SOCIAL NETWORKS AND SCIENTIFIC RESEARCH AND CAREERS

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Overview

- Social Networks 101: The language of social networks
- Social networks and the success of groups and organizations
- Social networks and individuals’ advancement
- Special issues for women in male-dominated fields
- Networks and effective disaster mitigation and preparation
Social Networks

• Patterns of social relationships
• Connect social units (nodes)
• Connections are called social ties
• Occur at level of individuals, groups or organizations, and communities
Network Terminology

- Strong ties
- Weak ties
- Density
- Extensivity
- Reciprocity
- Social Capital
- Opportunities and constraints
Social Networks and the Success of Groups and Organizations

- **Importance of**
  - Extensive networks
  - Reciprocal ties

- **Promote**
  - Trust
  - Information
  - Cooperation, competition, & joint gains
Individuals’ Career Advancement: Weak and Strong Ties
Women’s Professional Networks in Male Dominated Fields

- Less extensive than men’s
- Less diverse than men’s
- Less likely to include mentors and role models
- Less often in strategic locations
- All are factors important for success
Using Networks to Enhance Career Development

• Extensive ties
• Diverse ties
• Strong ties
• Weak ties
• Mentoring
• Finding right approach for one’s personality and needs
### Social Networks and Effective Mitigation and Preparation

- Fatalities from disasters largely unrelated to magnitude \( r = .10 \)

<table>
<thead>
<tr>
<th>Site and Year</th>
<th>Magnitude</th>
<th>Fatalities</th>
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<tbody>
<tr>
<td>Northridge, 1994</td>
<td>6.7</td>
<td>51</td>
</tr>
<tr>
<td>Haiti, 2010</td>
<td>7.0</td>
<td>170,000</td>
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<tr>
<td>Loma Prieta, 1989</td>
<td>7.1</td>
<td>63</td>
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<tr>
<td>South Asia, 2005</td>
<td>7.6</td>
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<td>Chile, 2010</td>
<td>8.8</td>
<td>900</td>
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<td>Indian Ocean, 2004</td>
<td>9.0</td>
<td>185,000</td>
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<tr>
<td>Japan, 2011</td>
<td>9.0</td>
<td>15,000</td>
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Social Vulnerability

• “…the degree to which societies or socio-economic groups are affected by stresses and hazards, whether brought about by external forces or intrinsic factors – internal and external – that negatively impacts the social cohesion of a country”

• Risk of harm = hazard strength + vulnerability

• Strong social networks (at individual, community, and global level) promote resiliency (lessen vulnerability)

• Poor individuals and nations most at risk, for least likely to have the social cohesion and social networks needed for resiliency
Interlocking Levels of Analysis

• Individual network characteristics impact organizational and global networks and vice versa
• Strengthening one’s own networks benefits one’s community and nation
• Strengthening a community’s and nation’s networks benefits the individuals