Interfacing with computer science: From theory to design and back again

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Novel methods of data collection for psychology

Learning to Share: Engineering
Decision-Support for Online Soci

Yasmin Rafiq*, Luke Dickens†, Alessandra Russo*, Arosha K. Bandara‡, M
Mark Levine §, Gul Calikli**, Blaine A. Price‡, and Bashar

Innovation in Medicine and Health

A Sensor Platfor
of Older Adults in Real Time

Open Access | Published: 11 February 2021

ASIA: Automated Social Identity Assessment using linguistic style

Miriam Koschate, Elahe Naserian, Luke Dickens, Avelie Stuart, Alessandra Russo & Mark Levine

Behavior Research Methods (2021) | Cite this article

1861 Accesses | **107** Altmetric | Metrics

Privacy Dynamics: Learning Privacy Norms for Social Software

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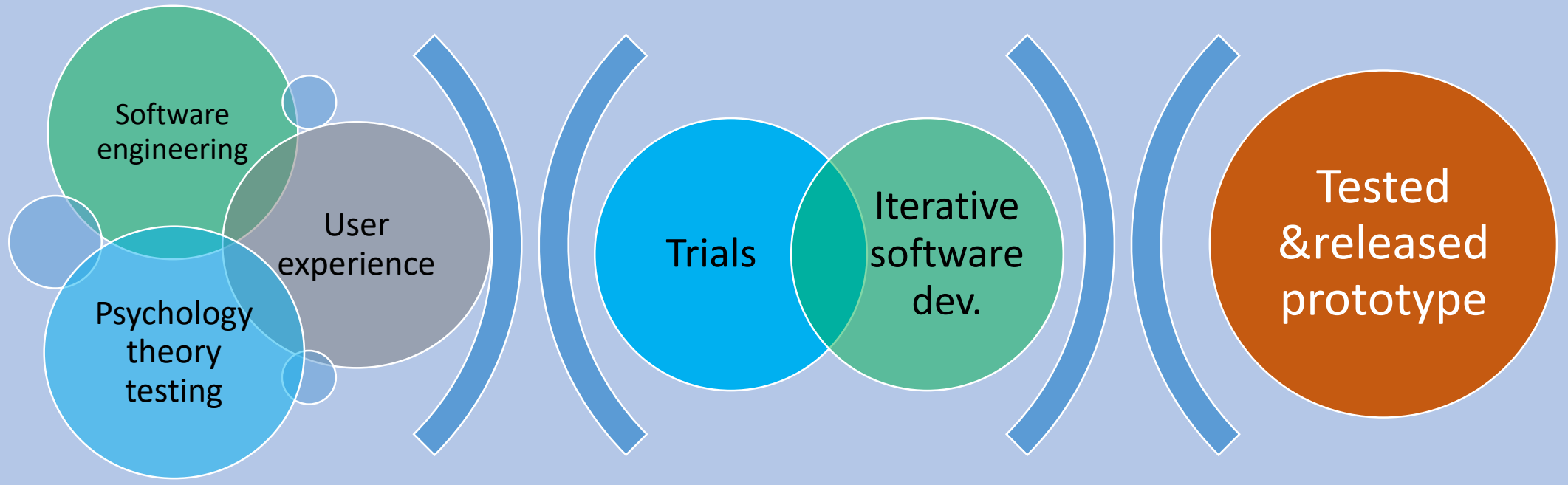
Particular interdisciplinary challenges

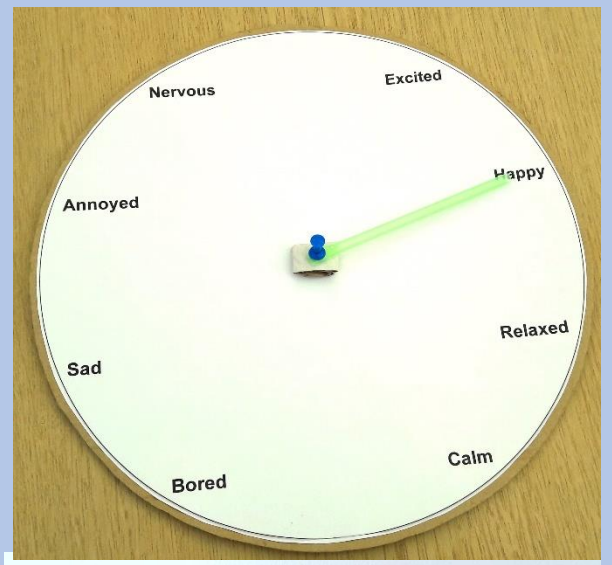
- Human-computer interaction: pick appropriate theories to build interfaces, but lack clear implementation guidelines (Hekler, et al., 2013)
- Software engineering: Automated psychology interventions - which interventions are the best under what circumstances or individuals?
- Machine learning/Data science: Using new data to update theory, but based on (micro) behaviours we've never been able to capture before

Life cycle of SERVICE project



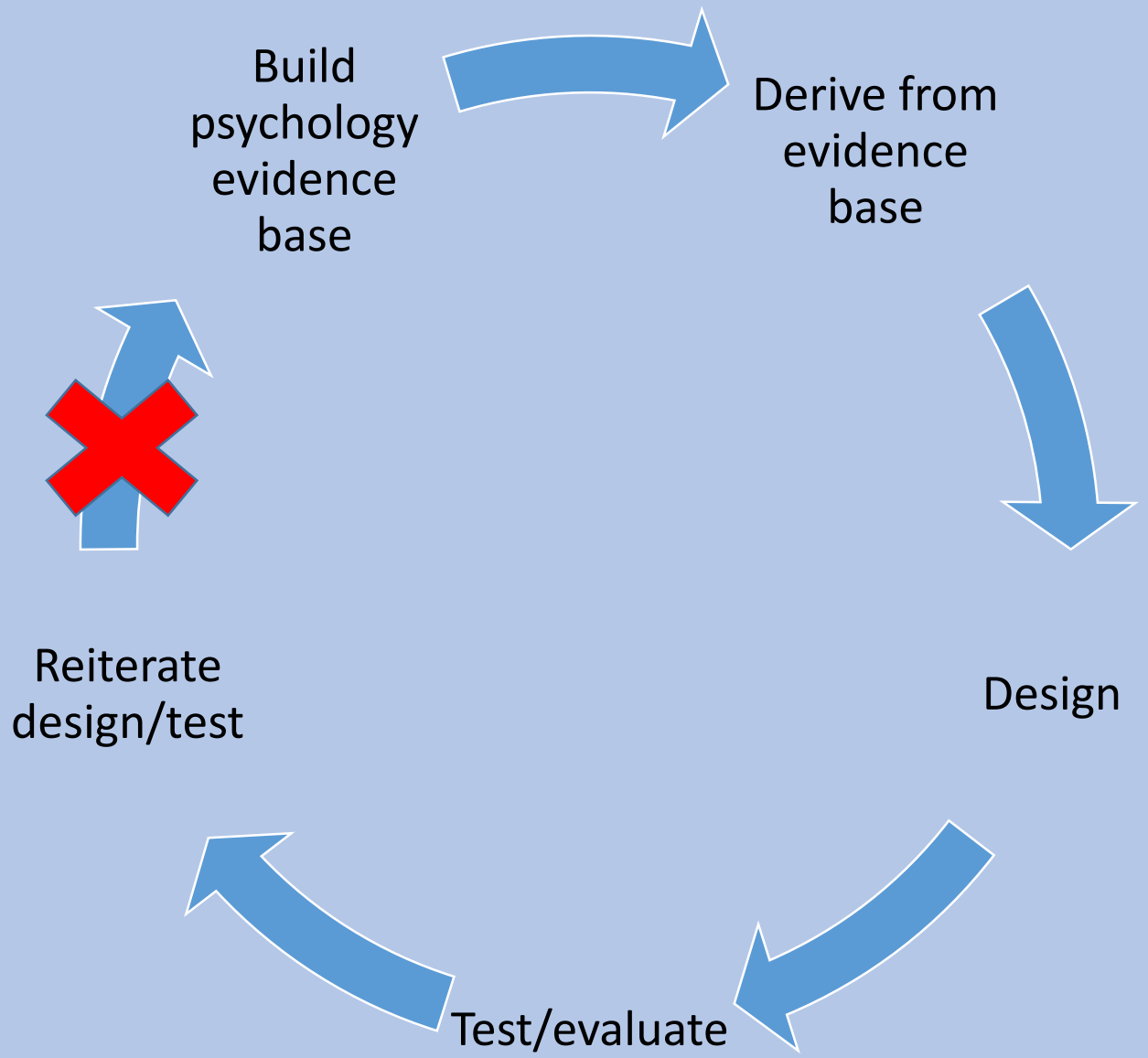
Tangible user interfaces “the mood clock” and “the mood board”

- Study 1: Designed and prototyped in cardboard
- Study 2: built as functional devices and used in older people’s homes
- Accurate compared to standard assessments, raised interesting questions about ‘in-situ’ data collection, engagement in ESM/personal informatics



Gooch, D., et al. (2020). How are you feeling? Using tangibles to log the emotions of older adults to support wellbeing. *ACM International Conference on Tangible, Embedded, and Embodied Interaction*

Gooch, D., et al. (under review). Me, my emotions and I: designing tangibles to support emotion logging for older adults.


Build psychology evidence base
Derive from evidence base
Design
Test/evaluate
Reiterate design/test

Challenges (Avelie)

- As early career researcher, much of this work was ‘risky’, ‘experimental’ (not in the scientific sense!) and hard for psychology peers to recognise the outputs
- Inter-disciplinarity lacks career development support but also peer expertise
- Learning to become more practitioner than researcher
- Different life cycle of research

From theory to design and back again

- Designing and using technology reveals unanswered psychological questions
  - Can be turned into hypotheses, a source of innovation for psychologists
  - Requires investment in staff, resources, training

- Do we really know what we think we know?
- How well do we know it?
- How do we update theory with novel methods?
- Practical challenges - how can we use it?

More information and references

Current project:

- https://serviceproject.org.uk/blog/
- https://serviceproject.org.uk/publications/

- OU Software engineering and design group:
- http://sead.open.ac.uk/

- Key References:
- Hekler, E. B., Klasnja, P., Froehlich, J. E., & Buman, M. P. (2013). Mind the theoretical gap: Interpreting, using, and developing behavioral theory in HCI research. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 3307–3316. https://doi.org/10.1145/2470654.2466452