Reflection in Theory and Reflection in Practice: An Exploration of the Gaps in Reflection Support among Personal Informatics Apps

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What’s the problem?

- While Personal Informatics (PI) systems are intended to support reflection, many current tools focus solely on quantitative data collection and visualization, providing little or no support for transformative or critical reflection [1].

What’s our approach?

- Our study seeks to understand how we can design PI tools to cultivate critical reflection.
- We propose a series of operational definitions of reflection by applying Fleck and Fitzpatrick’s [2] conceptual definition (five levels of reflection).

What did we do?

- We surveyed 102 PI apps in the Apple and Google app stores, coding their interaction features they relate to Fleck and Fitzpatrick’s levels of reflection.
- We focus on how different interface components might serve as a precursor for or instigator of reflection, based on the existing taxonomy.

What did we find?

- Reflective practices in PI apps are unevenly supported: the lack of reflective question prompts, little scaffolding for setting goals and configuring data collection, and poor support for considering wider implications limit meaning-making and frustrate nuanced insight generation.

What does it all mean?

- There is a misnomer of reflection and fallacy of insight in contemporary PI apps:
  - The lack of explanatory reflection (R1) support may lead to poor self-insights (meaning-making process).
  - Preconfigured data presentation and goal-setting in PI apps set a boundary of reflective practices (system-driven vs. individual-driven insights).
- To better support reflection in PI apps, we provide several design implications: (1) Emphasizing the qualitative self and thinking more holistically than the quantified self (e.g., delivering more persuasive and provocative prompts), (2) Empowering users through customizable design (e.g., providing additional flexibility during the data collection and interpretation phases), and (3) Transcending ego-centric design (e.g., supporting people in understanding the social reach of data sharing).

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