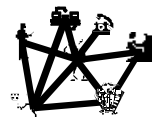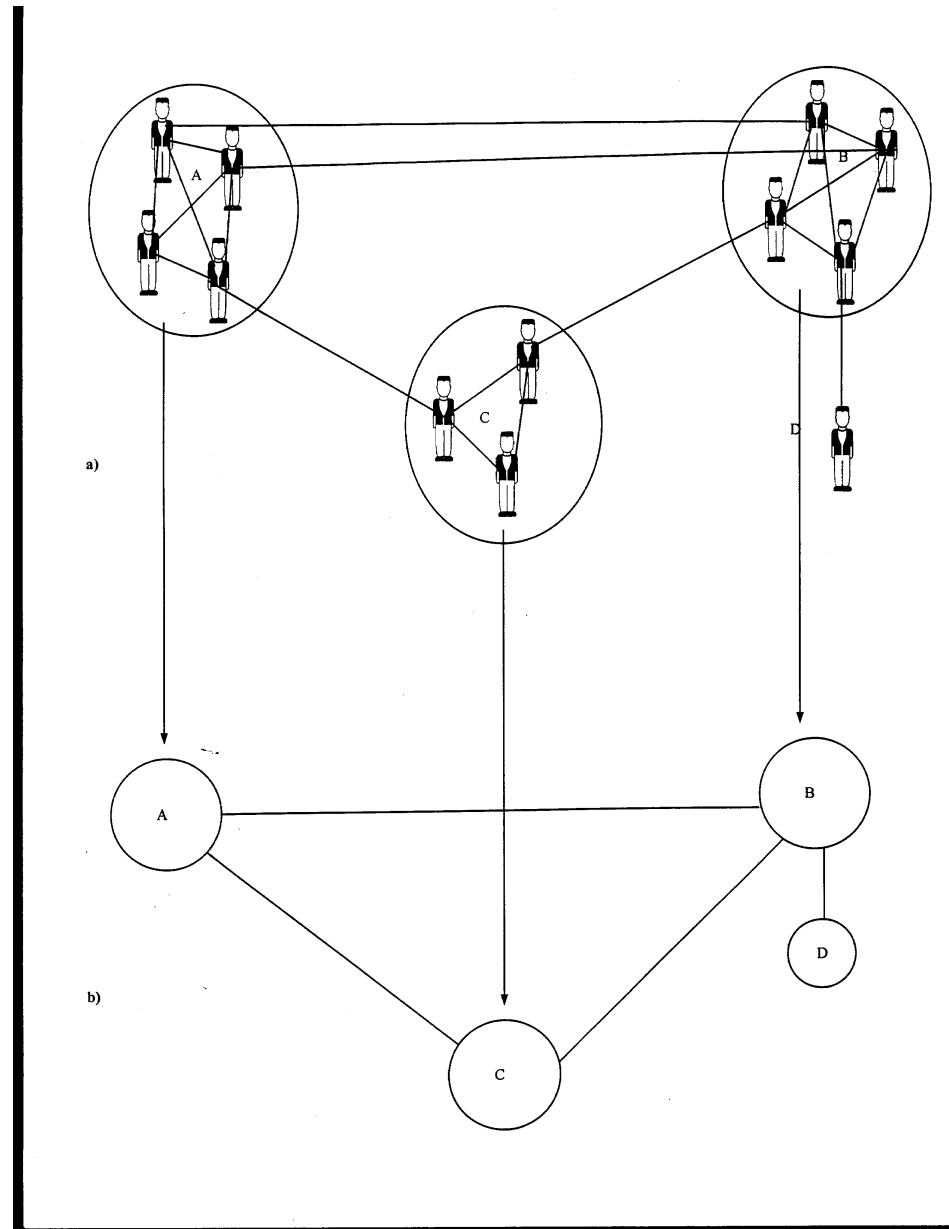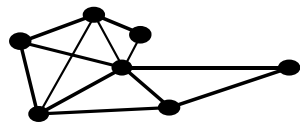
Two Networks *(next 2 slides)*

- ## Inter-Organizational Network:
  - ### George Bush's Corporate Donors

- ## A "Network of Networks"
  - ### An Inter-Personal Network as an Inter-Organizational Network
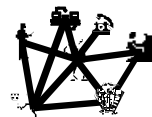
THE GEORGE W. BUSH MONEY TREE

George H.W. Bush

Roland Betts

Tom Bernstein

Jonathan Bush

William DeWitt

Yale

Philip Uzielli

ARBUSTO / BUSH EXPLORATION

SPECTRUM 7

HARKEN ENERGY

TEXAS RANGERS

Rusty Rose

GWB

James Baker III

CATERAIR

CARLYLE GROUP

PARK STRATEGIES

Wayne Berman

EVERCORE PARTNERS

STRATFORD CAPITAL

BEACON GROUP

Thomas Loeffler

Thomas Hicks

HICKS, MUSE, TATE & FURST

UNIVERSITY OF TEXAS BOARD OF REGENTS

UTIMCO

Donald Evans

PRIME ENTERPRISES II

BASS BROTHERS ENTERPRISES

KKR

MAVERICK CAPITAL

Henry Kravis

the Wyly family

Richard Rainwater

Lee Bass

KEY

👤 INDIVIDUAL

⬛ INSTITUTION OR COMPANY

— INSTITUTIONAL OR COMPANY RELATIONSHIP

— INVESTMENT OR JOINT VENTURE

→ POLITICAL APPOINTMENT

$$$ CAMPAIGN CONTRIBUTION

graphic by XPLANE, www.xplane.com

a)

b)

Barry Wellman

THREE FALLACIES WHEN ANALYZING THE INTERNET

- ## Presentist
  - Assumes that only phenomena that happened since the Net are relevant to understanding the Net

- ## Parochial
  - Assumes that only phenomena that happen on the Net are relevant to understanding the Net

- ## *A*-Scholarly
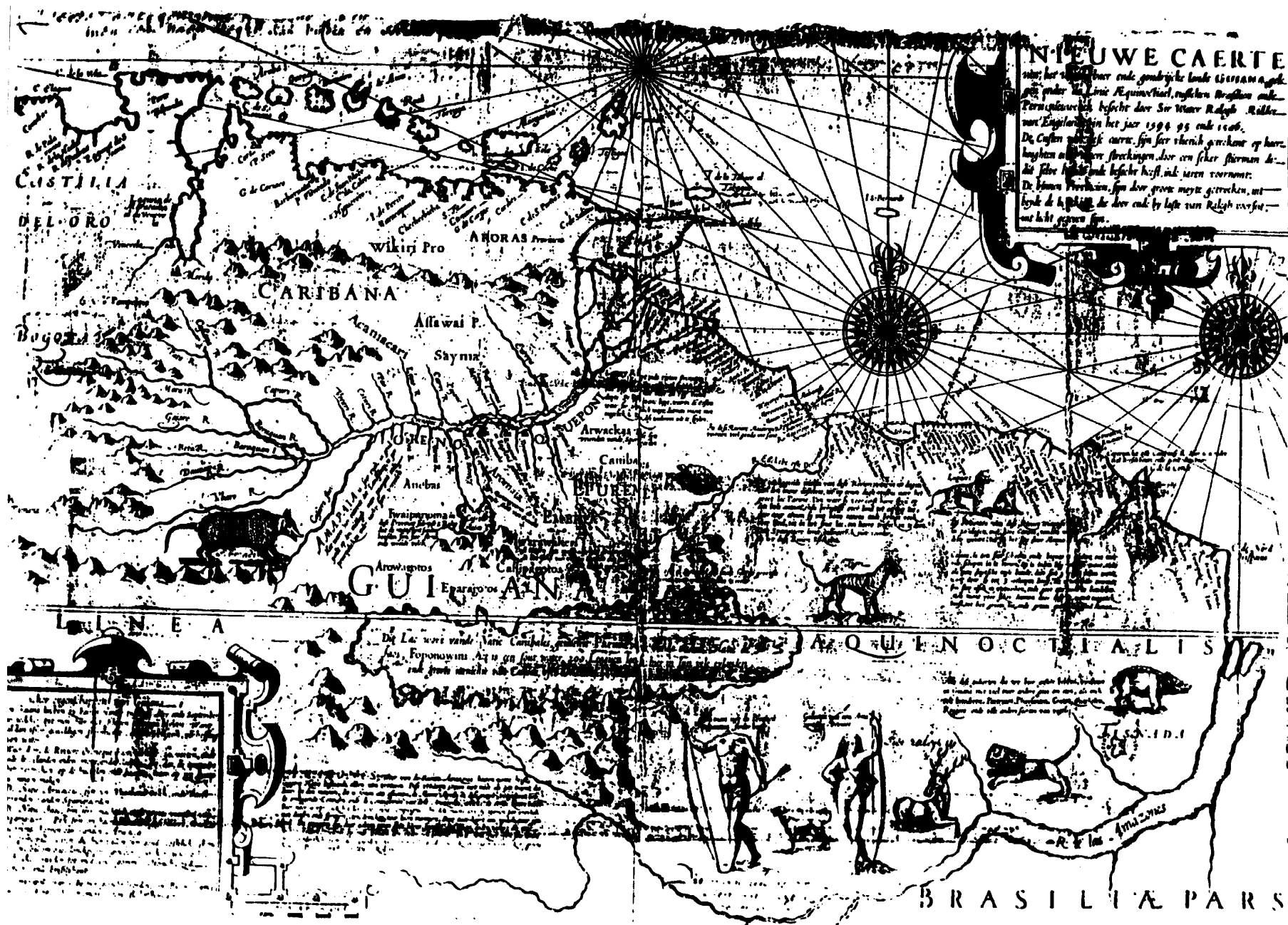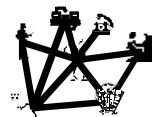 - Assumes that scholarly analysis is not necessary for understanding the Net

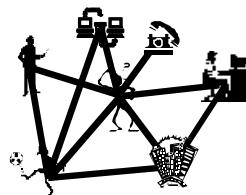America in 1600; The Internet in 2000

Myopic to Look at the Internet as a Special World

- **Net's Demographics approaching population's**
  - Gender, income, ethnicity, education
- **People rapidly becoming experienced within one year**
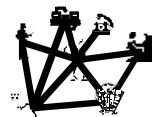- **Users rapidly become frequent users**

HOW IS THE INTERNET RESONATING WITH LONG-TERM SOCIETAL SHIFTS?

Social Affordances of Changing Connectivity

- Bandwidth

- Ubiquity – anywhere, anytime

- Convergence – any means = all means

- Portability – especially wireless

- Globalized Connectivity

- Personalization

Physical Place and Cyber Place

Door to Door, Place to Place,

Person to Person, Role to Role

✓**Barry Wellman, "Changing Connectivity: A Future History of Y2.03K."** *Sociological Research Online* **4, 4, February 2000: http://www.socresonline.org.uk/4/wellman.html**

✓**Barry Wellman, "Physical Place and Cyber Place: The Rise of Networked Individualism."** *International Journal of Urban and Regional Research* **25 (2001): forthcoming.**

Door To Door

- Pre-Industrial Villages, Wandering Bands
- All observe and interact with all
- Deal with one group
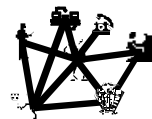
Place To Place

Wired Phones, Networked PCs

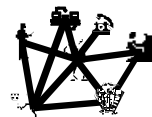Air Travel, Expressway Travel, Railroads, Transit

- Home, office remain important contexts, but not intervening space
- Connectivity beyond neighborhood and work site
- Household to household / work group to work group
- Domestication and feminization of community
- Deal with multiple groups
- "Glocalization"
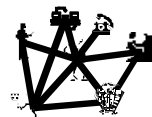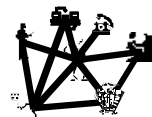
Person To Person

Cell Phones, Wireless Computing

- Little awareness of context

- Individual, not household or work group

- "Networked Individualism" ©

- Private desires replace public civility
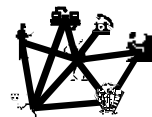
- Less caring for strangers, weak ties

Role To Role

Tailored Communication Media

- Little awareness of whole person

- Portfolios of relationships

- Cycling among specialized communities / work groups

- Management by network

# Shift to New Kinds of Work/ Community

- Old Workgroups/ Communities Based on Propinquity, Kinship

- New Ones Based on Shared Interest

- Away from Belonging to Only One Workgroup Community

- Partial Membership in Multiple Workgroups/ Communities

- Foolish to Look at Online as an Isolated World

- Online Interactions Linked with Offline

CIVIC DISENGAGEMENT FROM ORGANIZED ACTIVITIES?
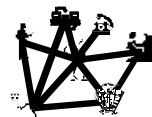
✓Based on Robert Putnam, *Bowling Alone*, 2000
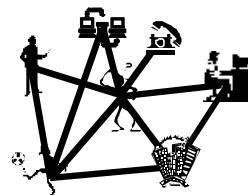
Decline in Voluntary Organizational Involvement (as % of Eligibles)

- Annual number of club meetings attended:
  - 12 (1975) > 5 (1999)

- % Organizational officers, committee members:
  - 17% (1973) > 8% (1998)

- Similar declines in churchgoing, "animal clubs" (Elks, etc.), and community projects   *Putnam 2000*
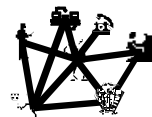
Percentage of Toronto Respondents Active in Group Activities, by Gender

Activities	Men	Women
Unions	0	0
Churches	**19**	25
Neighborhood Groups	6	0
Recreational Groups	**25**	17
Ethnic-Based Groups	0	0
Kinship Groups	7	0
Child-Centered Groups	7	18
Interest Groups	6	17
Occupation-Based Groups	14	6
Informal Sociability Groups	**29**	12
Formal Sociability Groups	**7**	6
Voluntary Groups	0	13
Other Groups	0	0

Source: Barry Wellman, "Men in Networks" (1992)

Decline in Informal Social Activities
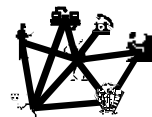
- Annual number of entertaining at home:
    - 14.5 (1975) > 8.5 (1998)

- Annual number of picnics:
    - 5 (1975) > 2 (1998)

- Similar declines in dinner parties, having friends over, playing cards, bowling (not in leagues)   *Putnam 2000*
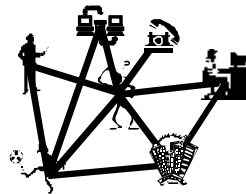
Decline in Household Interaction

- **Increasing number of single-adult families**
- **Increasing number of families without children**
- **Fewer whole-family dinners:**
  - **47% (1975) > 32% (1998)**
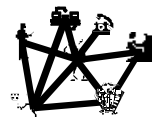
    (of those who have families)
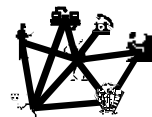
Putnam 2000

EVIDENCE FROM OUR NETLAB WORK

Research Questions

1. Has the map of the world dissolved so much that distance does not matter in "*glocalized*" networks?

2. Has the Internet *replaced* or *supplemented* in-person, telephone, and written contact?
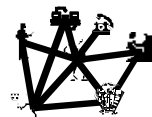
3. Can both strong and weak ties be sustained online?

Research Questions

4. Has the Internet brought spatial and social peripheries closer to the center?

5. Does computer mediated communication facilitate working in networks rather than groups?

6. Are new forms of loosely-coupled organizations flourishing?
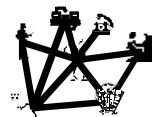
Guiding Principles

- **Substitute systematic data analysis for hype**

- **Do field studies, not lab experiments**

- **Combine statistical with observational info.**

- **Study computer-mediated communication within the context of overall behavior**

- **Work with other disciplines --**

  but not lose our own discipline

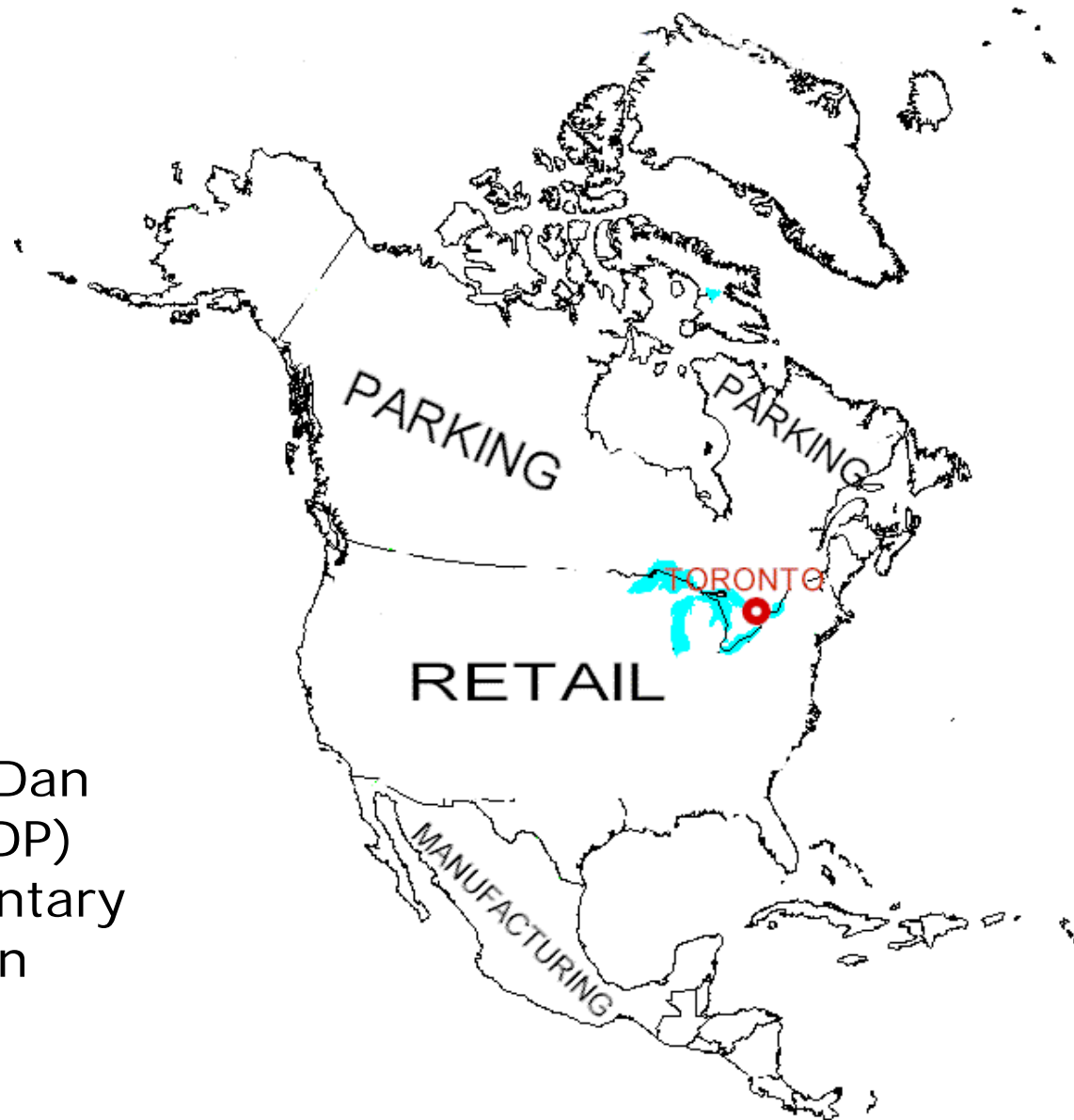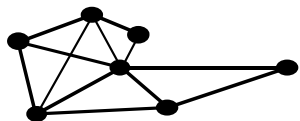# Our Approach

- **Online Studies Continue Earlier Studies of Dispersed Social Networks**

- **Community On-Line and Off-Line**
  - **Netville – The Wired Suburb**
  - **Web Survey 2000**

- **Computer-Supported Cooperative Work**
  - **Loosely-Coupled R&D Networks**
  - **Telework**

PARKING

PARKING

TORONTO

RETAIL

MANUFACTURING

Source: Dan
Heap (NDP)
Parliamentary
Campaign
1992
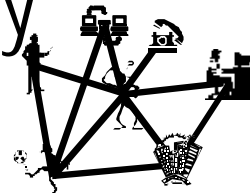
Barry Wellman

COMMUNITY ONLINE
-- AND OFFLINE

What we Know from Pre-Internet Studies of Personal Communities

"Netville": The Wired Suburb

National Geographic Web "Survey 2000"

Small City Internet Users

Berkeley Email Study

PRE-INTERNET STUDIES OF PERSONAL COMMUNITIES

From "Little Boxes" (Solidary Communities") to

Ramified Networks (Communities Liberated from Space and Groups)
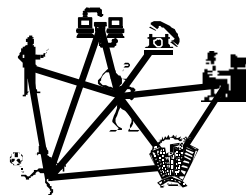
A History of Community Theory
Social Ties in the Local Community   *(Keith Hampton)*

Figure 1. Perception of the pre-Industrial Revolution folk community
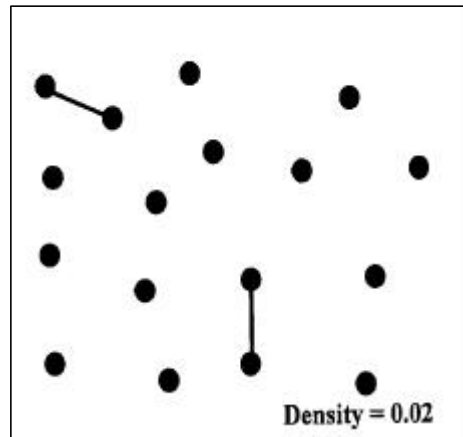
Figure 2. Perception of the post-Industrial Revolution urban neighborhood
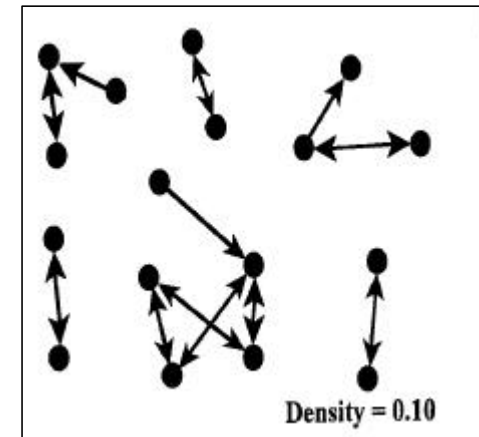
Figure 3. Contemporary urban neighborhood

Life Before the Internet

- **Computers are NOT the mothers of all invention**
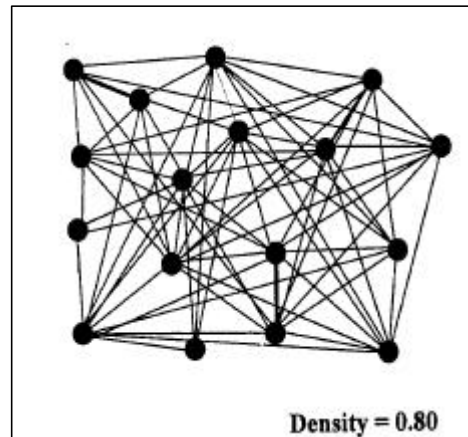
- **Membership in partial, multiple communities**

- **Ramified & sparsely knit: not local solidarities**
  - Not neighborhood-based
  - Not densely-knit with a group feeling

- **Specialized Relationships: Boutiques not department stores**

✓Barry Wellman, *Networks in the Global Village*, Westview Press 1999

"Community Liberated"

- **Switching identities and cultural codes between milieus**

- **Move from male-dominated public community to privatized, domesticated, feminized community**

- **Community networks less palpable than neighborhood communities**

  ✓ *Barry Wellman, "The Network Community." Pp. 1-48 in* Networks in the Global Village. *Boulder, CO: Westview Press 1999*
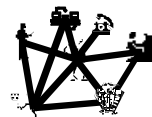
Informal Ties Abundant Pre-Internet

Average Westerner Has 1,000 Informal Ties

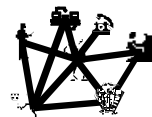3   Confidants

6   Intimates (50% Kin)

10-30   Active Ties (also 50% Kin)

950   Weaker Ties (*"Acquaintances," Neighbors, Coworkers*)

By Role

50   Adult Kin

5-10   Neighbors Recognized (1-3 Visited)

1-10   Workmates

Rest are Friends and Acquaintances

Internet Probably Sustains More Ties and More Active Ties

Source: Manfred Kochen,

The Small World

"Netville": The Wired Suburb

With Keith Hampton (Toronto/MIT)

✓**Netville Online and Offline: Observing and Surveying a Wired Suburb." *American Behavioral Scientist* 43, 3 (Nov, 1999): 475-92.**

✓**"Examining Community in the Digital Neighborhood: Early Results from Canada's Wired Suburb." Pp. 475-92 in *Digital Cities: Technologies, Experiences and Future Perspectives*, edited by Toru Ishida and Katherine Isbister. Berlin: Springer-Verlag, 2000**.
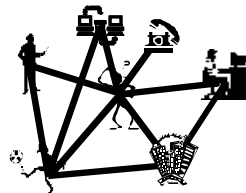
"Netville": The Wired Suburb

Leading-Edge Development Exurban Toronto

- Mid-Priced, Detached Tract Homes

- Bell Canada, etc. Field Trial

- 10Mb/sec, ATM-Based, No-Cost Web/ Internet Services

- Ethnographic Fieldwork

  - Hampton Lived There for 2 Years

- Survey Research

  - Wants, Networks, Activities

The entrance to Netville
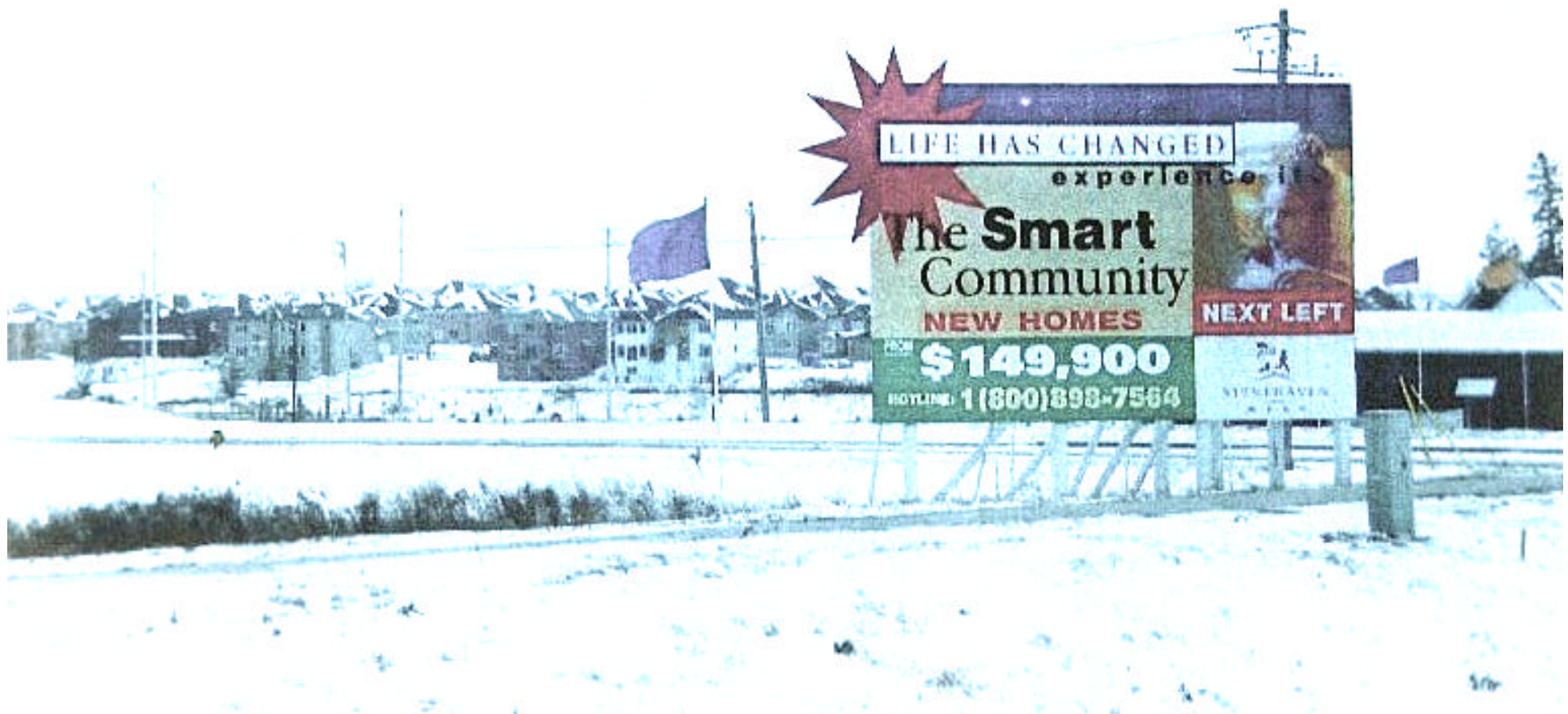
View of Netville
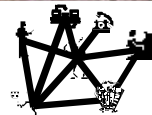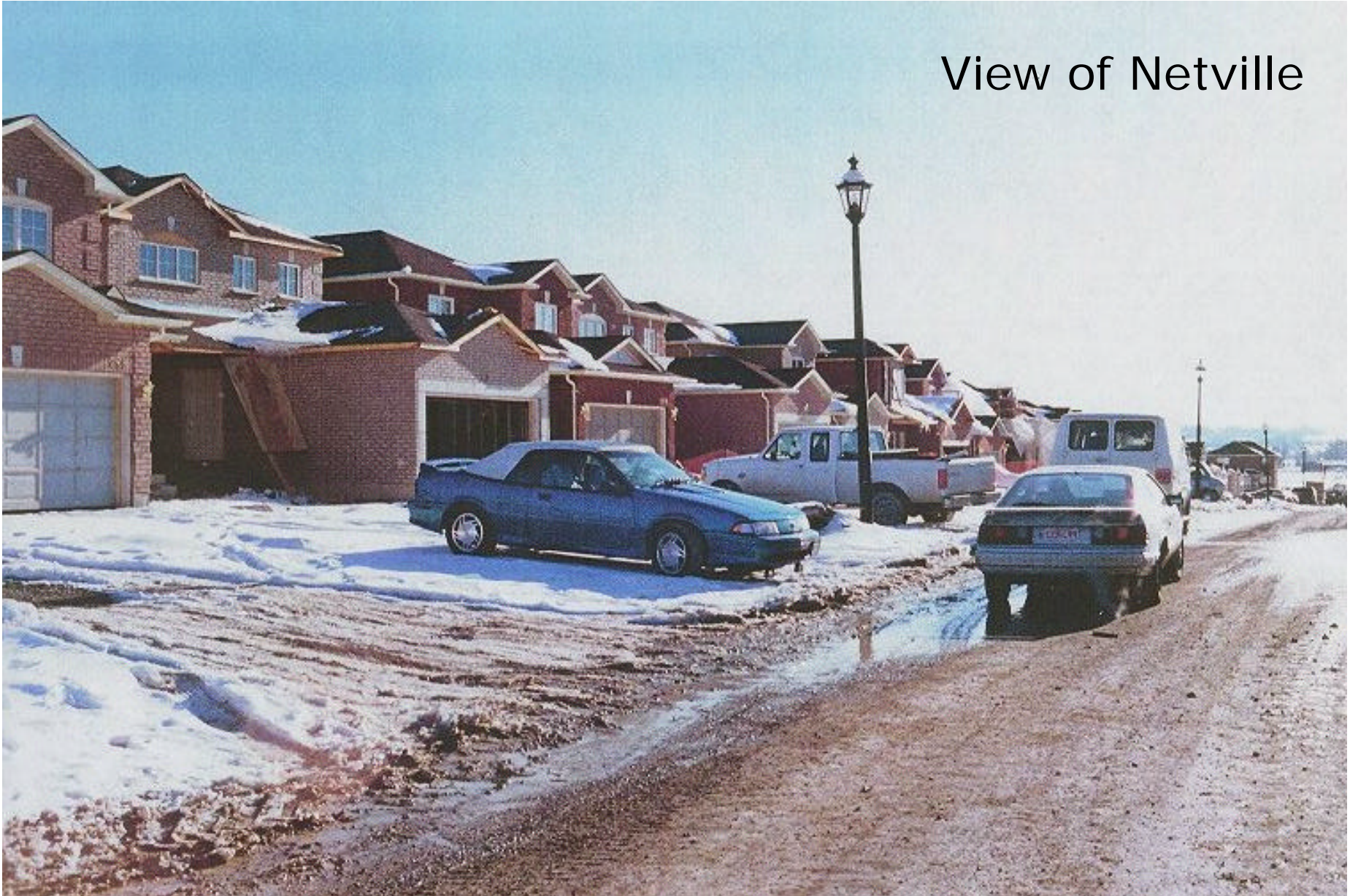
Neighborhood Ties
Contributing Factors

DV = **Number of neighborhoods Recognized**	B
Constant	2.59
Connected to the network	****20.93**
Female	9.79
Female*Wired	-12.04
Number of emails sent per month	**-0.08
Number of emails received per month	**0.04
High school or less = reference	
Some post-secondary	11.64
College diploma	7.58
University degree	-1.41

*p<0.05   **p<0.01   N=57 (37 wired / 20 non-wired)

Neighborhood Ties
Contributing Factors

- Only some households received high-speed wiring

- Being wired increases the total number of local "knowing ties."

- Number of emails sent decreases the number of local ties while number of emails received increases the number of local "knowing ties".

- Wired women may have fewer "knowing ties" than their male counterparts *(non-significant)*

Neighborhood Ties - Number

Number of Residents ***Recognized by Name***:

	Mean	SD	Min	Max	ANOVA		N
					F	Sig.	
Wired Non-Wired	25.5 8.4	18.6 4.6	4 1	88 18	16.2	.000	37 20

Neighborhood Ties - Number

Number of Residents ***Talked to on a Regular Basis***:

	Mean	SD	Min	Max	ANOVA		N
					F	Sig.	
Wired	6.3	7.1	0	36	3.8	.056	37
Non-Wired	3.1	3.0	0	11			20

Neighborhood Ties - Number

Number of Respondents Who ***Have Invited*** Other Netville Residents Into ***Their* Homes** During the Past 6 Months:

	Mean	SD	Min	Max	ANOVA F	Sig.	N
Wired	3.9	4.2	0	16	1.3	2.55	37
Non-Wired	2.7	3.0	0	10			20

Neighborhood Ties - Number

Number of Netville Residents Who Have **_Been_**
Invited Into the Home of Another Resident
During the Past 6 Months:

	Mean	SD	Min	Max	ANOVA F	Sig.	N
Wired	3.9	3.6	0	17	2.3	.136	37
Non-Wired	2.5	2.8	0	10			20

Neighborhood Ties - Dispersion

Distance Between Local Ties Recognized by Name:

# of Lots to Neighbor	Mean	SD	Min	Max	ANOVA F	Sig.	N
Wired	7.5	3.7	1.8	16	3.3	.075	37
Non-Wired	5.6	3.6	1.3	15			20

Neighborhood Ties - Conclusions

Wired Residents

- Recognize More

- Talk with More

- Invite More Into their Homes

  - And are Invited

- Interact with Neighbors in a Wider Area

Non-Local Ties

Compared to one year before moving to Netville. . .

Non Wired Residents Reports *LESS*:

- Social contact

- Help and assistance given (e.g., with childcare, jobs around the house)

- Help and assistance received from their friends and relatives located more than 50km (30 miles) from their home in comparison to wired residence
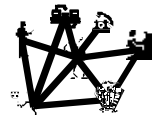
Glocalization - Local Community Ties
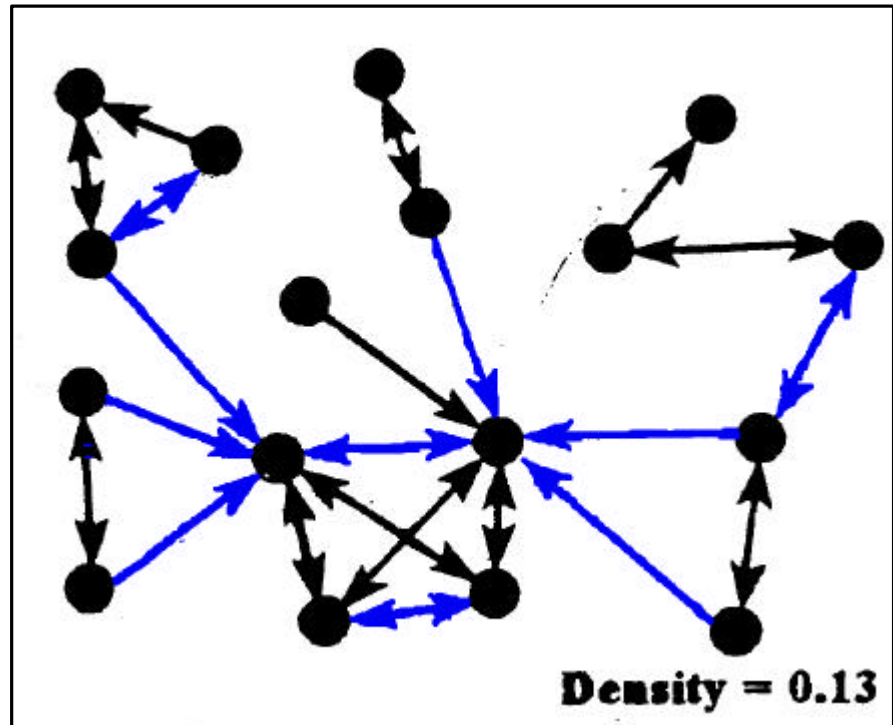
Control Group: Strong and weak ties in a non-wired neighborhood.
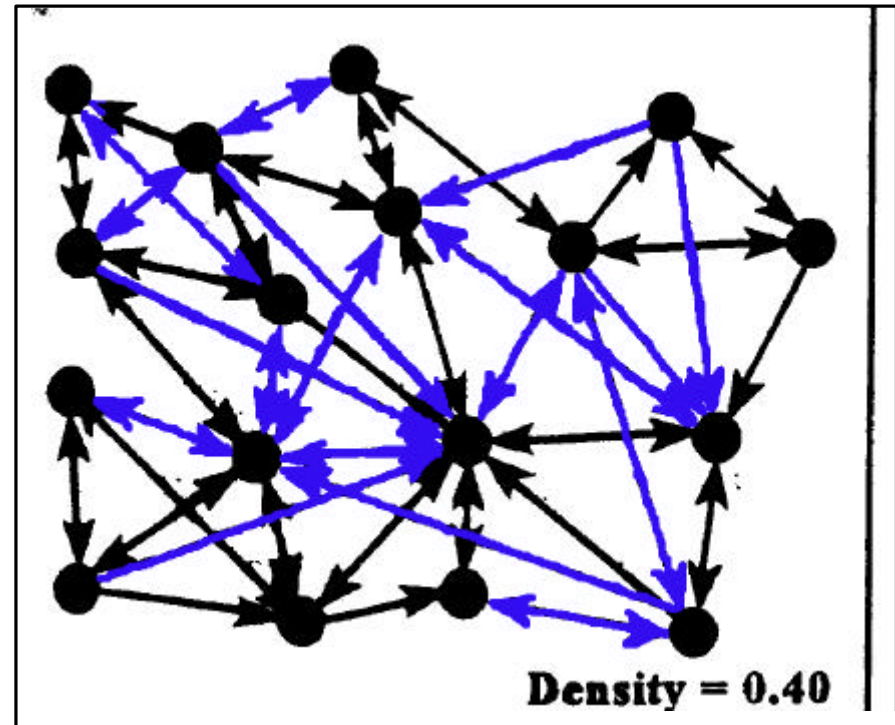
Netville: Strong and weak ties in a wired neighborhood.

Strong Tie
Weak Tie
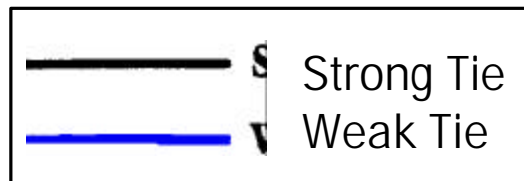
Glocalization - Personal Networks
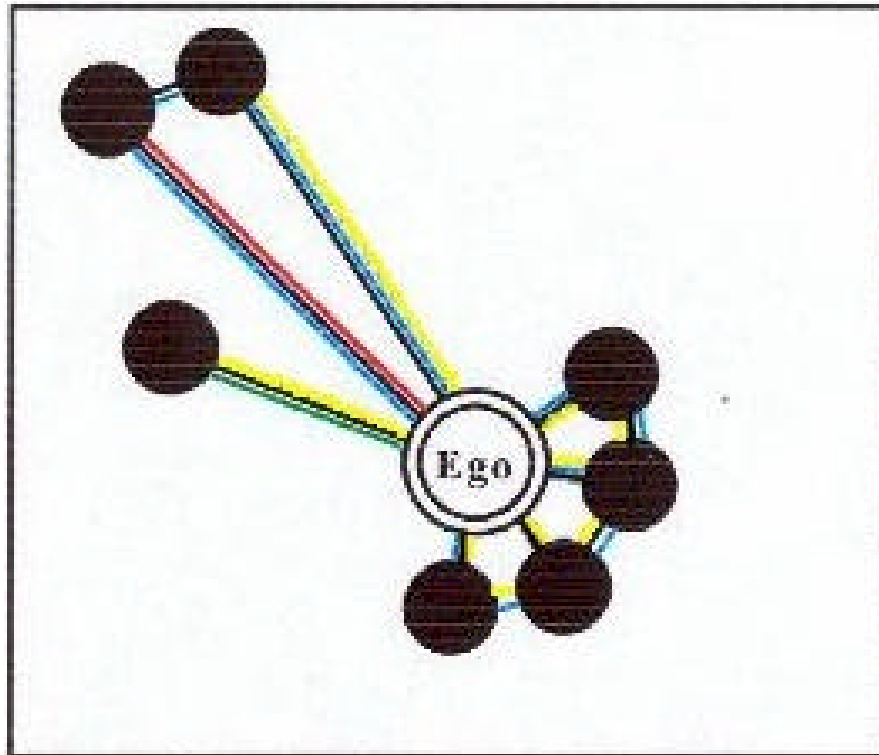
Time 1. Personal network
prior to living in Netville
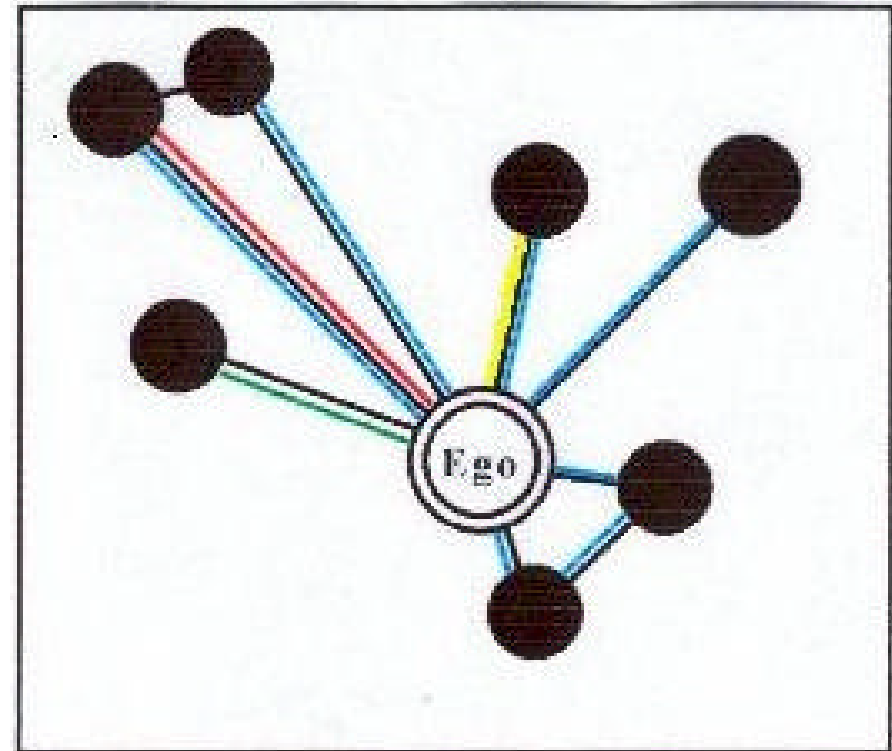
Time 2. Personal network
after living in Netville

	Face-to-face
	Phone
	Postal Mail
	Fax
	Email
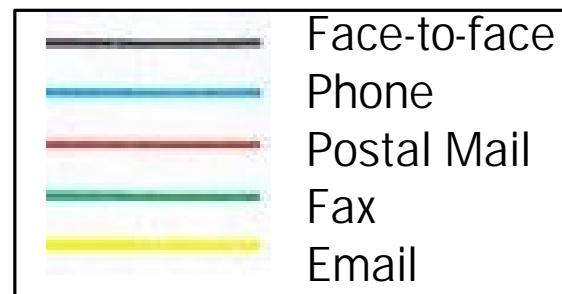
Non-Local Ties

Those Connected to the Internet Who Experienced
   a Change in Relationship with Friends and
   Family Report that the Internet:

- Makes it easier to communicate

- Allows for a greater volume of communication

- Introduces new methods of communication
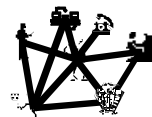
NATIONAL GEOGRAPHIC WEB "SURVEY 2000"

With

James Witte

Keith Hampton

Anabel Quan

(other co-investigators)
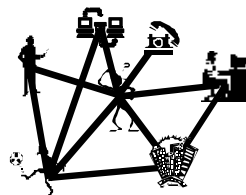
Nature of the Study

- "Survey2000". Data Collected Fall 1998
- One of the First Large Web Surveys of "Ordinary People"
- *National Geographic Society* website
- Preliminary Summary in *National Geographic Magazine*, Dec 1999
- Huge Sample, albeit non-random
  - 35,000 Americans
  - 5,000 Canadians
  - 15,000 "Others" *(not yet analyzed)*
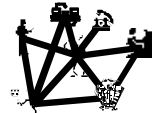
Email Adds to Interaction

- **Email Adds to In-Person, Phone, Cards/Letters Interaction**
  - Email Doesn't Substitute for In-Person, Phone
  - High Email Contact Doesn't Reduce Other Forms of Interaction
- **Even More for Friends than Kin**
- **Even More for those Living at a Distance Than Those Living Within 30 Miles**
- Younger Email Friends More – Near and Far
- Older Email Kin More – Near and Far
- More Educated Email Those at a Distance More – Kin and Friends
- Women Email More with Kin at a Distance
- Women's Communication Frequencies Generally Similar to Men – for All Media

Effects of E-mail and Web-Surfing on   Contact with Friends and Relatives, Near and Far

Type of Internet Activity	Relatives living within 30 miles	Friends living within 30 miles	Relatives living beyond 30 miles	Friends living within 30 miles
Send/ Receive Email	***.116***	***.227***	***.217***	***.245***
Web Surfing	.038	.048	-.003*	.016
Gender	-.046	-.032	-.093	-.064
Education	-.046	.015	.099	.079
Age	.077	-.097	.039	-.116
Months of Internet Use	-.013	.019	.009	.048
R^2	.023	.077	.073	.102
Note: Everything Significant at .05 except the *item				
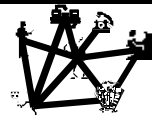
E-Mail Use by Mean Annual Communication Within 30 Miles (50 Km)

	Kin					Friends				
	F2F	Phone	Letters	Email	Total	F2F	Phone	Letters	Email	Total
Never	77	119	6	1	203	104	138	6	1	249
Rarely	63	115	6	4	188	83	111	8	5	207
Monthly	61	112	6	7	186	73	98	5	9	185
Weekly	52	120	6	13	191	76	100	7	20	203
A Few Times/wk	53	114	7	24	198	83	113	7	37	240
Daily	60	118	8	52	238	91	126	9	118	344
Total	61	117	7	39	224	88	120	9	86	303

E-Mail Use by Mean Annual Communication Beyond 30 Miles (50 Km)

	Kin					Friends				
	F2F	Phone	Letters	Email	Total	F2F	Phone	Letters	Email	Total
Never	12	37	8	1	58	13	25	7	1	46
Rarely	10	36	8	5	59	11	19	7	4	41
Monthly	9	35	8	10	62	8	16	6	8	38
Weekly	9	36	9	19	73	8	17	6	16	47
A Few Times/wk	10	39	9	35	93	9	20	7	30	66
Daily	10	43	10	73	136	10	27	9	86	132
Total	10	41	10	56	117	10	23	8	63	104

SMALL CASE STUDIES
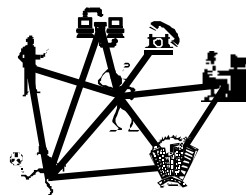
Small City Study

- **Fall 1999 – with Keith Hampton**
- **Proprietary for Internet Service Provider**
- **25 Cities and Towns**
- **Web Sample approximately = 10,000**
- **Great Interest in Local Events**
- **Women Coming on Line Rapidly**
  - Recent Users
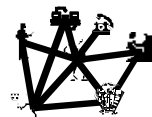 - Use Internet Less Frequently

Small Berkeley Study: Type of Email by Location of Sender

rows sum to 100%	Berkeley	Bay Area	USA	World	Row %	Row N
Informal – single	41%	30%	18%	11%	18	44
Informal – Multiple	61	19	17	3	15	36
Formal – Single	65	23	3	10	13	31
Formal – Multiple	96	4	0	0	11	28
Lists	52	10	32	7	42	104
Spam	20	0	60	20	2	5
Column %	57	15	21	7	100	
Column N	142	38	51	17		248

Berkeley + Bay Area = 72%
Single (one-to-one) messages = 33%
• Multiple (one-to-several) messages=24%
• Informal messages = 31%
• Formal messages + lists = 68%
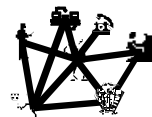• Berkeley lists=22%

• Data collected, Feb, 1999, 24 hours
• 10 respondents
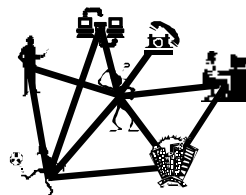• Mean number of messages = 25
• Median number of messages = 30
• Modal Number of messages = 16/39

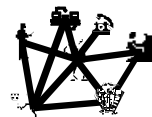# COMPUTER SUPPORTED COOPERATIVE WORK – ONLINE AND OFFLINE

Cerise - Indigo Multimedia

"Netting Scholars"

Teleworkers

"Little Boxes" and Networks at Work – Two Models

- **Fishbowl "Little Box" Office**
- **Fishnet Dynamic Office**

The "Fishbowl" Little Box Office

- **All participants work together in the same room**
- **All can see one another**
- **All have physical access to each other**
- **All can see when a person is interruptible**
- **All can see when one person is talking with another:**
  - There are no real secrets
  - There are no secret meetings
  - Anyone can observe conversations & decide to join
- **Little warnings of others approaching**
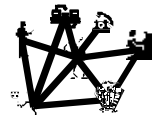
- Neighboring desks have hi visual & aural awareness
- Limited number of participants
- Densely-knit
- Tightly bounded
- Frequent contact
- Recurrent interactions
- Long-duration ties
- Participants cooperate for a clear, collective purpose
- Sense of group solidarity (name, collective identity)
- Easy social control by supervisor & group

The "Fishnet" Dynamic Office

- Each person works separately
- Office doors closable for visual, aural & physical privacy
- Glass in doors may give some indication of interruptability
- If doors locked, must knock

  If doors open, pause and request admission
- Difficult to learn if person is dealing with others unless door is open
- Very large number of potential participants
  - Average person knows 1,500
 - Strangers and friends of friends may also be contacted

- **Sparsely-knit network: most contacts don't know each other**
    - Or not be aware that you know both of them
    - No complete map of indirect ties
- **Loosely-bounded**
    - Many different people contacted
    - In many different workplaces, possibly outside organization
- **Each person functions on his/her own**
- **Collective activities often transient, involve shifting sets of others**
- **Possibly-secret subgroups and cleavages may develop**
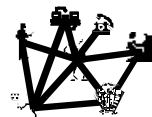
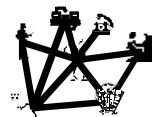# WORK, FRIENDSHIP AND MEDIA USE AT CERISE / INDIGO R&D NETWORKS

✓Caroline Haythornthwaite, Barry Wellman and Marilyn Mantei "Work Relationships and Media Use." *Group Decision and Negotiation* 4,3 (May, 1995): 193-211.

✓Caroline Haythornthwaite and Barry Wellman, "Work, Friendship and Media Use for Information Exchange in a Networked Organization."*Journal of the American Society for Information Science* 49, 12 (Oct., 1998): 1101-14
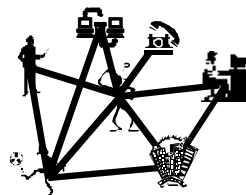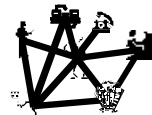
"Cerise"/"Indigo" CSCW

- **Using Video/ Email at Work**
- **R&D Work:**
  - **Faculty, Students, Programmers, Admin.**
- **With Caroline Haythornthwaite and**
    Laura Garton
- **Survey and Ethnography**

"Typical" Cerise Member's Communication Circle

15 correspondents with 378 ties

Work Tie		Friendship Tie	
Formal	3	Close Friend	2
Informal	10	Friend	7
Non-working	2	Acquaintance	5
		Work only	3

The Average Cerise Pair:

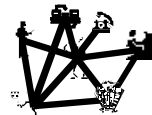- **Exchanges three of the six different types of information**

    116 media links / 378 pairs =

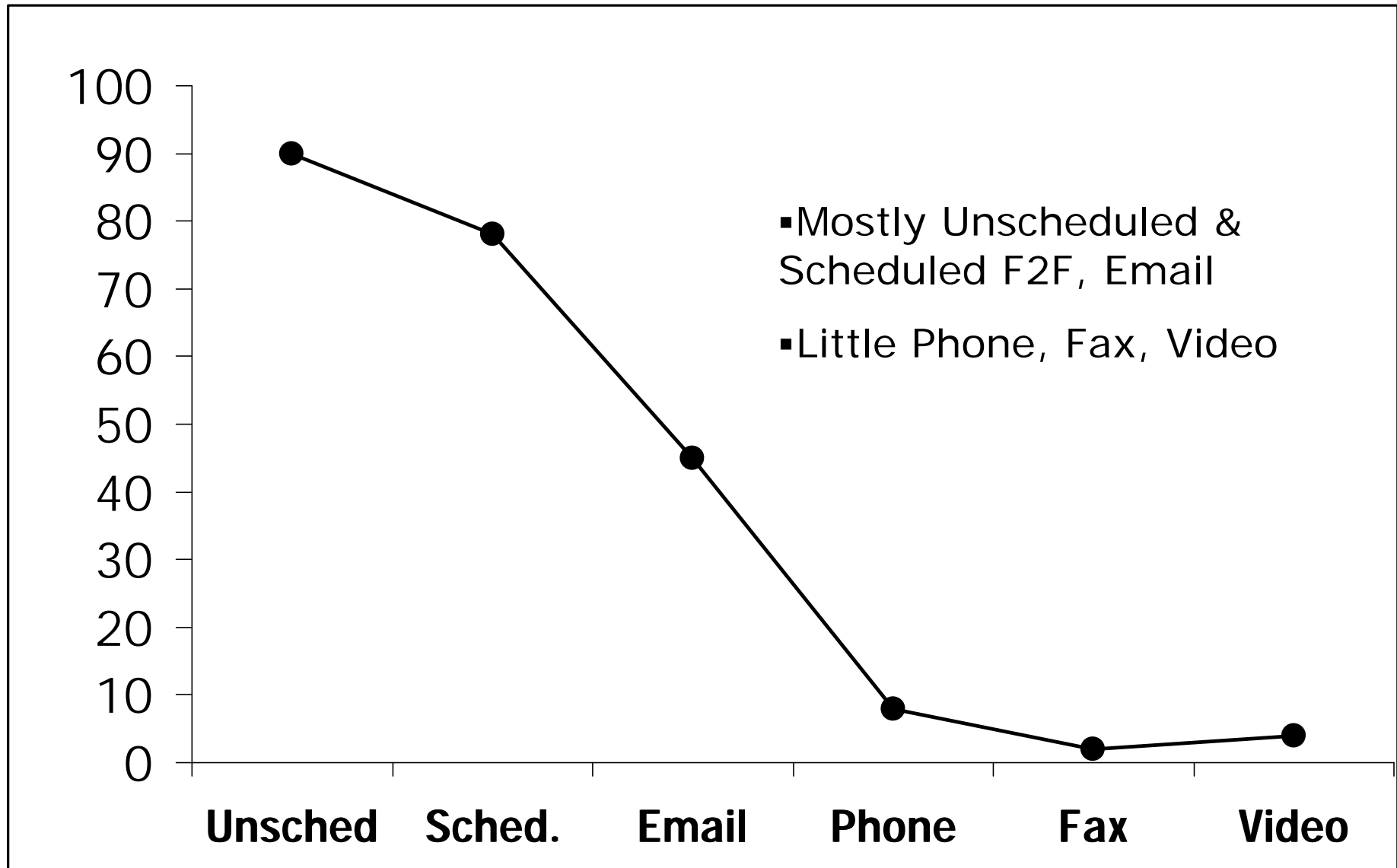   2.95 information exchange links per pair

- **Via one to two media**

- **Giving an average of five information-media links per pair**

    1964 media links / 378 pairs =

    5.20 information-media links per pair
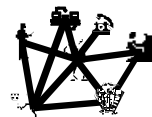
Percentage of Cerise Pairs Using Each Medium

Legend:
- Mostly Unscheduled & Scheduled F2F, Email
- Little Phone, Fax, Video

Y-axis: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100

X-axis categories: Unsched, Sched., Email, Phone, Fax, Video

Cerise: Work Oriented Information Exchange:

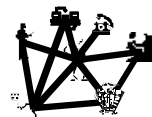Receiving work, giving work, collaborative writing, computer programming

- Media use is characterized by **control**

- Media that allow control of the interaction:
  - Media associated with group norms,
  - Scheduled meetings such as classes and research meetings,
  - Email,
  - Less frequent but more wide-ranging unscheduled meetings.

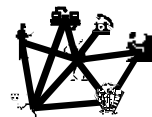## Cerise: Socially-Oriented Information Exchange:

Sociability, major emotional support

- Media use is characterized by **spontaneity**

- Media use followed the interaction pattern of the pair: e.g., unscheduled meetings for close friends; unscheduled, scheduled and email for work-only pairs.

- Messages "piggy-back" on media used to carry work relations, particularly for pairs who interact primarily for work (e.g., work-only pairs; formally tied work pairs).
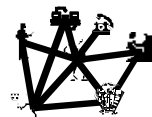
Cerise Email Use

- **Away from Individual Choice, Congruency**
  - Affordances just create possibilities
- **Email Used for Sociability and Support**
  - As well as Instrumental
- **Email Intermixed with Face-to-Face**
  - Temporal as well as spatial distances
- **Email Lowered Status Distances**
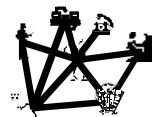
Cerise: Conclusions

- **Frequency of Email Associated with Frequency of In-Person Contact**

- **Strength of Work & Friendship Relationships**

  - Predict to frequency and multiplexity of email independently and about equally

  - Friendship a bit stronger

Cerise Implications:
By All Means Necessary & Proper

1. Technological affordances and normative constraints affect the widespread use of email in preference to telephoning or videoconferencing.

2. Face-to-face contact remains the medium of choice in weaker ties. In stronger ties it is supplemented primarily by email, but also at times by other media.

3. Email is used for affective, sociable relations as well as for instrumental, work relationships.

4. Those in more frequent contact exchange a greater variety of information.

5. The more intense the work relation, the more frequently people communicate, the more types of information exchange they engage in, and the more media they use.
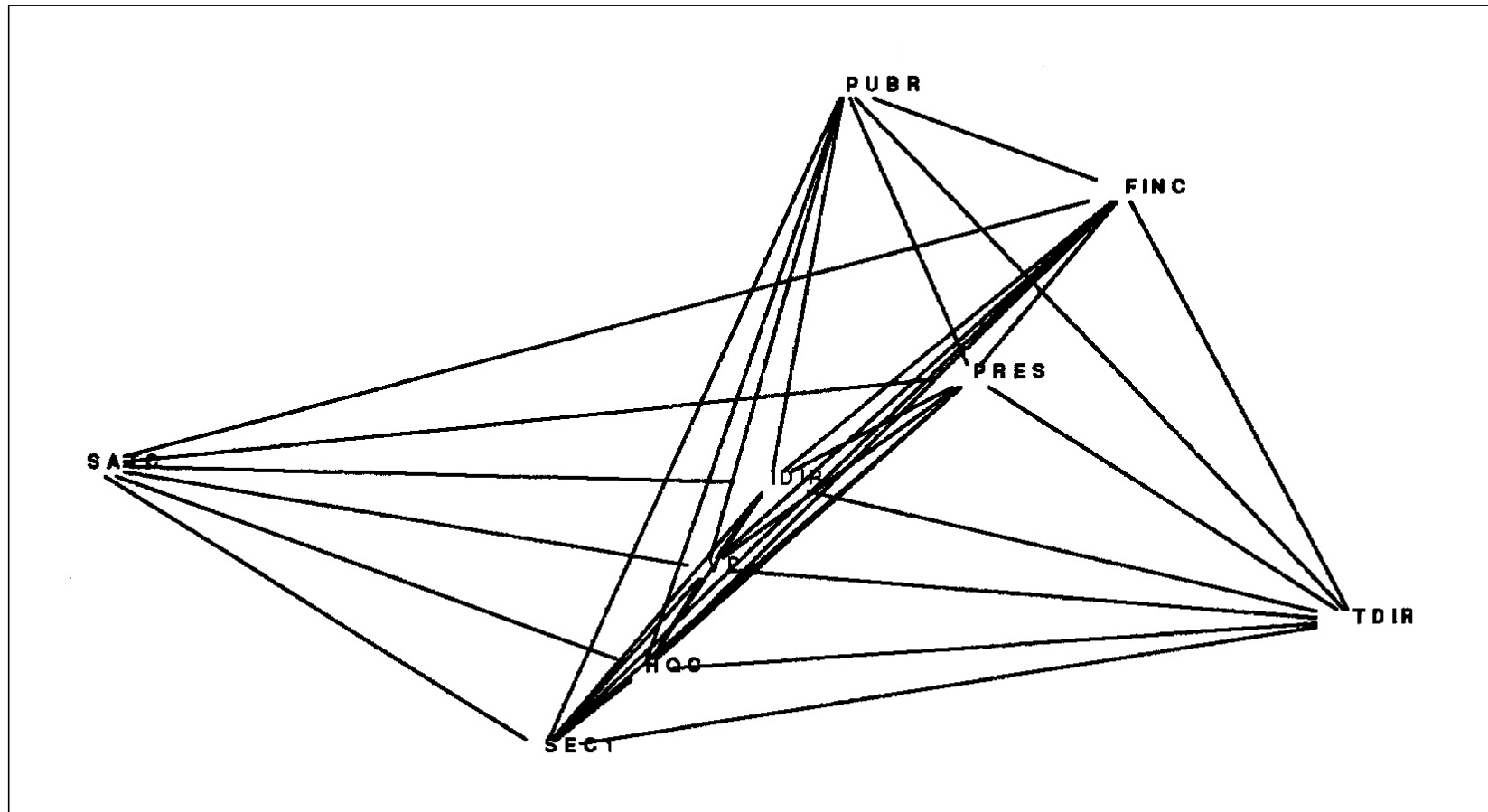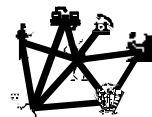
Indigo Work Network

- **Dispersed in Two Cities: 100 Km. Apart**
- Shows Less Centralized Connectivity after the Introduction of Advanced Email and Desktop Videoconferencing
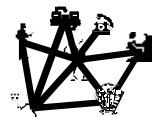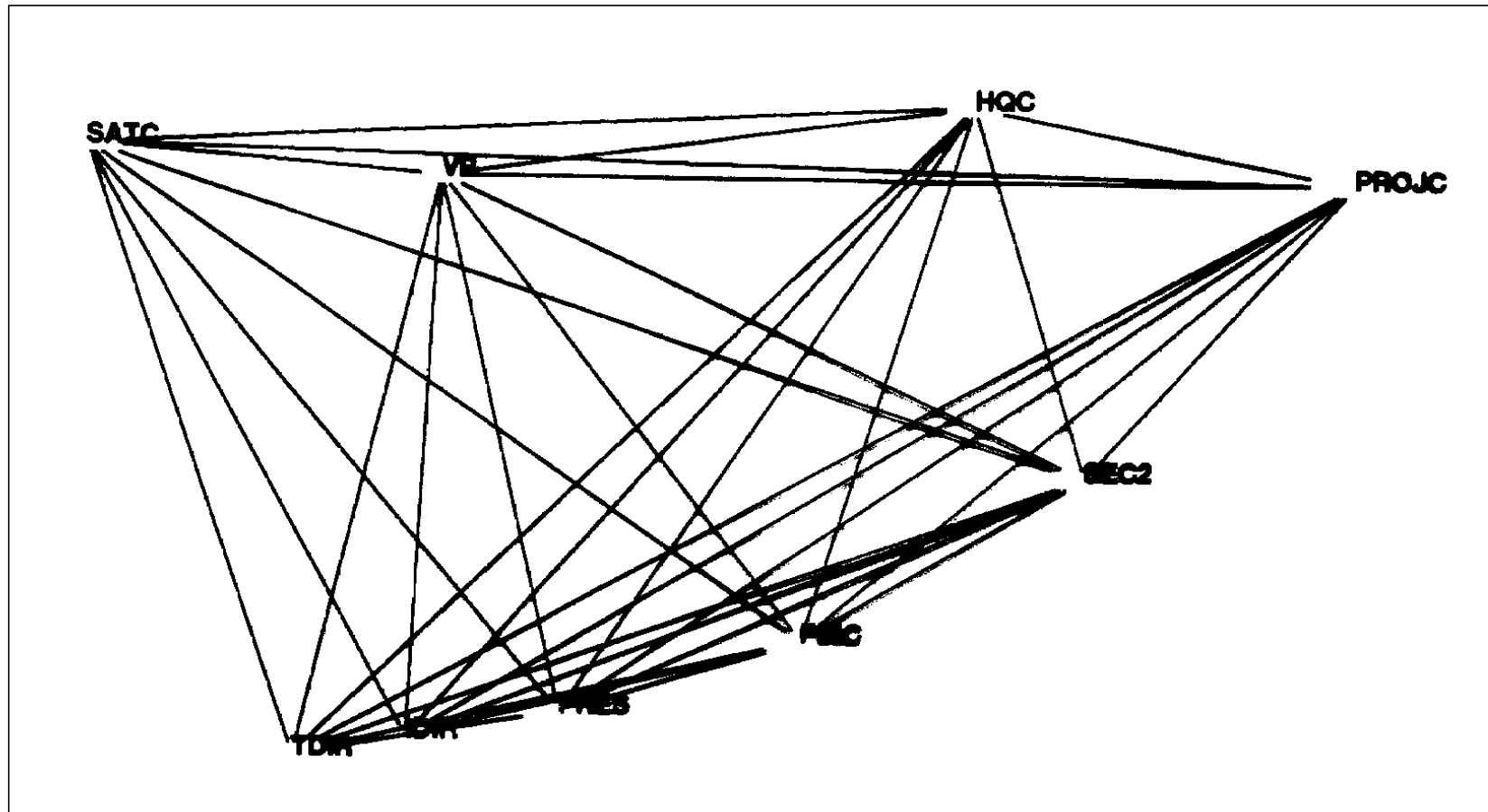
Work Interaction Time 1

Work interaction by all media prior to the introduction of
Telepresence

Work Interaction Time 3 – More Decentralization

Overall Work interaction by all media 14 months after the introduction of Telepresence

Cerise / Indigo Papers

- ✓ **Marilyn Mantei, Ronald Baecker, William Buxton, Thomas Milligan, Abigail Sellen and Barry Wellman. "Experiences in the Use of a Media Space." 1992. Pp 372-78 in** *Groupware: Software for Computer-Supported Cooperative Work*, **edited by David Marca and Geoffrey Bock. Los Alamitos, CA: IEEE Computer Society Press, 1992, pp. 372-78.**

- ✓ **Caroline Haythornthwaite and Barry Wellman, "Work, Friendship and Media Use for Information Exchange in a Networked Organization."** *Journal of the American Society for Information Science* **49, 12 (Oct., 1998): 1101-14**

- ✓ **Caroline Haythornthwaite, Barry Wellman and Laura Garton, "Work and Community Via Computer-Mediated Communication." Pp. 199-226 in** *Psychology and the Internet: Intrapersonal, Interpersonal and Transpersonal Implications,* **edited by Jayne Gackenbach. San Diego: Academic Press,**
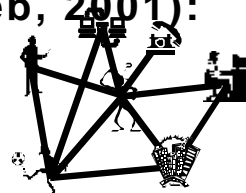
LOOSELY-COUPLED NETWORKED, VIRTUAL ORGANIZATIONS

Scholars are the Harbingers of New Kinds of Work Organization

✓**Emmanuel Koku, Nancy Nazer, Barry Wellman**

"**Netting Scholars: Online and Offline.**"

American Behavioral Scientist, **44, 5** (Feb, 2001): forthcoming

Comparison of Two Scholarly Networks

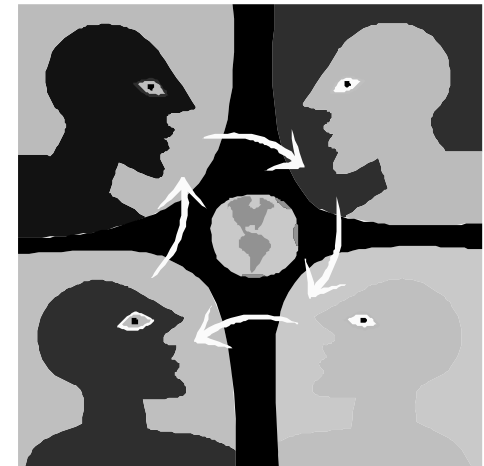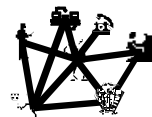|	**Globenet**	**Technet**
Year Founded	■Founded in 1991-93	■Founded in 1995-6
Size	16 (13 men; 3 women)	32 (22 men; 9 women)
Membership	■Invitational: merit, interdisciplinary; niche	■Voluntary
Location	■Canada, US, UK	■ 1 Ontario university
Activities	■ 3 Meetings /year ■Production of a book	■Frequent seminars, conferences ■Joint courses, retreats
Funding	■9 Senior Fellows receive full salaries; 7 associate fellows receive partial funding	■Members not funded by Technet, though many receive other research grants

Focus on Globenet
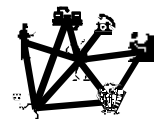
- Globenet members use both means of communication to get their joint projects done. The dispersion of Globenet members across North America (and England) leads them to use email as a collaborative tool.


Barry Wellman

- The total lack of statistical significance (r= -0.01) for distance is substantively interesting.

- For Globenetters, the distance between members of scholarly pairs is unrelated to the frequency of their email contact

Barry Wellman

■ Friendship is the single strongest predictor to face-to-face and email contact in both Technet and Globenet
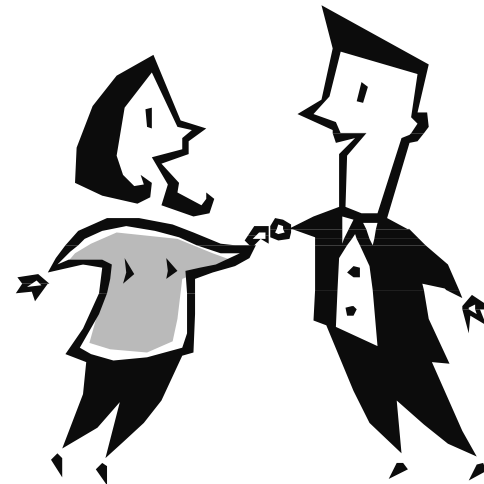
- In Globenet, the scholarly relationship of collaborating on a project is the second strongest predictor of frequent FTF contact and frequent email contact. It and friendship are the only two predictors to be statistically significant. (Haythornthwaite and Wellman, 1997, report similar findings for another scholarly network)

Barry Wellman
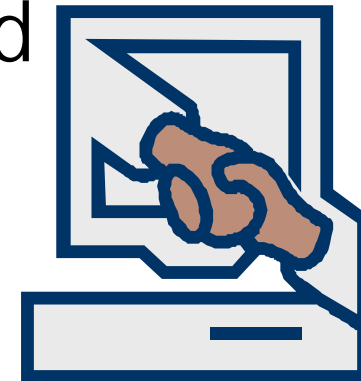
- Congruent with the theories of media use: Tasks requiring complex negotiations are better conducted via richer media such as face-to-face contacts.

- Technet members use FTF contact when possible.

- Email fills in the temporal and informational gaps. Those Technet members who often read each other's work communicate somewhat more frequently by email.

Barry Wellman

- In short, where FTF contact is easily done, it is the preferred medium for collaborative work. However, colleagues now can easily share their ideas and their work – or announce its existence – by email and web postings. They do not have to walk over to each other's offices to do this, although Canadian winters can inhibit in-person visits (see Michelson 1971)

Barry Wellman

# Globenet: Internal and External Predictors to Level of Prominence

	Models	Internal Only		External Only		Combined Model	
	Predictors	Standardized Beta	P-Value	Stand. Beta	P-Value	Stand. Beta	P-Value
I N T E R N A L	**Internal Roles**	**0.70***	**0.04**			**0.60**	**0.17**
	Indegree Friendship	**0.60**	**0.12**			**0.92**	**0.16**
	Read Work	0.47	0.10			-0.08	0.88
	Duration of Membership (log)	0.10	0.69			0.51	0.31
	Fellowship Attainment	-0.11	0.69			-0.32	0.50
	Level of Involvement	-0.40	0.30			-0.33	0.54
	Discuss Work	-0.37	0.18			-0.41	0.23
	Freq. of Scholarly Communication (logged)	-0.04	0.85			-0.01	0.97
E X T E R N A L	**Number of Publications**			**0.33**	**0.60**	**0.49**	**0.41**
	External Positions			**0.21**	**0.52**	**0.47**	**0.28**
	Control of Resources			-0.27	0.45	-0.07	0.85
	Number of Citations			-0.06	0.92	-0.27	0.58
	Constant	0.19				0.01	0.85
	R²	**0.82**				**0.09**	**0.90**
	Adjusted R²	**0.61**				**-0.23**	**0.52**
	**Significant at p<0.01 *Significant at p<0.05						

"Netting Scholars"

✓ **Emmanuel Koku, Nancy Nazer, Barry Wellman**

"Netting Scholars: Online and Offline."

*American Behavioral Scientist*, **44, 5 (Feb, 2001): forthcoming**
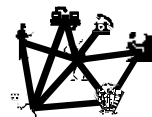
TELEWORKERS
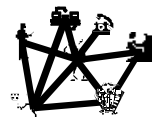
✓Janet Salaff, Barry Wellman and Dimitrina Dimitrova,
"There is a Time and Place for Teleworking."
Pp. 11-31 in *Teleworking Environments: Proceedings of the Third International Workshop on Telework, Sept 1-4*, edited by Reima Suomi, Paul Jackson, Laura Hollmén and Mats Aspnäs.
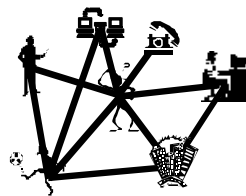Turku, Finland: Turku Center for Computer Science General Publication No. 8, 1998.
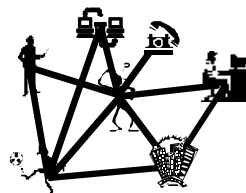
Large Canadian High-Tech Organization

- Many Jobs – Driven by Computer Networks – Can Be Done as Easily at Home

- High-Bandwidth Lore Best Exchanged
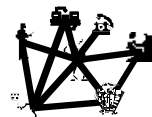
  at Office

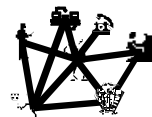- Home-Office Interpenetration

THE RISE OF NETWORKED INDIVIDUALISM

The Turn Towards Networked Individualism

- **Started Before the Turn to Cyberspace, But Accelerated by it**

- **Post World War II**
  - Place to Place communities
  - Household base more important
  - Less solidary groups, neighborhoods, voluntary organizations
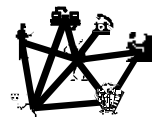 - "Glocalization"

Old Workgroups and Communities Based on Spatial Propinquity

- New communities based on shared interests

- Networked, long-distance business coordination and "reports"

- Computer networks as the driver

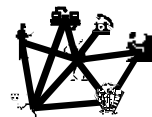- Only 15% of active community ties are in the same neighborhood

Lower Social Density

- **Fewer work and community members are directly and frequently connected**

- **Internet may aid direct connections**

- **Internet aids indirect connections:**

  - **Forwarding, "folding-in"**

Shift to New Kinds of Community

- **Maximum Community Size 1,000 – 1,500**

- **Away from Belonging to Only One Community**
  - Partial membership in multiple communities
  - Internet replaces the telephone, fax

- **Foolish to Look at Online as an Isolated World**
  - Online interactions linked with offline
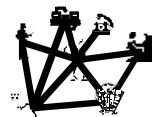
Shift to New Kinds of Workgroups

- **Partial membership in multiple networks**
- **Multiple Reports**
- **Long-Distance Relationships**
- **Transitory work relationships**
  - Interpenetration of face-to-face and computer mediated communication
  - Each person operates their own network
- **Internet Replaces Phone, Fax**
- **Online Interactions Linked with Offline**
  - Status, Power, Social Characteristics Important
- **Need for Institutional Memory & Knowledge Management**
  - e.g. IKNOW (Nosh Contractor) – Network Tracer
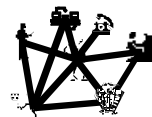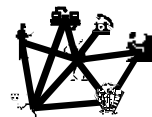
Changing Connectivity

- By Any Means Available

- Person-to-person communities

- Less solidary households

  - Dual careers

  - Multiple schedules

  - Multiple marriages

- Networked and virtual work relationships
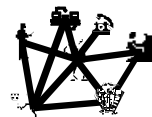
Socially and Spatially Dispersed Ties

Computer-mediated communication can be used to support and maintain existing ties, and not just to form new "virtual communities"

- Being "wired" does not reduce the size of your social circles

- New communication and information technologies have the potential to support both local and non-local social ties
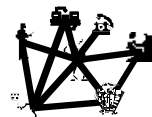
From Whole Person to Role to Role Relationships

- **Partial Communities of specialized shared interest**

- **Importance of informal network capital**
  - Production
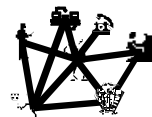 - Reproduction
  - Externalities

- **Bridging and Bonding Ties**

The GloCalization Paradox

- **Surf and Email Globally**
- **Stay Rooted at Office/Home to be Online**
- **Desire for Local Services and Information**
- **CMC Supplements/Augments F2F**
  - Doesn't Replace It
  - CMC Rarely Used Exclusively
  - Media Choice? By Any Means Available
- **Many Emails are local –**

    Within the Workgroup or Community

Individual Agency,
Interpersonal Ties, Social Networks

- **Individual Agency Constrained by Nets:**
  - Personalization rather than Group Behavior

- **Interpersonal Ties Dancing Dyadic Duets:**
  - Bandwidth
  - Sparsely-Knit, Physically-Dispersed Ties

- **Social Networks**
  - Multiple, Ad Hoc
  - Wireless Portability

Living Networked in a Wired World

Thank You -- Barry Wellman

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