computational social media

lecture 2: friending

part 3

daniel gatica-perez

announcements

teams have been created and mentors assigned

assignment #1 will be discussed today

paper #1 will be presented & discussed today
      M. Burke, L. Adamic, K. Marciniak
      Families on Facebook
      ICWSM 2013

this lecture

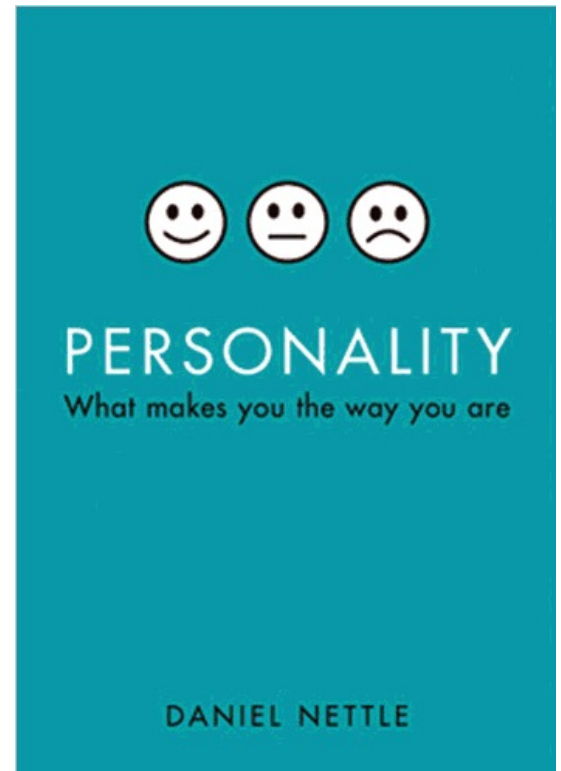introduction

a human-centric review of research on facebook

3:
identity presentation
how do people present themselves on facebook?

personality & facebook

what is a personality trait?

« stable individual differences in the reactivity of mental mechanisms designed to respond to particular classes of situations »
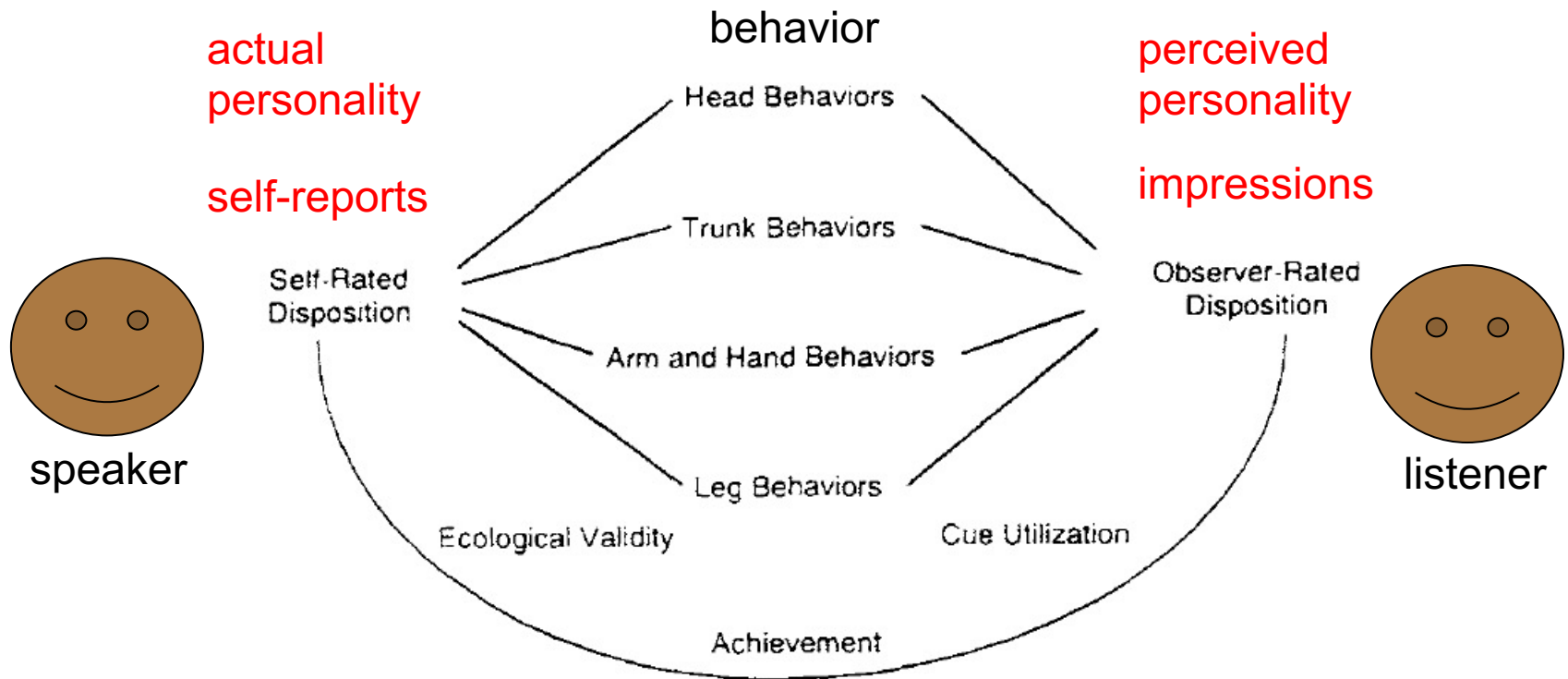
source: oxford university press

the big-five personality traits

"the Big-Five traits have been broadly accepted as a way of presenting all the major traits of a person at the highest level of abstraction" (Gosling, 2003)

| extraversion | outgoing, enthusiastic |
| | aloof, quiet |

| neuroticism | prone to stress & worry |
| | emotionally stable |

| conscientiousness | organized, self-directed |
| | spontaneous, careless |

| agreeableness | trusting, empathetic |
| | uncooperative, hostile |

| openness | creative, imaginative |
| | practical, conventional |

(Tupes & Christal, 1961; Norman, 1963; Goldberg,1981; Costa & McCrae 1985; Digman,1990)

the lens model:
a basic model for interpersonal perception

behavior

actual
personality

perceived
personality

self-reports

impressions

Head Behaviors

Trunk Behaviors

Self-Rated
Disposition

Observer-Rated
Disposition

Arm and Hand Behaviors

speaker

Leg Behaviors

listener

Ecological Validity

Cue Utilization

Achievement

Figure 2. The interpersonal circle. Adapted from "A Psychological Taxonomy of Trait-Descriptive Terms: The Interpersonal Domain" by J. S. Wiggins, *Journal of Personality and Social Psychology,* 1979, Vol. 37, p. 400. Copyright © 1979 by the American Psychological Association. Adapted by permission.

R. Gifford, "A Lens-Mapping Framework for Understanding the Encoding and Decoding of Interpersonal Dispositions in Nonverbal Behavior," Journal of Personality and Social Psychology, 1994. Vol. 66. No. 2, 398-412

instruments to measure big-five traits: NEO FFI

NEO FFI - Five-Factor Inventory
(Costa & McCrae, 1992)
60 questions in total, 12 questions per trait
7-point Likert scale (from "strongly disagree"
to strongly agree")

Extraversion items
I am the life of the party
I don't mind being the center of attention
I feel comfortable around people
I start conversations
I talk to a lot of people at parties

Openness items
I have a rich vocabulary
I have a vivid imagination
I have excellent ideas
I am quick to understand things
I use difficult words

Conscientiousness items
I am always prepared
I pay attention to details
I get chores done right away
I like order
I follow a schedule

Agreeableness items
I am interested in people
I sympathize with others' feelings
I take time out for others
I feel others' emotions
I make people feel at ease

Neuroticism items
I am easily disturbed
I change my mood a lot
I get upset easily
I have frequent mood swings
I worry about things

validity & reliability

validity

construct validity	internal validity
"whether a test measures what it claims to measure" (Brown, 1996) * social constructs: abstract ideas with no unique definition or measurement * operationalize: capture the construct with observable data (e.g.questionnaire)	"whether the experimental procedures were performed correctly" (Salganik, 2018) * randomization * measurement of outcomes
statistical conclusion validity	**external validity**
"whether the statistical analysis of the experiment was done correctly" (Salganik, 2018) * select correct statistical tests * measure effect sizes correctly	"whether the results of the experiment can be generalized to other situations" (Salganik, 2018) * different or larger populations * lab vs. real-life

J. D. Brown, Testing in language programs. Prentice Hall, 1996
M. Salganik, Bit by Bit. Social Research in the Digital Age, Princeton University Press, 2018.

reliability

reliability: extent to which measurements can be replicated

ratio: true variance / (true variance + error variance)

Hypothetical Flexion-Extension Range of Motion (ROM) of L4-L5 Measured by Radiograph

Subject	Measured ROM	True ROM	Error
1	28°	28°	0°
2	20°	20°	0°
3	24°	20°	4°
4	18°	22°	−4°
5	26°	22°	4°
6	16°	20°	−4°
Variance	22.4°	9.6°	12.8°

$$\text{Reliability index} = \frac{\text{true variance}}{\text{true variance} + \text{error variance}} = \frac{9.6}{9.6 + 12.8} = 0.43.$$

T. Koo & M. Li. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. JCM 15 (2)

types of reliability

Different Types of Reliability

Types	Definitions
Interrater reliability	It reflects the variation between 2 or more raters who measure the same group of subjects.
Test-retest reliability	It reflects the variation in measurements taken by an instrument on the same subject under the same conditions. It is generally indicative of reliability in situations when raters are not involved, such as self-report survey instrument.
Intrarater reliability	It reflects the variation of data measured by 1 rater across 2 or more trials.

interrater reliability illustrated

interrater reliability: variation between two or more raters who measure (or rate) the same group of targets (or subjects)

targets i=1,…,I   raters j=1,…,J

y_i^j : rating of target i by rater j
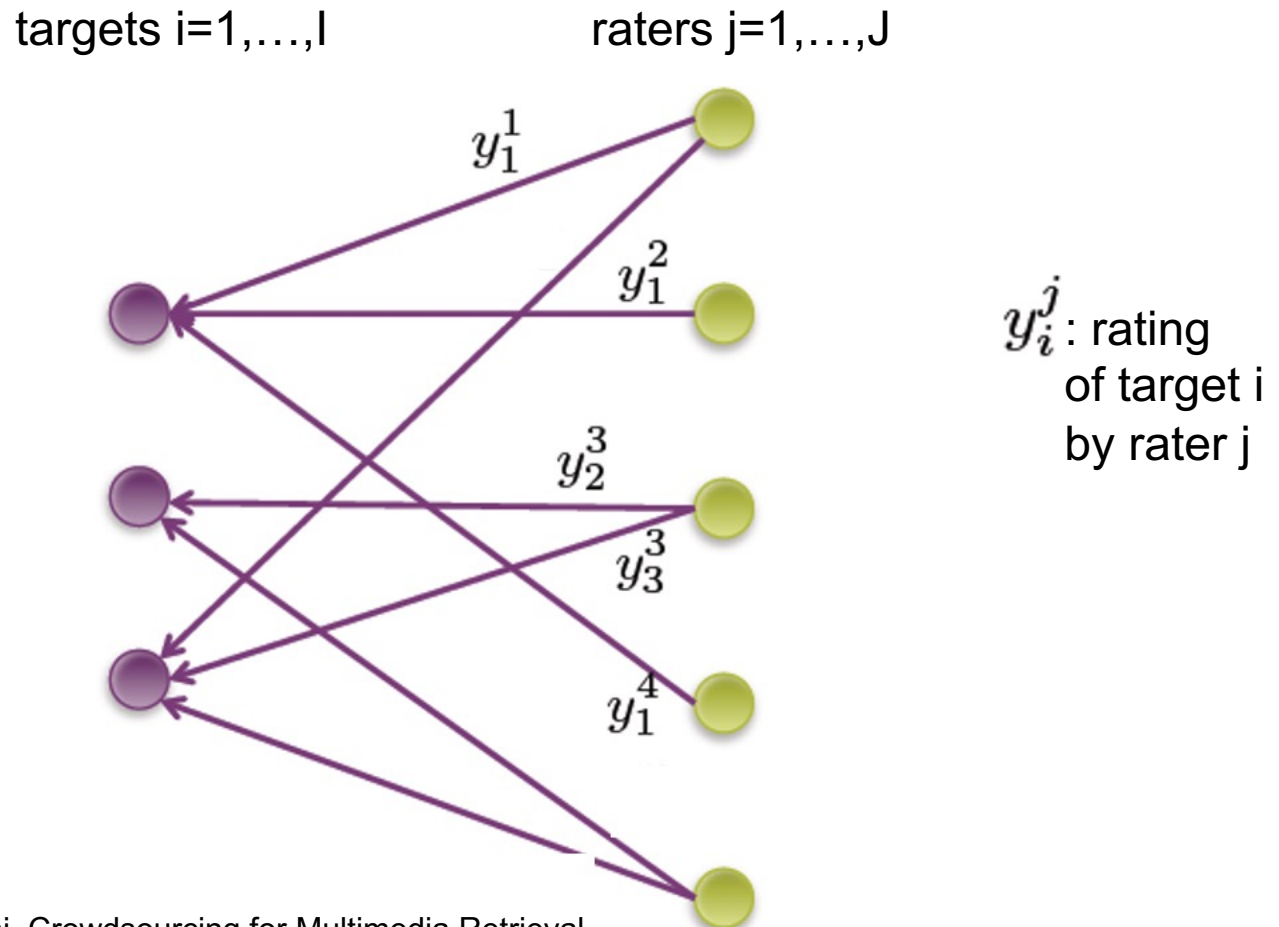
ICC: intraclass correlation coefficient (Shrout & Fleiss '79):

ICC(1,1), ICC(1,k): agreement when <u>each target is rated by a different set of k raters randomly selected</u> from a larger population of raters

ICC(2,1), ICC(2,k): agreement when a sample of k raters is randomly selected from a larger population, and <u>each rater rates each target</u>

ICC(1,1), ICC(2,1): expected reliablilty of a single rater's ratings

ICC(1,k), ICC(2,k): reliability when ratings are aggregated over the k raters to obtain a mean rating

P. Shrout & J. Fleiss (1979). Intraclass Correlations: Uses in Assessing Rater Reliability. Psych. Bulletin 86 (2)

T. Koo & M. Li. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. JCM 15 (2)

what is good ICC reliability?

estimated ICC

low endpoint of 95% confidence interval of estimated ICC

< 0.40	— poor
[0.40, 0.60)	— fair
[0.60, 0.75)	— good
[0.75, 1.00]	— excellent

|	
< 0.50	— poor
[0.50, 0.75)	— fair
[0.75, 0.90)	— good
[0.90, 1.00]	— excellent

D.V. Cicchetti, Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology, Psych. Assessment. 6 (4): 284–290, 1994

T. Koo & M. Li. A guideline of selecting and reporting intraclass correlation coefficients for reliability research, JCM 15 (2), 2016

back to personality & facebook

facebook profiles
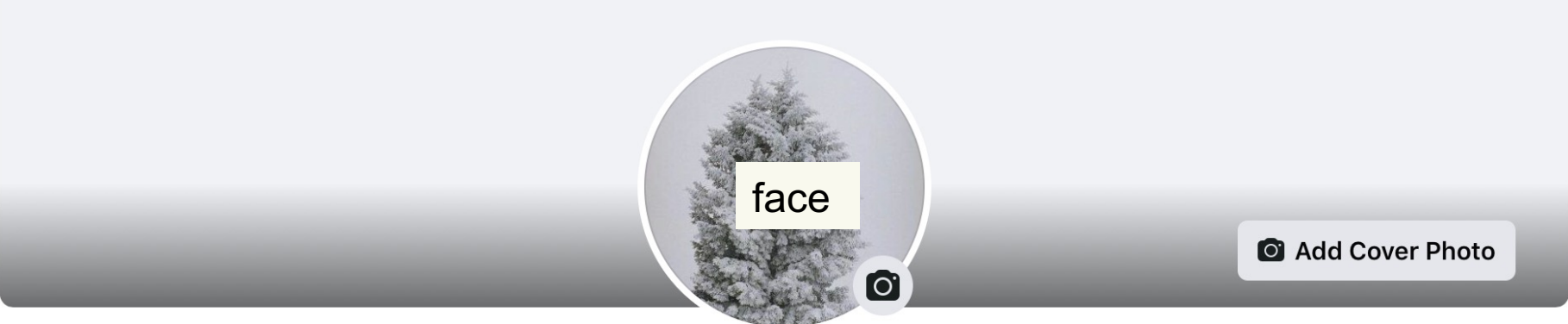
face

My Real Name

opinions   demographics   visual content

Posts   About   Friends   Photos   More ▾

Edit Profile

social behavior   social relations

do facebook profiles convey accurate impressions?
(Back et al., 2010)

NO

idealized virtual-identity hypothesis
+ people display idealized characteristics
+ impressions reflect ideal-self rather than real-self

YES

extended real-life hypothesis
+ people communicate real personality
+ impressions reflect real-self views

why?
  + accountability with friends
  + ideal-self difficult to control

M. D. Back, J. M. Stopfer, S. Vazire, S. Gaddis, S. C. Schmukle, B. Egloff, and S. D. Gosling, Facebook Profiles Reflect Actual Personality, Not Self-Idealization, *Psychological Science,* 21(3):372-4. Mar. 2010

measuring big-five traits: TIPI

TIPI - Ten-Item Personality Instrument
(Gosling et al., 2003)
10 questions, 2 per trait
7-point Likert scale

Validity: correlation with BFI
(44-item questionnaire):
 [0.65 - 0.87]
N=1813

Test-retest reliability:
correlation across sessions
(6 weeks apart):
E: 0.77; C: 0.76, O: 0.62
mean 0.72
N=180

I see myself as

P1. Extraverted, enthusiastic.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly
P2. Critical, quarrelsome.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly
P3. Dependable, self-disciplined.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly
P4. Anxious, easily upset.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly
P5. Open to new experiences, complex.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly
P6. Reserved, quiet.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly
P7. Sympathetic, warm.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly
P8. Disorganized, careless.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly
P9. Calm, emotionally stable.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly
P10. Conventional, uncreative.	1-Disagree strongly	2 3 4 5 6	7-Agree strongly

S. D.. Gosling, P. J.. Rentfrow, and W. B.. Swann,. A very brief measure of the Big-Five personality domains, Journal of Research in Personality, Vol. 37 pp. 504–528, 2003

facebook profiles, actual personality, self-idealization

133 FB college students (USA)
103 StudiVZ users (DE)

actual personality
  + self-reports & four close friends
  + TIPI+NEO (US), BFI-10 (DE)

ideal-self personality
+ self-report: "describe yourself as you ideally would like to be"

personality impressions
+ 9-10 external annotators
+ TIPI (US), BFI-10 (DE)

analysis
1. reliability of impresions (ICC)
2. correlation analysis (r)
+ actual personality vs. impressions
+ self-ideal personality vs. impressions

results

facebook profiles have a weak tendency to convey actual personality

Observer rating	Impressions ICC (consensus)	Actual personality r (accuracy)	Ideal self r
Extraversion			
ICC(2,k) Average observer	.81***	.39***	.13
ICC(2,1) Single observer	.31***	.25***	.08*
Agreeableness			
Average observer	.59***	.22**	.16
Single observer	.13***	.11**	.08*
Conscientiousness			
Average observer	.77***	.27**	.05
Single observer	.27***	.17***	.03
Neuroticism			
Average observer	.48***	.13	.12
Single observer	.09***	.06	.04
Openness			
Average observer	.72***	.41***	.24**
Single observer	.23***	.24***	.14***

Actual vs. Impressions

Ideal self vs. Impressions

limitations
+ college students
+ small sample
(N=236)

$*p_{rep} > .95.$ $**p_{rep} > .99.$ $***p_{rep} > .999.$

M. D. Back, J. M. Stopfer, S. Vazire, S. Gaddis, S. C. Schmukle, B. Egloff, and S. D. Gosling, Facebook Profiles Reflect Actual Personality, Not Self-Idealization, *Psychological Science,* 21(3):372-4. Mar. 2010

myPersonality Project
D. Stillwell & M. Kosinski (2007-2012)

Trace: · **start**

start

Welcome to the myPersonality Project Website

This wiki was established to share the data with researchers. Go 🌐 HERE if you want to take a psychological test, or visit 🌐 Apply Magic Sauce, to predict your personality from your Facebook Likes.

News

Introduction

myPersonality was a popular Facebook application that allowed users to take real psychometric tests, and allowed us to record (with consent!) their psychological and Facebook profiles. Currently, our database contains more than *6,000,000 test results*, together with more than *4,000,000 individual Facebook profiles*. Our respondents come from various age groups, backgrounds, and cultures. They are highly motivated to answer honestly and carefully, as the only gratification that they receive for their participation is feedback on their results.

A wide variety of data is available to the registered collaborators, including:

- Psychometric tests' scores
- Records of users' Facebook profiles
- Item-level data

original webpage (no longer available)
http://mypersonality.org/wiki/doku.php
more information at:
https://sites.google.com/michalkosinski.com/mypersonality

Private traits and attributes are predictable from digital records of human behavior

Michal Kosinski[a,1], David Stillwell[a], and Thore Graepel[b]

[a]Free School Lane, The Psychometrics Centre, University of Cambridge, Cambridge CB2 3RQ United Kingdom; and [b]Microsoft Research, Cambridge CB1 2FB, United Kingdom

M. Kosinski, D. Stillwell, T. Graepel, Private traits and attributes are predictable from digital records of human behavior, PNAS, Apr. 2013

what to remember

identity presentation in facebook

links between social media and personality psychology

personality is expressed and perceived online

the big-five model captures the major traits of a person

validity & reliability: key properties of a personality instrument

facebook profiles tend to reflect actual personality

personal traits can be disclosed through facebook activity

questions?

daniel.gatica-perez@epfl.ch