Facebook advertisements for cross-cultural survey recruitment: Insights from the 46-country World Relationships Study

Robert Thomson and Masaki Yuki, Hokkaido University, Japan

Presented at the 2nd 3MC International Conference, Chicago, USA, 21st July 2015

Collaborators:
Dr. Mie Kito, Meiji Gakuin University; Dr. Joanna Schug, College of William &Mary; Dr. Christopher Kavanagh, Oxford University; Dr. Taciano Milfont, Victoria University of Wellington; Ms. Mariko Visserman, VU University Amsterdam; Mr. Mihkel Joasoo, University of Tartu; Dr. Maja Becker, Université Toulouse Jean Jaurès; Dr. Julia Becker, University of Osnabrueck; Ms. Ruthie Pliskin, Tel Aviv University and the Interdisciplinary Center Herzliya; Dr. Purnima Singh, Indian Institute of Technology Delhi; Dr. Marta Fulop, Hungarian Academy of Sciences; Dr. Claudia Manzi, Università Cattolica del Sacro Cuore; Dr. Jonathan Jong, University of Oxford; Dr. Ci-Yue Chiu, Chinese University of Hong Kong; Dr. Urszula Marcinkowska, Colégium Medicum of the Jagiellonian University; Dr. Felix Neto, University of Porto; Dr. Alvaro San Martin, ESE Business School; Ms. Ana Maria Houghton Illera, Colegio Colombiano de Psicólogos; Ms. Carolina Maria Ferreira Colmenero, Universidad Nacional de Educación a Distancia; Dr. Maja Becker, Université Toulouse Jean Jaurès; Ms. Pelin Gul, University of Kent; Dr. Dmytro Khutkyy, Higher School of Economics; Dr. Nour Sami Kieily, Northwestern University

2020/3/24
I wish to convince you that:

• Facebook ads are great for multi-country survey participant recruitment
  • Including difficult to reach developing-country populations
  • Reasonable data quality

• But there are some important caveats
  • Us Facebook users, we’re there to be entertained
The World Relationships Study

- **Core purpose:** validate relational mobility
  - Opportunity and freedom to choose interpersonal relationships based on personal preference (Yuki et al., 2007; Yuki & Schug, 2012)
    - Explains societal differences in behavior and psychology
      - Interpersonal similarity\(^1\), self-disclosure\(^2\), self-enhancement\(^3\), shame\(^4\), self-esteem\(^5\), general trust\(^6\), desire for uniqueness\(^7\) etc.
  - Need studies beyond East-West dichotomy
    - Validation as a concept *and*
    - The 12-item relational mobility scale (Yuki et al. 2007) as a measurement tool

---

**Background**

North America
- High relational mobility
  - Open market for interpersonal relationships

East-Asia
- Low relational mobility
  - Closed market for interpersonal relationships

---

\(^1\) Schug et al., 2009  
\(^2\) Schug et al., 2010  
\(^3\) Falk et al., 2009  
\(^4\) Szynicer et al., 2012  
\(^5\) Sato et al., 2014  
\(^6\) Yuki et al., 2007; Thomson et al., 2015  
\(^7\) Takemura, 2014
The World Relationships Study

- Let’s do a multi-country survey – 40 countries ($n = 300$ per country)
  - Japan-based data solutions company quote: US$186,000 ballpark

- What about Facebook?
  - 70 countries with > 30% penetration (June 2013)
    - Includes Middle East, North Africa, South America, South-east Asia
  - Cost-per-click US$0.10 (Tunisia) – US$1.52 (Japan)
  - Response rates 10% to 40% (Ramo et al., 2012; Tan et al, 2012; Kito, 2010)
I’ve tried Facebook ads before
(and failed)
Before The World Relationships Study (see Thomson & Ito, 2014 for published paper)

• Masters thesis project (2012)
• Internet privacy concern survey (18 countries)
• Recruited via Facebook ads
• $50 Amazon voucher draw
  • External motivator
• Survey design was default Qualtrics layout
• Spend: US$2,099 (7 days)   Total valid N = 399 (90 female)
Before The World Relationships Study

Internet privacy concern survey response Rate (%) and Reward Value (as 1/100% of GDP per capita)

$r = .89, p < .001$

Response rate (%) vs Reward Value (% of GDP per capita)
Let’s try Facebook ads again (and not fail)
World Relationships Survey

- 1st wave: 46-countries (21 languages)
- 5-min survey via Facebook ads
- Countries with >30% Facebook penetration
- Two versions
  - Romance and friendship
Variables

- **Relational mobility** (Yuki et al.’s 2007 12-item scale)
- **Self-disclosure** (Schug et al., 2010)
- **Intimacy** (Sternberg, 1986)
- **Interpersonal similarity** (Schug et al., 2009)
- **Others** (no. of romantic partners etc)
- **Demographics**

*No extrinsic incentives! (gift vouchers etc)*
Advert settings

- **Objective:** clicks to website
- **Targeting:** Country of residence
  - Underperforming countries only: Targeted based on interests – romance, friendships, boy/girlfriend, marriage etc (those countries not part of main dataset)
- **Placement:** Desktop/mobile news feed, desktop right column
  - NOT “Audience Network” – copious clicks, few responses
  - Instagram now available – haven’t tried it yet
- **Bidding:** Automatic
  - Budget based on mid-market prices
- **Schedule:** Continuous for approx. one week (x 3 waves)
ابتدا الاستطلاع

نشكركم للمشاركة في الاستطلاع

تولي إعداد الاستطلاع

HOKKAIDO UNIVERSITY
Thank you so much for taking part in our survey!
We’ve crunched some numbers, and this is how your responses compare to other participants:

**YOU’VE HAD 6 romantic partners**
On average, people taking this survey have had around 4 ROMANTIC PARTNERS IN THEIR LIFE.

**YOU’VE STOLEN 2 romantic partners**
Our current data suggests around 16% OF PEOPLE HAVE STOLEN SOMEONE ELSE’S PARTNER AT LEAST ONCE.

**YOU’VE HAD 4 romantic partners stolen**
Our current data suggests around 17% OF PEOPLE HAVE HAD THEIR ROMANTIC PARTNER STOLEN AT LEAST ONCE.
Did the Facebook ads work?
Participants \( N = 18,707, 46 \) countries

Female percent: 85% (\( SD = 13\% \))
Age (yrs): 29 (\( SD = 6 \))
Click-through-rate (M = 2.8%, SD = 1.4%)
Response rate (M = 15.2%, SD = 10.8%)

Percent of people who clicked on an ad who validly completed survey ↓
- 40%
- 20%
- 10%
- 3%
Cost per valid response (M = US$1, SD = US$0.86)
Were the data OK?
Relational mobility measurement model

Our general relational mobility measurement model (first proposed by Yuki et al., 2007) – 12 items, 1-6 Likert

12 items, 1-6 Likert

* CFA Common method bias control strategy as outlined in Biliet & Cambre (2003), Billiet & McClendon (2000) and Weijters et al. (2010)
Acquiescent response style (van Dijk et al., 2009)

Correlation with UNDP Education Index

\[ r = -0.50, p < 0.01 \]

Proportion of acquiescent to non-acquiescent responses in relational mobility scale items
Relational mobility scale measurement invariance

Identity Coefficient (via Procrustes Factor Analysis)

- .99
- .96
- .93
- .89
Relational mobility scores by country

Relational mobility latent means

LOW
HIGH

High correlations ($r > 0.50$) with:
- Self-disclosure
- Intimacy
- Interpersonal similarity
- Tightness-looseness
- National-level external-and internal-threats etc.
Wrapping up
Key insights

• Facebook ads were very cost effective in most countries
• An engaging survey is essential
  • Intrinsic reward is important (it’s only fair)
• Self-selection bias at its finest
  • Courtesy of Facebook’s targeting algorithm
• Provided us with extremely strong supportive data
  • Next step: cross-validate with ‘traditional’ sample
Q & A

Keep in touch: www.robthomo.com
References (1)


Relational mobility scale
(Yuki et al., 2007; 12 items)

How much do you feel the following statements accurately describe people in the immediate society in which you live (friends and acquaintances in your school, colleagues in your workplace, and residents in your town etc.)?

- They (the people around you) have many chances to get to know other people.
- It is common for these people to have a conversation with someone they have never met before.
- They are able to choose, according to their own preferences, the people whom they interact with in their daily life.
- There are few opportunities for these people to form new friendships. (reversed)
- It is uncommon for these people to have a conversation with people they have never met before. (reversed)
- If they did not like their current groups, they could leave for better ones.
- It is often the case that they cannot freely choose who they associate with. (reversed)
- It is easy for them to meet new people.
- Even if these people were not completely satisfied with the group they belonged to, they would usually stay with it anyway. (reversed)
- They are able to choose the groups and organizations they belong to.
- Even if these people were not satisfied with their current relationships, they would often have no choice but to stay with them. (reversed)
- Even though they might rather leave, these people often have no choice but to stay in groups they don’t like. (reversed)

1 = Strongly disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Slightly agree, 5 = Agree, 6 = Strongly agree
Socio-ecological approach

Social ecology

- Physical environment
- Social environment
- Interpersonal environment

Adaptive tasks

Culture
Symbols, meaning, rituals etc.

Human psychology and behavior

Similar to:
- Ecological (Barker, 1968)
- Environmental (Craik, 1973)
- Community (Kelly, 1971)
- Cultural (Kitayama & Cohen, 2007)
- Psychologies, behavioural ecology (Davies et al., 2012)

Oishi & Graham, 2010

Relational mobility
What is relational mobility?

The degree to which there is the opportunity and freedom to form and sever – according to one’s preferences – relationships and group memberships in a society or social context (Yuki et al. 2007, Yuki & Schug 2012)

Interpersonal environments differ

Nth. America  
High relational mobility  
High degree of personal choice in interpersonal relationships  
Easy to change relationships

Japan  
Low relational mobility  
Lower degree of personal choice in interpersonal relationships  
Less ease in changing relationships

Falk, Heine, Yuki, & Takemura, 2009; Schug, Yuki, Horikawa, & Takemura, 2009; Sznycer et al., 2012; Wang & Leung, 2010; Yuki et al., 2007
Adaptive tasks in high relational mobility social contexts

Acquisition of desirable relationships/group memberships

• Positive self-regard (self-enhancement; Falk et al. 2009)
• Self-esteem (Sato & Yuki, 2014)
• General trust (Yamagishi & Yamagishi 1994; Yamagishi, 2011)
• Desire for uniqueness (Takemura, 2014)

Retention of desirable relationships/group memberships

• Self-disclosure (Schug et al. 2010)
• Intimacy (Kito et al., 2015)

Consequence: Interpersonal similarity (Schug et al., 2009)
Adaptive task in low relational mobility social contexts

Maintenance of harmony

- Avoiding offence  (Yamagishi, Hashimoto, & Schug 2008)
- Rejection sensitivity (Sato, Yuki, & Norasakkunkit, 2014)
- Shame proneness  (Sznycer et al. 2012)
- Caution about friends   (Li et al., 2014)
Relational mobility limitations/future directions

• What about the rest of the world?

• Measurement of relational mobility (society-level construct)
  • Yuki et al.’s (2007) 12-item relational mobility scale (1-6 Likert)
    • How much do you feel the following statements accurately describe people in the immediate society in which you live (friends and acquaintances in your school, colleagues in your workplace, and residents in your town etc.)?
      • They (the people around you) have many chances to get to know other people.
      • It is uncommon for these people to have a conversation with people they have never met before. (reversed)
      • They are able to choose the groups and organizations they belong to.
      • Even though they might rather leave, these people often have no choice but to stay in groups they don’t like. (reversed)
Participants \( N = 18,939, 39 \) countries

Ave. Facebook penetration rate: 46%
Mean click-through rate: 3%
Mean response rate: 16%

Mean age: 28 years old
Mean female percentage: 87%
Facebook ad cost per valid response (JPY, over all waves)
Facebook penetration rate (2015)

Can we expect representative exposure to ads?

Facebook penetration rate
(percent of population using Facebook at least once a month)

http://www.allin1social.com/facebook/country_stats/

WRS Results

M = 46% (SD = 13%)
Click-through rate

What percent of users who were displayed ads clicked on the ads?

Click-through rate (percent of users seeing ads who clicked on ad)

2020/3/24
Response rate

What percent of users who clicked on ads actually completed the survey?

Response rate
(percent of users who clicked on ad and validly completed survey)

\[ M = 16\% \ (SD = 10\%) \]
What percent of respondents indicated female as gender?

WRS Results

Female percentage

M = 87% (SD = 9%)
Mean age

How old are the respondents in each country?

Mean age (years)

M = 28 (SD = 5)
Assumptions

Responses are unbiased by response styles?

Acquiescent response style \( r = -0.496^{* *}, \quad \ast \ast p < .01 \)

All subsequent analyses use within-subject means-only standardization (Fischer, 2004)
Relational mobility scale reliability $\alpha$  

Are people responding in a roughly consistent manner?
Relational mobility scale measurement invariance (Multi-group CFA; Cheung & Rensvold, 1999)

Does the tool work (measure relational mobility) well in every country?

<table>
<thead>
<tr>
<th>Model</th>
<th>S-BX^2</th>
<th>df</th>
<th>*CFI</th>
<th>*TLI</th>
<th>*RMSEA</th>
<th>Compare</th>
<th>Δ *CFI</th>
<th>Δ *TLI</th>
<th>Δ *RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configural (1)</td>
<td>4423.3</td>
<td>1950</td>
<td>.928</td>
<td>.905</td>
<td>.054</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Partial Metric (2)</td>
<td>5085.4</td>
<td>2292</td>
<td>.919</td>
<td>.909</td>
<td>.053</td>
<td>2 vs 1</td>
<td>.009</td>
<td>-.004</td>
<td>-.001</td>
</tr>
<tr>
<td>Partial Scalar (3)</td>
<td>5506.3</td>
<td>2368</td>
<td>.909</td>
<td>.901</td>
<td>.055</td>
<td>3 vs 2</td>
<td>.010</td>
<td>.008</td>
<td>.002</td>
</tr>
</tbody>
</table>

- **Configural model**: Same structure as pooled sample across groups
- **Metric invariance**: Same factor loadings as pooled sample across groups
- **Scalar invariance**: Same item and 1st order factor intercepts as pooled sample across groups

Cutoff points used: Metric vs. configural, Δ *CFI & Δ *TLI < .010, Δ *RMSEA < .015; Scalar vs. metric, Δ *CFI & Δ *TLI < .010, Δ *RMSEA < .015 (Chen, 2007)

N = 39 countries
Rho = .58 ~ .88

Means can be meaningfully compared across countries
Predictive validity
Do previous East-West findings replicate across societies?

**Story is supported**

- Higher relational mobility requires strategies to acquire and retain desirable relationships
- Result is higher homophily in interpersonal relationships
Relational mobility and self-disclosure to a close friend

Self-disclosure to a close friend (scale: 1~5)

Relational Mobility Index

WRS Results

$r = .705$
$p < .001$
Relational mobility and romantic intimacy

Intimacy with romantic partner (scale: 1~7)

WRS Results

\[ r = .340 \]
\[ p < .05 \]
Relational mobility and self-esteem

Self-esteem (country-level data from Schmitt & Allick, 2005)

WRS Results

$r = .581$

$p < .01$
Relational mobility and interpersonal similarity

WRS Results

$r = .433$
$p < .01$

(without Japan $r = .368$, $p < .05$)
Construct validity: Antecedents to Relational Mobility

Association with closed/open societies...are they associated with relational mobility?

Pathogen prevalence (McEvedy & Jones, 1978) and relational mobility (N = 32)

Demanding geoclimate (Van de Vliert, 2006) and relational mobility (N = 27)

Survival vs. self-expression (Inglehart et al., 2005) and relational mobility (N = 34)

Story

Such ecologies select for exclusive, closed social systems

- Closed societies to avoid pathogen ingress
- High reciprocation, cooperation, high mutual surveillance to avoid free-riding in demanding geoclimate
Pathogen prevalence and relational mobility

Historical prevalence of pathogens (Murray & Schaller, 2010)

Relational Mobility Index

WRS Results

$WRS = -.279$

$p < .10$

$r = -.279$

$p < .10$
Tuberculosis per 100,000 people and relational mobility

WRS Results

$r = -.372$
$p = .026$

$N = 36$

Incidence of tuberculosis per 100,000 people (log)

(World Health Organization, 1990 to 2013 average)

Africa
Asia
Europe
Latin America
MENA
North America
Oceania
Demanding geoclimate and relational mobility

Relational Mobility Index

Demanding Geoclimate
(Midrange temperature controlled for the winter-summer variation in temperature; Van de Vliert, 2006)

WRS Results

$r = -0.536$
$p < .01$
Survival vs. self-expression (Inglehart et al., 2005) and relational mobility (N = 33)

Survival vs. self-expression and relational mobility

Relational Mobility Index

WRS Results

$r = .587$

$p < .001$
Construct validity: Outcomes

Expected associations with high/low relational mobility?

Relational mobility and number of new acquaintances in last month (log)

Relational Mobility and Justifiability of Divorce (WVS w6, 2014) (N=26)

Relational Mobility and Tightness (Gelfand et al., 2011) (N=22)

Story

Where choice abounds, so should excuses for divorce.

Closed committed social contexts should foster strong norms; adherence of such should help avoid disharmony within long-lasting relationships.
Relational mobility and number of new acquaintances in last month (log)

WRS Results

$r = .471$

$p < .01$
Construct validity: Values and culture

Associations with other cultural/value constructs?

- **Individualism**
  - \( r = 0.184 \)

- **Power Distance**
  - \( r = -0.250 \)

- **Masculinity**
  - \( r = -0.234 \)

- **Uncertainty Avoidance**
  - \( r = 0.124 \)

- **Long Term Orientation**
  - \( r = -0.189 \)

- **Embeddedness**
  - \( r = -0.413^\dagger \)

- **Affective Autonomy**
  - \( r = 0.367^\dagger \)

- **Hierarchy**
  - \( r = -0.444^* \)

- **Mastery**
  - \( r = -0.056 \)

- **Egalitarian commitment**
  - \( r = 0.501^* \)

Hofstede (2001) N = 32

Schwartz (1994) N = 20
Relational mobility and social cynicism

Social Cynicism Index
(Bond et al., 2004)
“Represents a negative view of human nature, especially as it is easily corrupted by power; a biased view against some groups of people; a mistrust of social institutions; and a disregard of ethical means for achieving an end.”

Relational Mobility Index

WRS Results
$r = -.460$
$p = .04$
Relational Mobility and Justifiability of Divorce (WVS w6, 2014) (N=26)

$r = .568$

$p < .01$
Relational Mobility and Tightness (Gelfand et al., 2011) (N=22)

WRS Results

$r = -.417$

$p < .05$
Embeddedness (Schwartz, 1994)

Conformity with norms, valuing tradition, security, obedience. Focus on social order.

WRS Results

$r = -0.413$

$p = 0.07$

$N = 20$
Affective autonomy (Schwartz, 1994)

Affective autonomy
Independent pursuit of pleasure, seeking enjoyment by any means

WRS Results

$r = .367$

$p = .11$

$N = 20$
**Intellectual autonomy** (Schwartz, 1994)

Intellectual autonomy
Allowance for independent pursuit of ideas and thought (theoretical, political, etc.)

![Graph showing relational mobility index and intellectual autonomy across different regions.](image)

- WRS Results
  - $r = .231$
  - $p = .33$
  - $N = 20$
Mastery (Schwartz, 1994)

Mastery
Individuals seeking success through personal action, even at expense of others. Need for independence, courage, ambition, drive, competence.

WRS Results

\[ r = -0.056 \]
\[ p = 0.81 \]
\[ N = 20 \]
Harmony (Schwartz, 1994)

Harmony
Individuals are happy to accept their place in the world, with high emphasis on group.

WRS Results

\[ r = .224 \]
\[ p = .34 \]
\[ N = 20 \]
Hierarchy (Schwartz, 1994)

Clear social order, one’s place in hierarchy is accepted; modesty and self-control are expected.

Relation Mobility Index

Africa
Asia
Europe
Latin America
MENA
North America
Oceania

$\rho = -.444$

$N = 20$
Egalitarian Commitment (Schwartz, 1994)

Egalitarian commitment
Expectation that all are equal and mutual concern is important

WRS Results

$r = .501$
$p = .02$
$N = 20$
Self-disclosure to a close friend (scale: 1~5)

WRS Results

$ r = .581 $  
$p < .001$
• Antecedents

• Intant mortality 1960-2014 average $r = -0.300$, $p < 0.10$
  • Adjusted $r = -0.358$, $p = 0.04$

• A2012_death_disease_birth WHO $r = -0.295$, $p < 0.10$

• 1980, 1990, 2000, 2010 agriculture value added GDP percent World Bank National accounts data and OECD National Account data files (perhaps make average)
  • 2010 $r = -0.405$, $p < 0.05$

• 1500 real population density $r = -0.366$, $p < 0.10$

• Adjusted pathogen prevalence 9 item $r = -0.365$, $p = 0.04$