Socio-ecological structure and privacy concern on Facebook

The role of relational mobility

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Why are there societal differences in privacy concern on Facebook?
Background

Krasnova & Veltri (2010)

In terms of individualism, Germany < USA

Thomson & Ito (2012)
Baker & Ota (2011)
Takahashi (2010)

Individualistic cultural values

a stronger sense of personal rights

less accepting of privacy invasions

FB Privacy Concern

USA
Ger

Claim

Background Socio-ecological structure and online privacy concern 2
Background

• Classic cultural psychology perspective
  • Internalized cultural values shape behavior and psychological processes (e.g., Hofstede, 1980; Markus & Kitayama, 1991; Triandis, 1995)

• Including privacy concern
  • Informational privacy concern in organizations (Milberg et al., 1995, 2000)
  • Consumer privacy concern (Bellman et al., 2004)
  • Privacy concern and instant messaging (Cao & Everard, 2008)
Background

- **Socio-ecological approach** (Oishi & Graham, 2010; Nisbet & Cohen, 1996)
  
  - Behavior-as-adaptation perspective
  
  - Humans respond to social structural incentives, motivated to increase ‘fit’
  
  - Example ↓
Relational mobility

The degree to which there are opportunities to form new or sever current relationships in a society or social context (Falk et al., 2009; Schug et al., 2009, 2010; Sznycer et al., 2012; Wang & Leung, 2010; Yuki et al., 2007)

<table>
<thead>
<tr>
<th>Relational Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
</tr>
<tr>
<td>Nth. America</td>
</tr>
<tr>
<td>Opportunities for forming new relationships</td>
</tr>
<tr>
<td>Ease of forming/leaving relationships</td>
</tr>
</tbody>
</table>
Background

• How does relational mobility affect behavior?
  • Example: self-disclosure (Schug et al., 2010)
  • East Asians less likely to self-disclose than North Americans – why?
    • In high RMob environments, self disclosure is adaptive, affords relational opportunity
      • Self disclosure increases liking and intimacy (Altman & Taylor, 1973)
      • Stabilizes otherwise unstable relationships
    • In low RMob environments, self disclosure is risky
      • Self disclosure also courts rejection (Yamagishi et al., 2008)
      • Rejection in low relational mobility environments is costly (Yamagishi et al., 2008)
Background

Relational mobility

LOW

Self disclosure

Relational \textit{risk}

Desire to control self-disclosure on Facebook

\textbf{High} Facebook Privacy Concern

HIGH

Self disclosure

Relational \textit{opportunity}

Less need to control self-disclosure on Facebook

\textbf{Low} Facebook Privacy Concern
Multilevel Model

Level 2
Contextual factor

Level 1
Individual factor

Individual’s Facebook Privacy Concern

Relational Mobility

Gender, cultural values etc

HYPOTHESIS
Method

Participants (Facebook Users)

<table>
<thead>
<tr>
<th>Country</th>
<th>N</th>
<th>M (age)</th>
<th>Survey Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>156</td>
<td>32.8</td>
<td>English</td>
</tr>
<tr>
<td>New Zealand</td>
<td>102</td>
<td>30.5</td>
<td>English</td>
</tr>
<tr>
<td>Japan</td>
<td>101</td>
<td>30.1</td>
<td>Japanese</td>
</tr>
<tr>
<td>Nigeria</td>
<td>100</td>
<td>26.9</td>
<td>English</td>
</tr>
<tr>
<td>India</td>
<td>97</td>
<td>28.2</td>
<td>English, Hindi</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>71</td>
<td>25.1</td>
<td>English</td>
</tr>
<tr>
<td>Morocco</td>
<td>55</td>
<td>21.1</td>
<td>French, Arabic</td>
</tr>
<tr>
<td>Tunisia</td>
<td>44</td>
<td>19.8</td>
<td>French, Arabic</td>
</tr>
<tr>
<td>Egypt</td>
<td>43</td>
<td>21.3</td>
<td>French, Arabic</td>
</tr>
<tr>
<td>Thailand</td>
<td>34</td>
<td>26.2</td>
<td>Thai</td>
</tr>
<tr>
<td>Brazil</td>
<td>33</td>
<td>23.2</td>
<td>Portuguese</td>
</tr>
<tr>
<td>Germany</td>
<td>26</td>
<td>27.9</td>
<td>German</td>
</tr>
<tr>
<td>Philippines</td>
<td>16</td>
<td>28.1</td>
<td>English</td>
</tr>
<tr>
<td>Poland</td>
<td>16</td>
<td>25.4</td>
<td>Polish</td>
</tr>
<tr>
<td>Turkey</td>
<td>15</td>
<td>22.5</td>
<td>Turkish</td>
</tr>
<tr>
<td>Pakistan</td>
<td>14</td>
<td>22.7</td>
<td>English</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>13</td>
<td>28.1</td>
<td>Cantonese</td>
</tr>
<tr>
<td>France</td>
<td>10</td>
<td>27.9</td>
<td>French</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>10</td>
<td>40.3</td>
<td>Dutch</td>
</tr>
<tr>
<td>Slovenia</td>
<td>5</td>
<td>23.4</td>
<td>Slovenian</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>962</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Web survey (20 countries, 11 languages)
- Relational mobility scale (Yuki et al., 2007), privacy concern scale (Krasnova & Veltri, 2010), demographics
- 3 recruitment methods (FB ads, snowball, Amazon Mechanical Turk)
- No difference in scale averages between recruitment methods
Results – Scale reliabilities and validity

• Privacy concern scale
  • *Reliability*: $\alpha > .60$
  • *Structural Equivalence* (Procrustes Factor Analysis – see Fischer & Fontaine, 2011)
    • Identity Coefficient: $M = .99$, $SD = .01$

• Relational mobility scale
  • *Reliability*: $\alpha > .60$
  • *Structural Equivalence* (Procrustes Factor Analysis)
    • Identity Coefficient: $M = .93$, $SD = .04$
  • *Aggregation justification* (Biemann et al., 2012)
    • $r_{wg(j)} M = .86$, $SD = .05$; $ICC(1) = .09$; $ICC(2) = .82$
### Results – Multilevel Analysis (N₁ = 962, N₂ = 20)

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Null Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept (Privacy Concern) γ₀₀</td>
<td>4.866**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Random Effects (Variance Components)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept (privacy concern) u₀j</td>
<td>0.160***</td>
</tr>
<tr>
<td>Residual rᵢj</td>
<td>2.182</td>
</tr>
</tbody>
</table>

**p<.001, ***p<.01, *p<.05

ICC = .07
Results – Multilevel Analysis (N₁ = 962, N₂ = 20)

<table>
<thead>
<tr>
<th></th>
<th>Null Model</th>
<th>Level-2 only</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Effects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept (Privacy Concern) γ₀₀</td>
<td>4.866***</td>
<td>4.863***</td>
</tr>
<tr>
<td>Relational Mobility γ₀₁</td>
<td></td>
<td>1.240**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Random Effects (Variance Components)</strong></th>
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<td>Residual rᵢⱼ</td>
<td>2.182</td>
<td>2.185</td>
</tr>
</tbody>
</table>

- As relational mobility increases, so does privacy concern.
- Relational mobility explains 67% of between-country variance in privacy concern.
- Including relational mobility, model error decreases 4.5%.
### Results – Multilevel Analysis ($N_1 = 962$, $N_2 = 20$)

<table>
<thead>
<tr>
<th></th>
<th>Null Model</th>
<th>Level-2 only</th>
<th>Full Model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept (Privacy Concern) $\gamma_{00}$</td>
<td>4.866***</td>
<td>4.863***</td>
<td>3.974***</td>
</tr>
<tr>
<td>Relational Mobility $\gamma_{01}$</td>
<td></td>
<td></td>
<td>1.588**</td>
</tr>
<tr>
<td>Gender $\gamma_{10}$</td>
<td></td>
<td>0.431***</td>
<td></td>
</tr>
<tr>
<td>Power Distance $\gamma_{20}$</td>
<td>0.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualism $\gamma_{30}$</td>
<td>0.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculinity $\gamma_{40}$</td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty Avoidance $\gamma_{50}$</td>
<td>0.006</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Random Effects (Variance Components)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept (privacy concern) $u_{0j}$</td>
<td>0.160***</td>
<td>0.048*</td>
<td>0.052*</td>
</tr>
<tr>
<td>Gender variance $u_{1j}$ (SD)</td>
<td></td>
<td></td>
<td>0.006</td>
</tr>
<tr>
<td>Residual $r_{ij}$</td>
<td>2.182</td>
<td>2.185</td>
<td>2.186</td>
</tr>
<tr>
<td>$R^2$</td>
<td></td>
<td></td>
<td>.68</td>
</tr>
<tr>
<td>$R_1^2$</td>
<td></td>
<td></td>
<td>4.4%</td>
</tr>
</tbody>
</table>

***$p<.001$, **$p<.01$, *$p<.05$
Results – Multilevel Model

\[ Y_{CONCERN} = 3.974 + 1.588_{RMOB} + 0.431_{GENDER} + 0.003_{PDI} - 0.004_{IDV} - 0.001_{MAS} - 0.006_{UAI} \]

\[ N_1 = 962 \]
\[ N_2 = 20 \]
\[ R_1^2 = 4.4\% \]
Adjusting the theory

**Relational mobility**

**LOW**
- Self disclosure
- Relational *risk*
  - DON’T DISCLOSE
  - *Low* Facebook Privacy Concern

**HIGH**
- Self disclosure
- Relational *opportunity*
  - DISCLOSE
  - *High* Facebook Privacy Concern
Follow-up study

• **RQ:**
  - Will self-disclosure on Facebook mediate the relationship between relational mobility and Facebook privacy concern?

• **Method**
  - 96 Japanese ($M_{age}=34.57$, $SD_{age}=9.20$), 100 Americans ($M_{age}=28.94$, $SD_{age}=9.11$)
  - Self-disclosure: Number of Facebook profile items filled out + frequency of sharing opinions and making updates etc.
Follow-up Study - Results

Diagram:

- Self-disclosure on Facebook
  - Relational Mobility
    - .292*
  - Facebook Privacy Concern
    - .172*
    - .167* → .136

Note:

* $p < .05$

Sobel test: $z = 1.88$, $p < .05$
Summing up and Conclusion

- Relational mobility explains 68% of between-country variance in privacy concern on Facebook

- Cultural dimensions (Hofstede, 1980) do not appear to have an effect

- The relationship between relational mobility and privacy concern is mediated by self-disclosure on Facebook
Limitations

- Privacy concern or self disclosure, which comes first?
- Number of within-country cases is small
- Cultural dimensions – espoused cultural values may be more instructive (e.g., Cao & Everard, 2008)
Thank you for listening

Any questions?
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