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
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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

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 networking - 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
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


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

<table>
<thead>
<tr>
<th>Activities</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unions</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Churches</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td>Neighborhood Groups</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Recreational Groups</td>
<td>25</td>
<td>17</td>
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<tr>
<td>Ethnic-Based Groups</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Kinship Groups</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Child-Centered Groups</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Interest Groups</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Occupation-Based Groups</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Informal Sociability Groups</td>
<td>29</td>
<td>12</td>
</tr>
<tr>
<td>Formal Sociability Groups</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Voluntary Groups</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Other Groups</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Barry Wellman, “Men in Networks” (1992)
Decline in Informal Social Activities

- Annual number of entertaining at home:

- Annual number of picnics:

- 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
Source: Dan Heap (NDP) Parliamentary Campaign 1992
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-INTEGRNET STUDIES OF PERSONAL COMMUNITIES

From “Little Boxes” (Solidary Communities”) to
Ramified Networks
(Communities Liberated from Space and Groups)
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

“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

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”: 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**

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>2.59</td>
</tr>
<tr>
<td><strong>Connected to the network</strong> <strong>20.93</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>9.79</td>
</tr>
<tr>
<td>Female*Wired</td>
<td>-12.04</td>
</tr>
<tr>
<td>Number of emails sent per month</td>
<td><strong>-0.08</strong></td>
</tr>
<tr>
<td>Number of emails received per month</td>
<td><strong>0.04</strong></td>
</tr>
<tr>
<td>High school or less = reference</td>
<td></td>
</tr>
<tr>
<td>Some post-secondary</td>
<td>11.64</td>
</tr>
<tr>
<td>College diploma</td>
<td>7.58</td>
</tr>
<tr>
<td>University degree</td>
<td>-1.41</td>
</tr>
</tbody>
</table>

*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:**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>ANOVA F</th>
<th>Sig.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wired</td>
<td>25.5</td>
<td>18.6</td>
<td>4</td>
<td>88</td>
<td>16.2</td>
<td>.000</td>
<td>37</td>
</tr>
<tr>
<td>Non-Wired</td>
<td>8.4</td>
<td>4.6</td>
<td>1</td>
<td>18</td>
<td></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>
### Neighborhood Ties - Number

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

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>ANOVA F</th>
<th>Sig.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wired</td>
<td>6.3</td>
<td>7.1</td>
<td>0</td>
<td>36</td>
<td>3.8</td>
<td>.056</td>
<td>37</td>
</tr>
<tr>
<td>Non-Wired</td>
<td>3.1</td>
<td>3.0</td>
<td>0</td>
<td>11</td>
<td></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>
# Neighborhood Ties - Number

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

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>ANOVA F</th>
<th>Sig.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wired</td>
<td>3.9</td>
<td>4.2</td>
<td>0</td>
<td>16</td>
<td>1.3</td>
<td>2.55</td>
<td>37</td>
</tr>
<tr>
<td>Non-Wired</td>
<td>2.7</td>
<td>3.0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
<td>20</td>
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</tbody>
</table>
### Neighborhood Ties - Number

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

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>ANOVA F</th>
<th>Sig.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wired</td>
<td>3.9</td>
<td>3.6</td>
<td>0</td>
<td>17</td>
<td>2.3</td>
<td>.136</td>
<td>37</td>
</tr>
<tr>
<td>Non-Wired</td>
<td>2.5</td>
<td>2.8</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>
# Neighborhood Ties - Dispersion

Distance Between Local Ties Recognized by Name:

<table>
<thead>
<tr>
<th># of Lots to Neighbor</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>ANOVA F</th>
<th>Sig.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wired</td>
<td>7.5</td>
<td>3.7</td>
<td>1.8</td>
<td>16</td>
<td>3.3</td>
<td>.075</td>
<td>37</td>
</tr>
<tr>
<td>Non-Wired</td>
<td>5.6</td>
<td>3.6</td>
<td>1.3</td>
<td>15</td>
<td>3.3</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>
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.
Glocalization - Personal Networks

Time 1. Personal network prior to living in Netville

Time 2. Personal network after living in Netville

<table>
<thead>
<tr>
<th>Face-to-face</th>
<th>Phone</th>
<th>Postal Mail</th>
<th>Fax</th>
<th>Email</th>
</tr>
</thead>
</table>

Diagram showing changes in personal networks due to living in Netville.
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

<table>
<thead>
<tr>
<th>Type of Internet Activity</th>
<th>Relatives living within 30 miles</th>
<th>Friends living within 30 miles</th>
<th>Relatives living beyond 30 miles</th>
<th>Friends living within 30 miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Send/Receive Email</td>
<td>.116</td>
<td>.227</td>
<td>.217</td>
<td>.245</td>
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<tr>
<td>Web Surfing</td>
<td>.038</td>
<td>.048</td>
<td>-.003*</td>
<td>.016</td>
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<tr>
<td>Gender</td>
<td>-.046</td>
<td>-.032</td>
<td>-.093</td>
<td>-.064</td>
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<tr>
<td>Education</td>
<td>-.046</td>
<td>.015</td>
<td>.099</td>
<td>.079</td>
</tr>
<tr>
<td>Age</td>
<td>.077</td>
<td>-.097</td>
<td>.039</td>
<td>-.116</td>
</tr>
<tr>
<td>Months of Internet Use</td>
<td>-.013</td>
<td>.019</td>
<td>.009</td>
<td>.048</td>
</tr>
<tr>
<td>R²</td>
<td>.023</td>
<td>.077</td>
<td>.073</td>
<td>.102</td>
</tr>
</tbody>
</table>

Note: Everything Significant at .05 except the *item
### E-mail Use by Mean Annual Communication Within 30 Miles (50 Km)

<table>
<thead>
<tr>
<th></th>
<th>Kin</th>
<th></th>
<th>Friends</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F2F</td>
<td>Phone</td>
<td>Letters</td>
</tr>
<tr>
<td>Never</td>
<td>77</td>
<td>119</td>
<td>6</td>
</tr>
<tr>
<td>Rarely</td>
<td>63</td>
<td>115</td>
<td>6</td>
</tr>
<tr>
<td>Monthly</td>
<td>61</td>
<td>112</td>
<td>6</td>
</tr>
<tr>
<td>Weekly</td>
<td>52</td>
<td>120</td>
<td>6</td>
</tr>
<tr>
<td>A Few Times/wk</td>
<td>53</td>
<td>114</td>
<td>7</td>
</tr>
<tr>
<td>Daily</td>
<td>60</td>
<td>118</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>117</td>
<td>7</td>
</tr>
</tbody>
</table>
### E-mail Use by Mean Annual Communication Beyond 30 Miles (50 Km)

<table>
<thead>
<tr>
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<th>Kin</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>F2F</td>
<td>Phone</td>
</tr>
<tr>
<td>Never</td>
<td>12</td>
<td>37</td>
</tr>
<tr>
<td>Rarely</td>
<td>10</td>
<td>36</td>
</tr>
<tr>
<td>Monthly</td>
<td>9</td>
<td>35</td>
</tr>
<tr>
<td>Weekly</td>
<td>9</td>
<td>36</td>
</tr>
<tr>
<td>A Few Times/wk</td>
<td>10</td>
<td>39</td>
</tr>
<tr>
<td>Daily</td>
<td>10</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>41</td>
</tr>
</tbody>
</table>

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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

<table>
<thead>
<tr>
<th></th>
<th>Berkeley</th>
<th>Bay Area</th>
<th>USA</th>
<th>World</th>
<th>Row %</th>
<th>Row N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal – single</td>
<td>41%</td>
<td>30%</td>
<td>18%</td>
<td>11%</td>
<td>18</td>
<td>44</td>
</tr>
<tr>
<td>Informal – Multiple</td>
<td>61</td>
<td>19</td>
<td>17</td>
<td>3</td>
<td>15</td>
<td>36</td>
</tr>
<tr>
<td>Formal – Single</td>
<td>65</td>
<td>23</td>
<td>3</td>
<td>10</td>
<td>13</td>
<td>31</td>
</tr>
<tr>
<td>Formal – Multiple</td>
<td>96</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>28</td>
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<tr>
<td>Lists</td>
<td>52</td>
<td>10</td>
<td>32</td>
<td>7</td>
<td>42</td>
<td>104</td>
</tr>
<tr>
<td>Spam</td>
<td>20</td>
<td>0</td>
<td>60</td>
<td>20</td>
<td>2</td>
<td>5</td>
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<tr>
<td>Column %</td>
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<td>15</td>
<td>21</td>
<td>7</td>
<td>100</td>
<td></td>
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<tr>
<td>Column N</td>
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<td>38</td>
<td>51</td>
<td>17</td>
<td></td>
<td>248</td>
</tr>
</tbody>
</table>

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 high 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


“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

<table>
<thead>
<tr>
<th>Work Tie</th>
<th>Friendship Tie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal</td>
<td>Close Friend</td>
</tr>
<tr>
<td>Informal</td>
<td>Friend</td>
</tr>
<tr>
<td>Non-working</td>
<td>Acquaintance</td>
</tr>
<tr>
<td></td>
<td>Work only</td>
</tr>
</tbody>
</table>

- Formal: 3
- Informal: 10
- Non-working: 2
- Close Friend: 2
- Friend: 7
- 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
Mostly Unscheduled & Scheduled F2F, Email
Little 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 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


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.”
## Comparison of Two Scholarly Networks

<table>
<thead>
<tr>
<th></th>
<th><strong>Globenet</strong></th>
<th><strong>Technet</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year Founded</strong></td>
<td>Founded in 1991-93</td>
<td>Founded in 1995-6</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>16 (13 men; 3 women)</td>
<td>32 (22 men; 9 women)</td>
</tr>
<tr>
<td><strong>Membership</strong></td>
<td>Invitational: merit, interdisciplinary; niche</td>
<td>Voluntary</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Canada, US, UK</td>
<td>1 Ontario university</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>3 Meetings / year&lt;br&gt;Production of a book</td>
<td>Frequent seminars, conferences&lt;br&gt;Joint courses, retreats</td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td>9 Senior Fellows receive full salaries; 7 associate fellows receive partial funding</td>
<td>Members not funded by Technet, though many receive other research grants</td>
</tr>
</tbody>
</table>
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.
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.
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)
- 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.
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).
## Globenet: Internal and External Predictors to Level of Prominence

<table>
<thead>
<tr>
<th>Models</th>
<th>Predictors</th>
<th>Internal Only</th>
<th>External Only</th>
<th>Combined Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>** internal and external predictors **</td>
<td>** Predictors **</td>
<td>** Standardized Beta **</td>
<td>** P-Value **</td>
<td>** Stand. Beta **</td>
</tr>
<tr>
<td>Internal Roles</td>
<td>0.70*</td>
<td>0.04</td>
<td></td>
<td>0.60</td>
</tr>
<tr>
<td>Indegree Friendship</td>
<td>0.60</td>
<td>0.12</td>
<td></td>
<td>0.92</td>
</tr>
<tr>
<td>Read Work</td>
<td>0.47</td>
<td>0.10</td>
<td></td>
<td>-0.08</td>
</tr>
<tr>
<td>Duration of Membership (log)</td>
<td>0.10</td>
<td>0.69</td>
<td></td>
<td>0.51</td>
</tr>
<tr>
<td>Fellowship Attainment</td>
<td>-0.11</td>
<td>0.69</td>
<td></td>
<td>-0.32</td>
</tr>
<tr>
<td>Level of Involvement</td>
<td>-0.40</td>
<td>0.30</td>
<td></td>
<td>-0.33</td>
</tr>
<tr>
<td>Discuss Work</td>
<td>-0.37</td>
<td>0.18</td>
<td></td>
<td>-0.41</td>
</tr>
<tr>
<td>Freq. of Scholarly</td>
<td>-0.04</td>
<td>0.85</td>
<td></td>
<td>-0.01</td>
</tr>
<tr>
<td>Communication (logged)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Publications</td>
<td>0.33</td>
<td>0.60</td>
<td>0.49</td>
<td>0.41</td>
</tr>
<tr>
<td>External Positions</td>
<td>0.21</td>
<td>0.52</td>
<td>0.47</td>
<td>0.28</td>
</tr>
<tr>
<td>Control of Resources</td>
<td>-0.27</td>
<td>0.45</td>
<td>-0.07</td>
<td>0.85</td>
</tr>
<tr>
<td>Number of Citations</td>
<td>-0.06</td>
<td>0.92</td>
<td>-0.27</td>
<td>0.58</td>
</tr>
<tr>
<td>Constant</td>
<td>0.19</td>
<td>0.01</td>
<td></td>
<td>0.85</td>
</tr>
<tr>
<td>** R²</td>
<td>0.82</td>
<td></td>
<td>0.09</td>
<td>0.90</td>
</tr>
<tr>
<td>** Adjusted R²</td>
<td>0.61</td>
<td>-0.23</td>
<td>0.52</td>
<td></td>
</tr>
</tbody>
</table>

** Significant at p<0.01  
* Significant at p<0.05
“Netting Scholars”

✓ Emmanuel Koku, Nancy Nazer, Barry Wellman

“Netting Scholars: Online and Offline.”

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”

Barry Wellman

www.chass.utoronto.ca/~wellman

14 Sept 00
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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