Getting a Second Opinion: Social Capital, Digital Inequalities, and Health Information Repertoire

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“I am feeling lucky”
Health Information Literature

(Social Science Citation Index & Conference Proceedings Citation Index- Social Science & Humanities, 1957-2013)
Knowledge Gaps

- **Active** search via single, specific medium
Knowledge Gaps & Theoretical Framework

- Social Capital
- Digital Inequalities
- Media Access

Health
- Information Repertoire
- Participatory Behaviors
  - Outcomes
Advancing a Repertoire approach

- **Repertoire**: a set of behaviors, skills, tactics, or work that an actor regularly performs.
  - **Cultural repertoire**
    - the array of cultural tastes, knowledge, activities or resources
    - high-status people have shifted from culture snobs specialized in high culture to omnivores with a diverse cultural repertoire
    - low-status people tend to be univores with limited cultural repertoire (Bourdieu, 1984, 1986; Bryson, 1996; Peterson & Kern, 1996)
  - **Channel, information, or media repertoire**
    - the volume and composition of media consumption (Reagan, 1996; Taneja, Webster, Malthouse, & Ksiazek, 2012; Yuan, 2011)

- **Health information repertoire, omnivores, and univores**
  - the volume and composition of health information sources
  - univores: people depend on one single source of health information
  - omnivores: those draw on multiple sources of health information
Social Capital

- Membership
- Resources
- Structure

Causes/Sources

- Information
- Influence
- Identity
- Integration

Mechanisms

- Capitals
- Mobilities
- Development
- Social change

Impacts

Theorized as individuals’ investment in social relations for instrumental or expressive returns, social capital affects both health (Cobb 1976; Ferlander, 2007) and information behaviors (Burt, 1992; Granovetter, 1973).
Social capital

• People with diverse, resource-rich networks are healthier (Hawe & Shiell, 2000; Kawachi, Subramanian, & Kim, 2008).
• Networks are channels of information and resources.
  – **Social support** shields people from stressors or helps them cope better (Cobb 1976; Thoits, 2010).
  – **Social reinforcement** encourages the adoption of new health practice (Centola, 2010).
  – Better-connected people have **informational advantage** as they gain timely access to fresh, high-quality, and fine-grained information faster and earlier than less connected people (Burt, 1992; 2004; Granovetter, 1973; Podolny, 1993; Uzzi, 1996).
  – People with more social capital receive more job information via **informal social interactions** (Granovetter, 1973; Son, 2013).
• Diverse network contacts require and facilitate a diverse cultural repertoire (DiMaggio, 1987; Erickson, 1996).
• Few studies followed the calls for more research on **relational factors** that may affect health information behaviors (Anker et al., 2011; Savolainen, 1995; Spink & Cole, 2006).
  – Embedded resource in people’s **core discussion networks** is related to the total number of sources and the frequency of information search from interpersonal and online sources (Song and Chang, 2012)
Digital Inequalities: Access, Use and Skills

- Differential access to and use of the Internet and other ICTs

- Without Internet, online health information search would be difficult

- General internet use in terms of time or frequency is related to the likelihood or the frequency of online health information search (Atkinson, Saperstein, & Pleis, 2009; Renahy, Parizot, & Chauvin, 2010; Rice, 2006).
  - Yet, recent study suggest that frequent Internet use is not related to online health information search (Mesch, Mano, & Tsamir, 2012).

- People who lack Internet skills have difficulties to search, evaluate, and utilize online health information (Dobransky & Hargittai, 2012; Morahan-Martin, 2004; Skinner, Biscope, & Poland, 2003).
Interaction between social & digital connectivity

• mutually reinforcing
  – Social capital affects whether people access the Internet and how they use the Internet as people gain motivations and skills from network contacts (Chen, 2013; DiMaggio et al., 2001).
  – Internet use enhances social capital via facilitating information sharing, relationship maintenance, and the deployment and exploration of interpersonal networks (DiMaggio & Bonikowski, 2008).

• Functional alternative
  – Lacking social capital, people are motivated to use online health information (Mesch et al., 2012).
  – Lacking Internet access or skills, people rely on interpersonal sources for health information (Kukafa, 2008; Nagler et al., 2010).
  – People may use social capital to compensate for their lack of Internet access or skills or vice versa.
Mass Media

• A high amount of traditional mass media use, TV watching in particular, is associated with unhealthy lifestyle and poorer health (American Academy of Pediatrics, 2011; Mathers et al., 2009; Sidney et al., 1998).

• Yet, mass media such as television, radio, print, or outdoor media can serve as useful channels for health information to a large number of audience, although the attention varies by medium (Viswanath & Ackerson, 2011).

• Users deploy multiple modes or channels of communication across media platforms, to accomplish instrumental or expressive goals (Dutta-Bergman, 2004; Haythornthwaite & Wellman, 1998).
User Characteristics

• Socioeconomic status (SES, e.g., education, income, or class), race, and gender affect how people obtain information from the Internet, interpersonal and mass media sources (Dutta-Bergman, 2004; Savolainen, 1995).

• Online source
  – The Internet has become the first stop of health information search for the better educated (Koch-Weser, Bradshaw, Gualtieri, & Gallagher, 2010).
  – Recent studies show a diminishing significance of SES to online health information search (Dobransky & Hargittai, 2012; Mesch et al., 2012; Renahy et al., 2010).

• Interpersonal source
  – People with low SES and minorities tend to rely more on family and friends than on health professionals due to limited access to formal health care (Kontos et al., 2011; Smith et al., 2009).

• Mass media source
  – Minorities are more likely to pay attention to health information from mass media such as television or radio, while better educated people tend to pay more attention to health information from the print media and the Internet (Viswanath & Ackerson, 2011).
Model
Data & Method

• The Austin Internet and Global Citizens Survey
• A core sample of 12,000, plus 3,000 oversample of individuals in NE, E, and SE Austin. Selected households were stratified by geographic location, race and income level. Within each household, only current residents aged 18 or older were eligible.
• **Paper and pencil survey, Nov 2010- Jan 2011**
• 11% response rate (AAPOR’s RR2)
• An overrepresentation of women, white, elderly, and better educated
  — The weighting procedure adjusts the demographic distribution of the sample as close as to the Austin general population parameters based on the 2010 Census and the 2009 American Community Survey.
• The analysis sample included 1569 respondents (and 1368 Internet users)
Q: From which sources do you get information about health or medical issues?

The size of health information repertoire:
64% respondents use two or more sources!
The composition of health information repertoire
Top 5 repertoires represent about 60% of the respondents
Methods

• Independent variables
  o Social capital
  o Internet access, Internet use, and Internet skills
  o Media access
  o Socio-demographics: Gender, age, race, civic status, immigrant status, # of children, & education

• Analysis
  o Poisson regression & logistic regression analyses
Social capital (the position generator)

- Asks the respondent whether he/she knows someone who holds one occupation from a list of selected occupations.
- The list of occupations is sampled as followed:
  1) ranking all occupations in the U.S. Census by occupational prestige scores,
  2) grouping the occupations at equal intervals,
  3) selecting the occupations with the most occupants in each group.
- **16 occupations, adapted from a list of 22 occupations developed and tested by Lin and colleagues (Lin, Fu, & Hsung, 2001).**
  - The occupations are nurse, farmer, lawyer, middle school teacher, full-time babysitter, janitor, personnel manager, hairdresser, bookkeeper, production manager, operator in a factory, computer programmer, taxi driver, professor, police officer, and CEO of a large company.
Internet access, use and skills

• Internet access was dichotomous, coded as 1 if respondents had access to the Internet and 0 otherwise.

• The frequency of Internet use was measured by the sum score of 12 items on how often the respondents used the Internet to read or send email, play online games, buy a product online, pay bills online, discuss politics, listen to music or radio, watch videos, read a blog, comment on a blog, participate in a discussion forum, use social networking sites, and visit a virtual world. The items were measured by a 1-5 point scale (1=never to 5=daily) and had a Cronbach’s α of 0.84. As the distribution of this variable was skewed, its square root term was used as suggested by the ladder procedure in Stata.

• Internet skills were measured by the sum score of seven items on how much the respondents agreed with statements on their Internet skills: uploading content (ex. videos, photos, music) to a website, blocking spam or unwanted content, adjusting one’s privacy settings on a website, bookmarking a website or adding a website to one’s list of favorites, comparing different sites to verify the accuracy of information, creating and managing one’s own personal profile on a social networking site, and creating and managing one’s own personal website. The items were measured by a 1-5 point scale (1=strongly disagree to 5=strongly agree) and the Cronbach’s α was 0.90.
## Size of health info repertoire

<table>
<thead>
<tr>
<th></th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Capital</td>
<td>(+)***</td>
</tr>
<tr>
<td>Internet Access</td>
<td>(+)**</td>
</tr>
<tr>
<td>Newspaper Subscription</td>
<td>(+)**</td>
</tr>
<tr>
<td>Cell Phone Ownership</td>
<td>(+)* Internet users only</td>
</tr>
<tr>
<td>Social Capital*Internet Skills</td>
<td>(-)** Internet users only</td>
</tr>
</tbody>
</table>

Note: $p^{***}<.001$, $p^{**}<.01$, $p^{*}<.05$
### Health information univores

<table>
<thead>
<tr>
<th></th>
<th>Interpersonal</th>
<th>Internet</th>
<th>TV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Capital</td>
<td>(-)***</td>
<td>(-)*</td>
<td></td>
</tr>
<tr>
<td>Internet Access</td>
<td></td>
<td></td>
<td>(-)*</td>
</tr>
<tr>
<td>Newspaper Subscription</td>
<td></td>
<td>(-)*</td>
<td></td>
</tr>
<tr>
<td>Cable TV Subscription</td>
<td>(+)*</td>
<td></td>
<td>(-)**</td>
</tr>
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- p***<.001, p**<.01, p*.05;
- 2-channel: Internet + Interpersonal, 4-channel: Internet + Interpersonal + TV + Newspaper

### Health information omnivores

<table>
<thead>
<tr>
<th></th>
<th>2-Channel</th>
<th>4-Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of Internet Use</td>
<td></td>
<td>(+)*</td>
</tr>
</tbody>
</table>
## Sociodemographic Variations

<table>
<thead>
<tr>
<th></th>
<th>Size</th>
<th>Univore</th>
<th>Omnivore</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Interpersonal</td>
<td>Internet</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (ref: 18-24)</td>
<td></td>
<td>&gt;=45 (+)*</td>
<td></td>
</tr>
<tr>
<td>Race (ref: White)</td>
<td>O (+)**</td>
<td>AA (+)*</td>
<td></td>
</tr>
<tr>
<td>Immigrant</td>
<td>(-)**</td>
<td>(+)***</td>
<td></td>
</tr>
<tr>
<td>Civic status</td>
<td></td>
<td>Divorced (+)*</td>
<td>Single (+)***</td>
</tr>
<tr>
<td>children&lt;=18</td>
<td></td>
<td>(+)*</td>
<td></td>
</tr>
<tr>
<td>Education (ref: &lt;= High school)</td>
<td></td>
<td></td>
<td>College (-)*</td>
</tr>
</tbody>
</table>

Note: p***<.001, p**<.01, p*<.05; AA=African American, H=Hispanic, O=Other race
Conclusions

• The repertoire approach can better capture the complicated and nuanced pattern of health information behaviors than the one-medium-at-a-time approach.
  – Two-thirds of the respondents are omnivores, while only 30% are univores.

• The findings sheds light on the relationship between social capital and health information repertoire
  – Social capital is associated with larger repertoire and a smaller likelihood of being univores.
  – Greater network resources are related to a greater number of health information sources.
  – Better-connected people tend to be omnivores with a greater cultural repertoire while less connected people tend to be univores with a limited cultural repertoire.
Conclusions

• Digital inequalities: Health information repertoires are structured by Internet access, use, and skills structure.
  – Internet access, more skilled internet users, and more frequent internet users are related to larger health information repertoire, a greater likelihood of being omivores, and a smaller likelihood of being univores.
  – There is a compensating relationship between the Internet and interpersonal sources.

• Health information repertoire varies by media access and socio-demographic characteristics
  – Newspaper and cable TV subscribers are more likely to be omivores.
  – Better education is associated with a smaller likelihood of being a univore and a greater likelihood of being an omnivore.
  – Young people and Hispanics are more likely to be health information omivores. Yet, immigrants and African Americans are more likely to be health information univores.