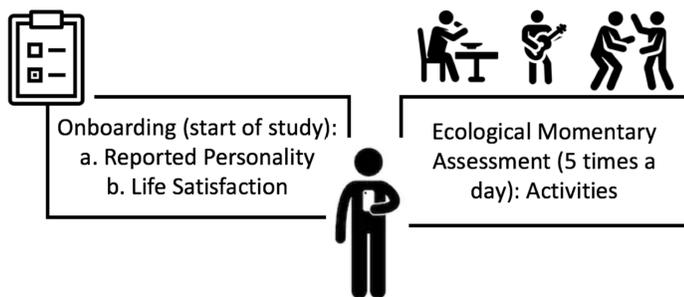


### Overview

- Recommender Systems (RSs) for health and subjective wellbeing improvement (SWB) are still not very mature.
- **Contributions:**
  - Smartphone-based behavior data collection.
  - A novel approach for deriving personalized activity recommendations to improve SWB.
  - Daily activity recommender to promote SWB
- **Takeaways:** Our recommender correctly infers a range of activities that are positively or negatively related to SWB, matching real-world outcomes.

### Contribution 1. Dataset

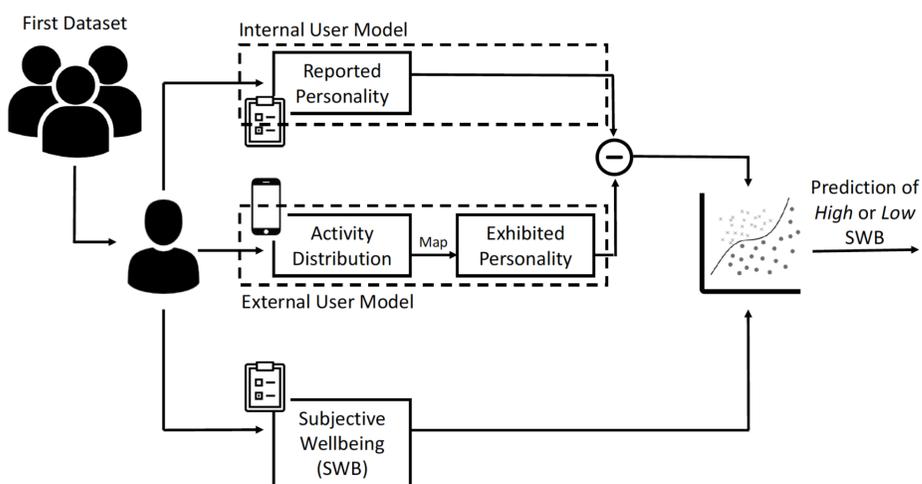
- **Data collected:** 'reported' personality traits, life satisfaction (SWB) & patterns of daily activities over 2-3 weeks through smartphone app.



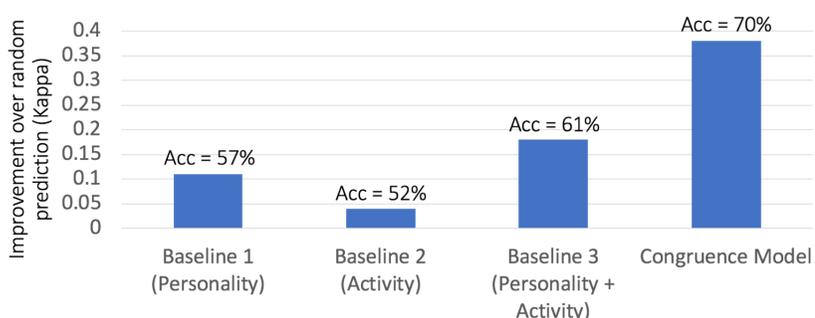
- **Two datasets:**
  - D1: 151 participants from five countries
  - D2: 256 participants from the UK.

### Contribution 2. SWB Classifier

- The **congruence user model** based on the finding that the difference between internal (reported personality) and external (exhibited personality) factors impacts SWB [1].

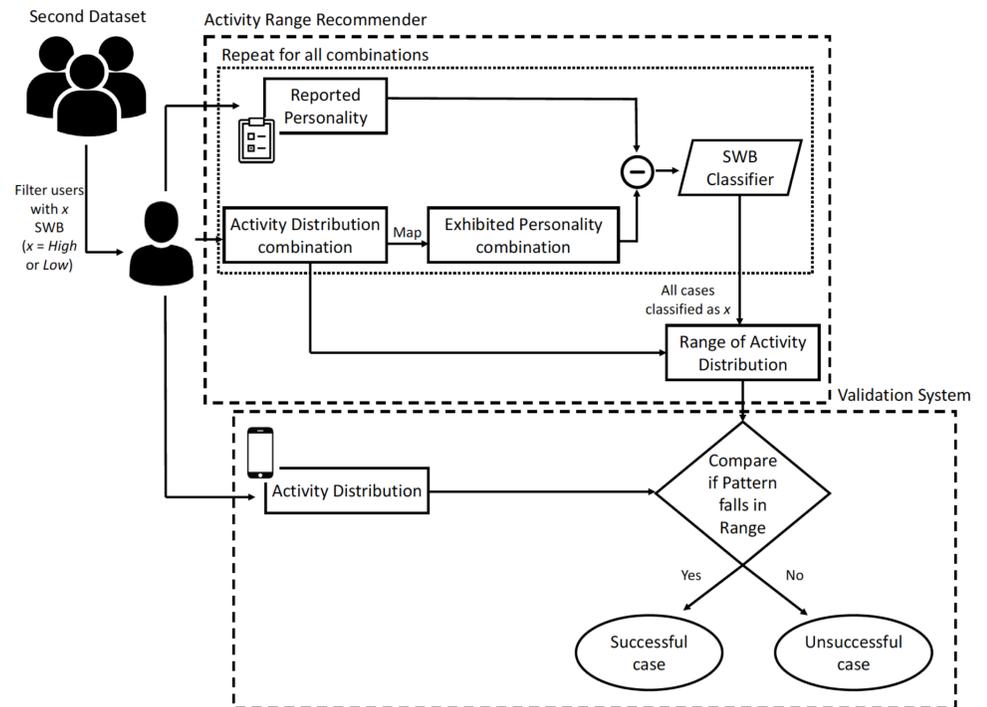


- **Classifier:** Prediction of SWB based on the congruence model
- **Data:** Dataset 1 used for training and testing
- **Results:**



### Contribution 3. Activity Recommender

**Activity range recommender:** Recommend ranges of relevant activities that are positively or negatively related to SWB



- **Recommender:** Create white/black activity lists using the SWB classifier
- **Methodology:**
  - D2 used to validate the outputs of our RS
  - Ground truth: SWB reported by the users
- **Results:** Accuracy up to **92%**, demonstrating that the model successfully captures the link between SWB and the alignment between real-life activity patterns with personality.

Activities Considered	Recommender Type	Predicted - Actual Accuracy (%)
All	Whitelist	51
	Blacklist	74
Majority	Whitelist	71
	Blacklist	92

### Conclusions

- **Novelty:**
  - Two **datasets** with user-centric behavioral, personality and SWB information collected via mobile phones.
  - **SWB classifier** based on the congruence model
  - **Recommender** of daily activities to promote SWB
- **Results:**
  - **Classifier:** 9-18% accuracy uplift with respect baselines
  - **Recommender:** Accuracy up to **92%**
- **Future work:**
  - Perform randomized trials to explore the change in SWB generated by our recommendations

### References

1. E. Diener, E. M. Suh, R. E. Lucas and H. L. Smith. 1999. Subjective well-being: Three decades of progress. Psychological bulletin 125, 2 (1999), 276