

Detecting Personality Unobtrusively from Users' Online and Offline Workplace Behaviors

Motivation

Personality matters

Personality affects various social behaviors of an individual. Thus, many companies utilize personality tests to know employee's personality for team collaboration, employee role identification, and performance analysis.

Existing personality assessment methods

- Self-assessed personality tests

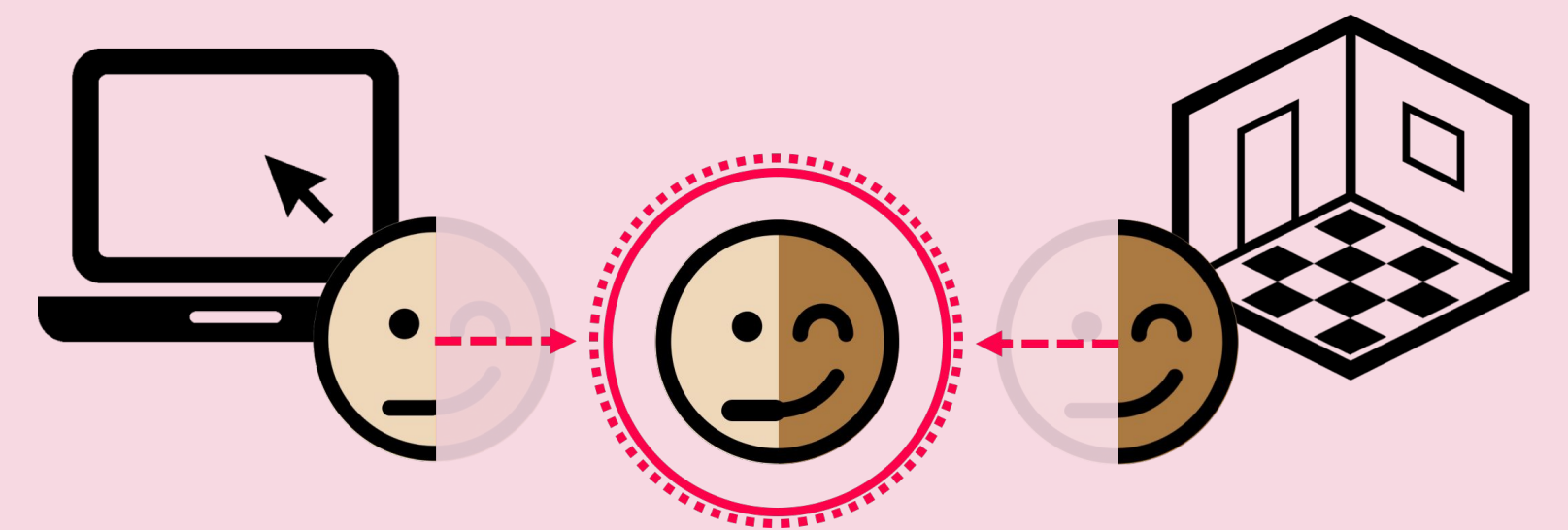
Limitations: Self-report bias, repetitive burdens for periodic reassessment

- Automatic Personality Assessment (APA)

Limitations: Explicitly require users to perform specific tasks, inapplicable in practice due to privacy concerns

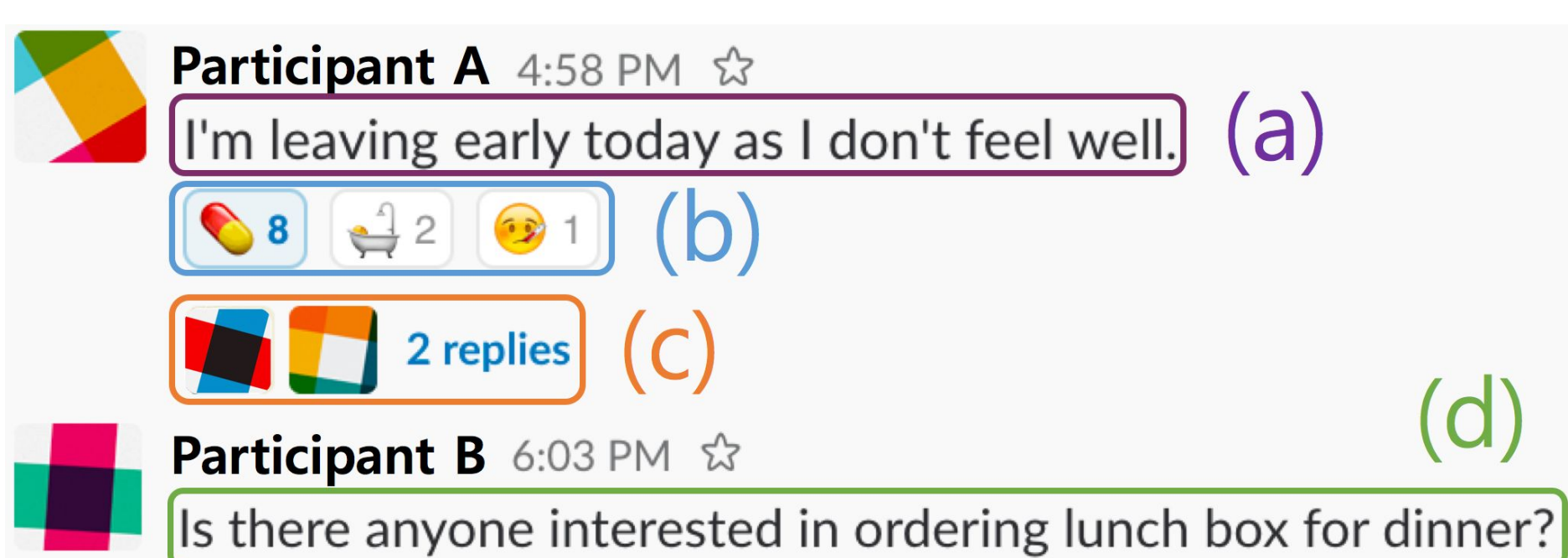
Method

- Detect user's personality *ambiently* and *unobtrusively* by analyzing workplace behaviors.
- Analyze both *online* and *offline* behavior data, since analyzing single channel may partially represent one's personality.



Online behavior data

- Online messenger logs of 4 different research groups (total 37 users) at KAIST over 5 months
- Extract 4 different online social behaviors:



- Behavior 1) Sending a text message: (a), (c), (d)
- Behavior 2) Reacting to others: (b)
- Behavior 3) Replying to others: (c)
- Behavior 4) Initiating a conversation: (d)

Offline behavior data

- Pilot study with recorded video of one research group (total 12 users) at KAIST for 4.5 hours
- Extract 3 different offline movement behaviors:

- Behavior 5) Visiting common area
- Behavior 6) Passing workplace door
- Behavior 7) Staying at one's seat

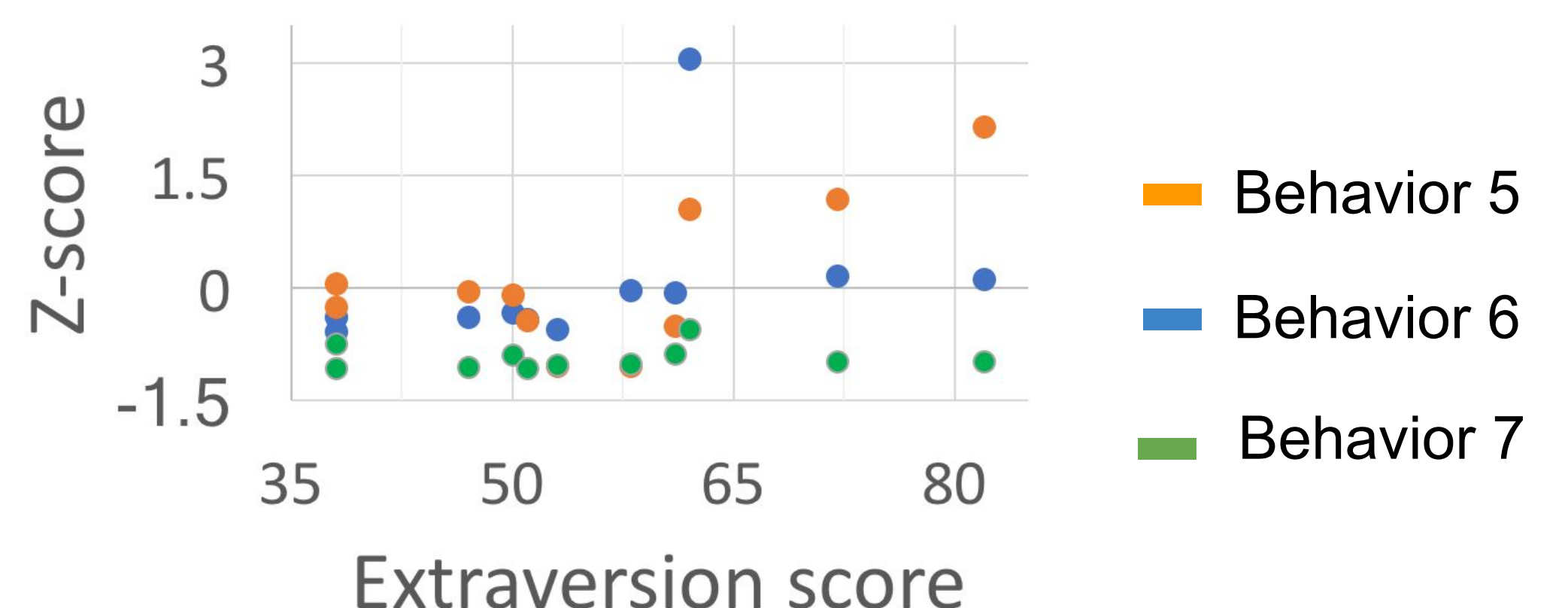
Result

- Behavior 1, 2, 4 showed positive correlations, and behavior 3 showed negative correlation with extraversion

	Introvert	Ambivert	Extrovert
Introvert	4	4	0
Ambivert	2	18	2
Extrovert	0	4	3

Confusion matrix of personality detection using workplace online data

- Confirmed possibility of detecting extraversion indirectly from one's movement in workplace



- Offline data showed complementary result with online data

Future Work

Analyzing more online & offline behavior data - (1) Internet browsing data to extract online behaviors, (2) Automatically collected indoor movement data using beacons to extract offline behaviors

Possible Applications - (1) Personality-aware mediator bot for managing informal communication, (2) Assisting balanced workplace communication via real-time feedback