Emotion Awareness: Dimensions of Trust in Software Engineering

Dr. Preetha Chatterjee
Assistant Professor

SSoftware Engineering and Analytics Research (SOAR) Lab
Drexel University, USA

preetha.chatterjee@drexel.edu
@PreethaChatterji
https://preethac.github.io
Trust and Coordination in SE

1. It’s about the code!
2. It’s about the design!
3. It’s about the requirements!
4. It’s about the **human** coordination!

Sarah Mei - Jan 4, 2021

We all need to **trust** each other, and we also need to put a lot of energy into understanding each other. We will write less code than the all-Sarah team. But we will write better **software**.
What is Trust?

“the overall willingness of virtual team members to rely on one another that results from the aggregate of potential trust dimensions that are achieved through socio-emotional and task process and supported by technology capabilities”

- Mitchell & Zigurs, 2009

Complex Psychological Concept!!
Dimensions of Trust: Factors that implicitly drive your decisions!

- Action
- Commitment
- Competence
- Institutional
- Personality
- Transferred
Preliminary Study

100 Pull Requests

Amirali Sajadi, Kostadin Damevski, and Preetha Chatterjee, “Interpersonal Trust in OSS: Exploring Dimensions of Trust in GitHub Pull Requests”, ICSE NIER, 2023
Dimensions of Trust in SE - Pull Requests (PR)

- **Action**
  - The frequency and quality of comments/reviews of PRs.

- **Commitment**
  - Reviewing PRs when requested or addressing a reviewer’s comment.

- **Competence**
  - Developers’ past actions in the repository, their overall activity and status on GitHub.

- **Institutional**
  - Developers associated with the same organizations are more likely to trust each other.

- **Personality**
  - Developers who accept a high number of PRs tend to have higher trust in others.

- **Transferred**
  - Well-established members can recommend the work of new contributors.

Amirali Sajadi, Kostadin Damevski, and Preetha Chatterjee, “Interpersonal Trust in OSS: Exploring Dimensions of Trust in GitHub Pull Requests”, ICSE NIER, 2023
Trust in Pull Requests

Pull request interaction with high levels of trust

- **High Competence Trust**
  - 249 followers,
  - 96% PR acceptance,
  - Project member

- **High Action-based Trust**
  - Detailed & Frequent feedback, code revisions

- **Commitment Trust**
  - Reviewing & revising the code when requested

- **High Personality-based Trust**
  - Accepted 23/23 of the PRs he closed

- **institutional Trust**
  - All three users are part of the ASF GitHub organization

- **Low Competence Trust**
  - 4 followers,
  - 88% PR acceptance,
  - Not a member

- **Low Action-based Trust**
  - No responses, no discussions

- **No Commitment Trust**
  - No review requests & no changes implemented

- **Low Personality-based Trust**
  - Reviewer has rejected 90% of all the PRs he has closed

- **No Institutional Trust**
  - The users are not members of same GitHub organizations

Amirali Sajadi, Kostadin Damevski, and Preetha Chatterjee, “Interpersonal Trust in OSS: Exploring Dimensions of Trust in GitHub Pull Requests”, ICSE NIER, 2023
Implications

- Examine **what you trust, and how you trust**!! This can help you identify risks in your collaboration.

- Identifying and **speaking frankly about our trust levels** can help in improving team collaboration and communication

- Understanding **team dynamics in terms of these trust dimensions** can aid project managers in timely interventions

- Practitioners can focus on **transparent** communication, and regular feedback along these specific trust dimensions to build and maintain trust.

Thanks to my co-authors: Amirali Sajadi, Kostadin Damevski!

Dataset: https://tinyurl.com/2v77k4hv