



Counteracting Agile Retrospective Problems with Retrospective Activities



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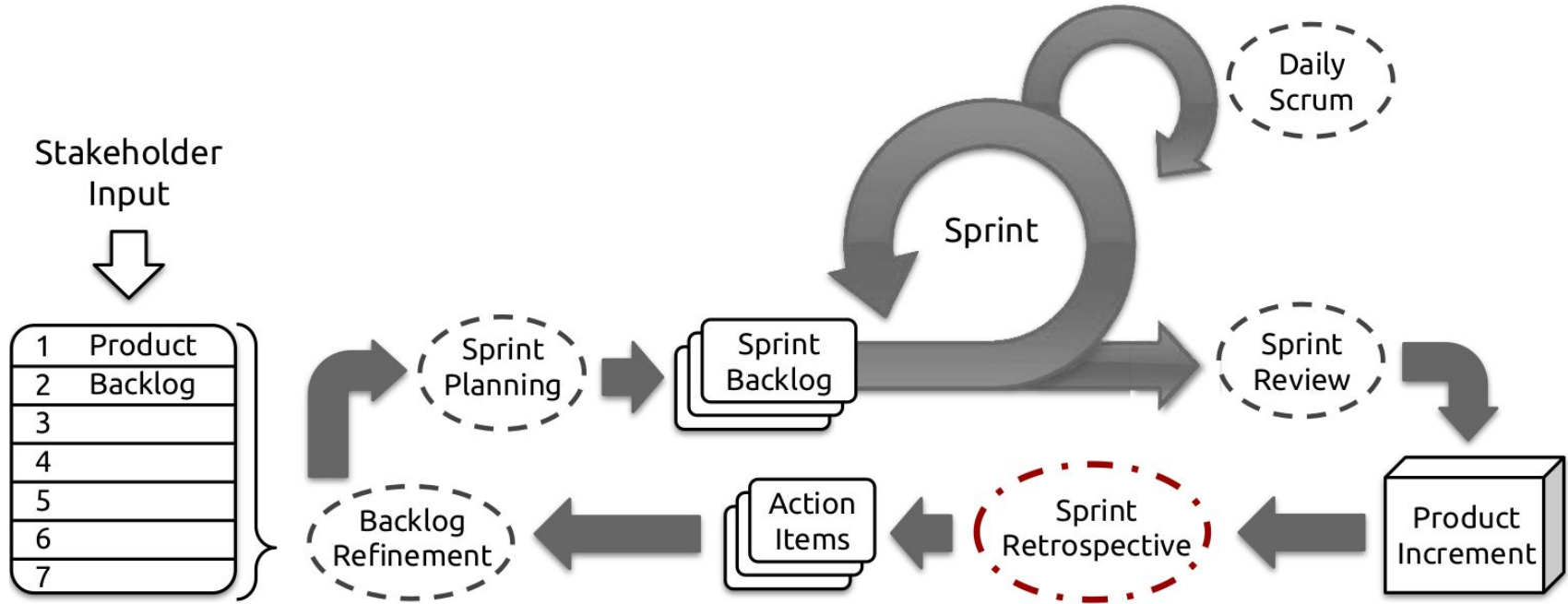
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Scrum Development Method

The Role of the Retrospective Meeting



Retrospective Meetings

Definition

- Time and space to discuss and **improve development process**
- **Looking back** after a development iteration

“ opportunity for the team to **inspect itself**
– The Scrum Guide [Schwaber, 2017] ”



[Schwaber, 2017] K. Schwaber, J. Sutherland, “The Scrum Guide - The Definitive Guide to Scrum,” (2017)
[online] <http://scrumguides.org/docs/scrumguide/v2017/2017-Scrum-Guide-US.pdf>

Picture: <https://www.scrum.org/resources/2017-scrum-guide-update-ken-schwaber-and-jeff-sutherland>

Retrospective Meetings

Process Improvement in Scrum

- Goal: **Increased performance and enjoyment** in the following iteration [Schwaber, 2004]
- 85% of State of Agile survey participants used Retros [VO, 2018]
- Time and space to discuss development process
- SPI Manifesto [Pries-Heje, 2010]:
 - “Motivate all people involved”
 - “Create a learning organization”

[Schwaber, 2004] Schwaber, K.: Agile Project Management with Scrum. Microsoft Press (2004)

[VO, 2018] VersionOne Inc.: The 12th Annual State of Agile Report. Tech. rep. (2018)

[Pries-Heje, 2010] Pries-Heje, J., Johansen, J.: SPI Manifesto. European system & software process improvement and innovation (2010)



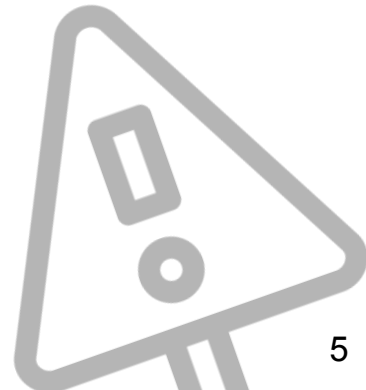
Retrospective Problems

Commonly Occurring Issues

- Retrospectives face **unique challenges** [Loeffler, 2017]
 - Unfamiliar setting and tasks
 - Different skill sets

[Loeffler, 2017] Loeffler, M.: Improving Agile Retrospectives: Helping Teams Become More Efficient. Addison-Wesley Professional (2017)

[Rubin, 2012] Rubin, K.S.: Essential Scrum: A practical guide to the most popular Agile process. Addison-Wesley (2012)



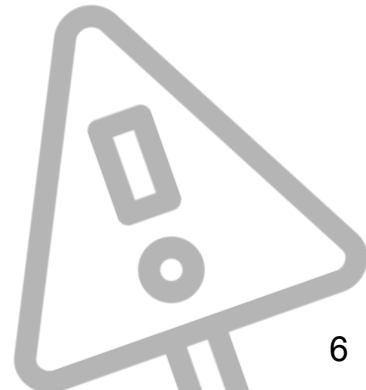
Retrospective Problems

Commonly Occurring Issues

- Retrospectives face **unique challenges** [Loeffler, 2017]
 - Unfamiliar setting and tasks
 - Different skill sets
- Agile process facilitators identified **problems that commonly occur** in Retrospectives [Rubin, 2012]
 - Hindering teams in realizing their full potential
 - e.g. participants not speaking up

[Loeffler, 2017] Loeffler, M.: Improving Agile Retrospectives: Helping Teams Become More Efficient. Addison-Wesley Professional (2017)

[Rubin, 2012] Rubin, K.S.: Essential Scrum: A practical guide to the most popular Agile process. Addison-Wesley (2012)



Retrospective Activities

Games to Structure Retrospectives

- Proposed activities / games to structure Retros [Jovanovic, 2015]
 - “timeboxed processes that [...]
help your team think together” [Derby, 2006]
 - Encourage equal participation and exploring new perspectives

[Jovanovic, 2015] Jovanovic, M., Mesquida, A.L., Mas, A.: Process improvement with retrospective gaming in agile software development. In: Systems, Software and Services Process Improvement. pp. 287–294. Springer (2015)

[Derby, 2006] Derby, E., Larsen, D.: Agile Retrospectives: Making Good Teams Great. Pragmatic Bookshelf Series, Pragmatic Bookshelf (2006)

[Jovanović, 2016] Jovanović, M., Mesquida, A.L., Radaković, N., Mas, A.: Agile retrospective games for different team development phases. Journal of Universal Computer Science, 1489–1508 (2016)



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help your team think together” [Derby, 2006]
 - Encourage equal participation and exploring new perspectives
- **Explicit assignments** of problems to activities
only exist in a few cases [Jovanović, 2016]

[Jovanovic, 2015] Jovanovic, M., Mesquida, A.L., Mas, A.: Process improvement with retrospective gaming in agile software development. In: Systems, Software and Services Process Improvement. pp. 287–294. Springer (2015)

[Derby, 2006] Derby, E., Larsen, D.: Agile Retrospectives: Making Good Teams Great. Pragmatic Bookshelf Series, Pragmatic Bookshelf (2006)

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Research Goals

Research Questions

- **Provide guidance to process facilitators** in choosing activities which counteract identified problems in their retrospectives



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Hypotheses

- **H1** Existing Agile Retrospective activities already address specific problems without explicitly mentioning so



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Research Questions

- **Provide guidance to process facilitators** in choosing activities which counteract identified problems in their retrospectives

Hypotheses

- **H1** Existing Agile Retrospective activities already address specific problems without explicitly mentioning so
- **H2** Scrum Masters can address their teams' Retrospective problems with problem-specific activities



Research Agenda

Steps To Be Followed

1. **Collect Retrospective problems and activities**
from research literature and online resources
2. **Map activities to problems** they address,
generate hypotheses
3. **Conduct case studies in Agile teams**
to evaluate the real-world effects



Collecting Problems & Activities

Extracting Common Retrospective Problems and Activities

- Recent previous collection efforts [Loeffler, 2016; Jovanović, 2016]
- Explicitly included **popular practitioner websites**
 - Most relevant to practitioners [Beecham, 2014]
 - Most up-to-date
 - Example: Agile Retrospective Wiki [Bowley, 2018]
- Deduplication, Issues not solvable by Retros structure removed



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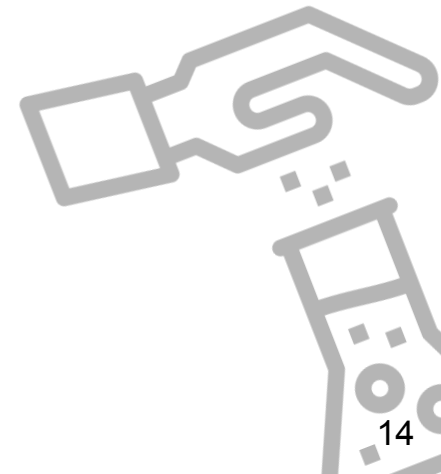
[Beecham, 2014] Beecham, S., O’Leary, P., Baker, S., Richardson, I., Noll, J.: Making Software Engineering Research Relevant. Computer, 80–83 (2014)

[Bowley, 2018] Bowley, R., Linders, B.: Common ailments & cures (2018), http://retrospectivewiki.org/index.php?title=Common_ailments_%26_cures, [online] Accessed: 2019-01-11

Mapping Activities to Problems

Method

- Compile descriptions and explanations from primary sources
- **Discussion and qualitative analysis**
 - Iterative coding using emergent topics
 - Clustering of topics
 - Consensus between three involved researchers
- **Generate hypotheses** on which activities remedy which problems

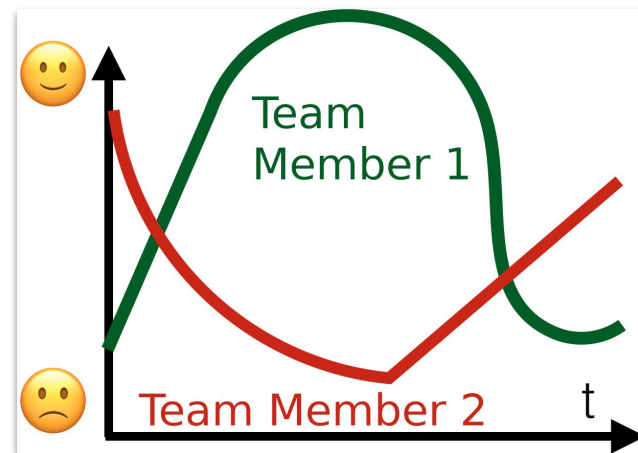


Mapping Activities to Problems

Example: Peaks and Valleys Timeline

Peaks and Valleys Timeline | Not Speaking Up

- After deliberation, participants plot their mood development over last sprint in shared graph [Caroli, 2015]
- **Individual, silent thinking time**
- Sharing carefully considered points promotes voicing thoughts
- **Artifact** for starting discussions



Problem-Activity Mapping

Proposed Assignments

- 9 Retrospective problems — **Challenges to tackle**
 - e.g. No Preparation, Not Speaking Up, Too Repetitive
- 14 Retrospective activities — **Things to do**
 - e.g. Sailboat, Futurespective, Peaks and Valleys Timeline

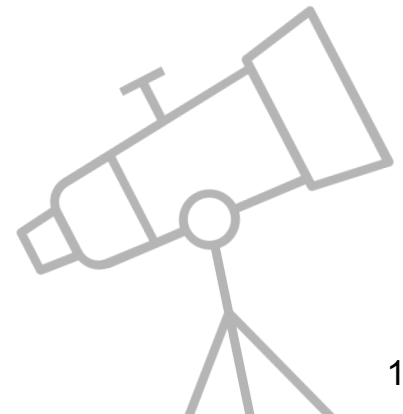
Activity	Addressed Problems
Sailboat	No Preparation, Not Speaking Up, Focus on Negatives
Futurespective	Too Repetitive, No Preparation, Focus on Negatives
P+V Timeline	No Preparation, Blame Game, Not Speaking Up

...

Case Study

Evaluating the Created Activity-Problem Mapping

- **Observational case studies** in 6 Agile teams
 - 4 student teams, 1 startup team, 1 large corporation team
 - Scrum Master interviews, surveys of developers
- 4 observed problems
 - **No Preparation, Not Speaking Up,
All Talk–No Action, Too Repetitive**
- Administered 10 distinct Retrospective activities which tackle these problems



Case Study Results

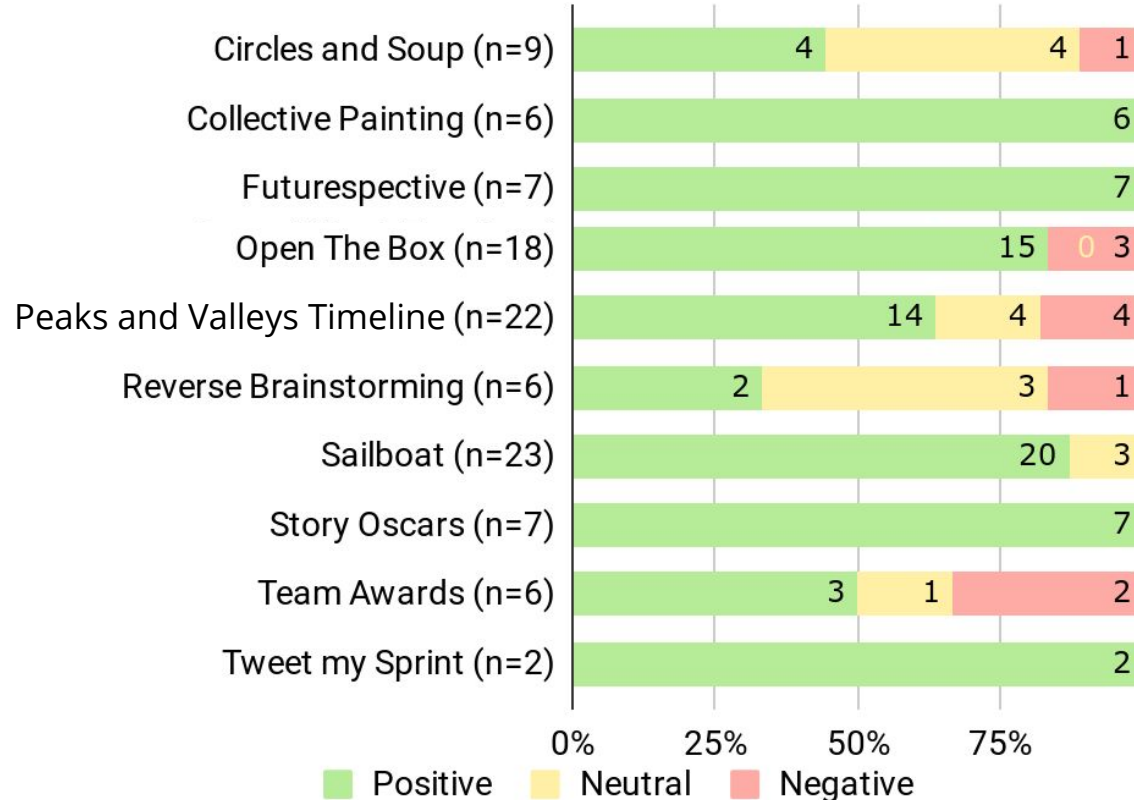
Evaluating the Created Activity-Problem Mapping

- Found evidence for problem resolution in vast majority of cases
 - Only two cases showed no improvement
 - Validated with Scrum Master interviews
- **Evidence for applicability of proposed mapping**

Activity	Reasons	Teams
Sailboat	No Preparation, Not Speaking Up, Diversification	4
Peaks + Valley Timeline	No Preparation, Not Speaking Up, Diversification	3
Open The Box	All Talk–No Action, No Preparation	2
Circles and Soup	Diversification	2

Survey Results

Perceptions of Team Members Regarding Activity Introduction



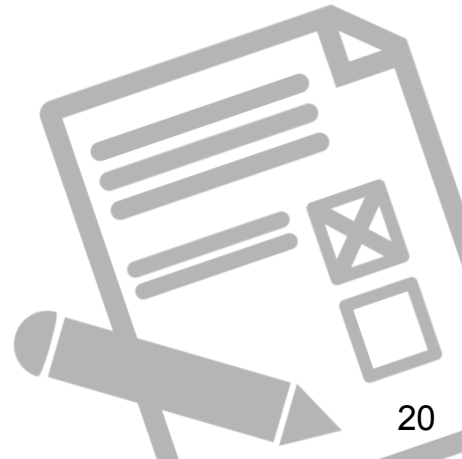
Survey Results

Summary of Team Member Perceptions

- Retrospective participants, in general, **enjoyed team activities**
 - Welcome change in structure
 - In line with related work on the subject [Jovanović, 2016]
- Activities designed to be engaging
 - **Risk of not achieving original goals**
 - “have fun, but have a purpose” [Derby, 2006]

[Jovanović, 2016] Jovanović, M., Mesquida, A.L., Radaković, N., Mas, A.: Agile retrospective games for different team development phases. Journal of Universal Computer Science, 1489–1508 (2016)

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Summary of Findings regarding Research Hypotheses

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H2 Scrum Masters can address their teams' Retrospective problems with problem-specific activities



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- Excellent Retrospectives can **improve teamwork**, work satisfaction, quality of work and productivity [Gonçalves, 2014]

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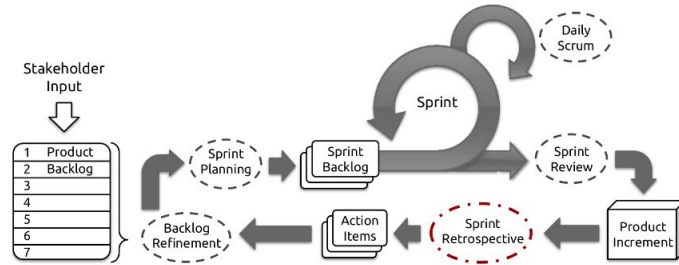
Summary of Findings

- **Activity-Problem mapping:** first step for connecting research on process improvement and Retrospective activities
- Mapping can be employed in teams' Retrospectives to combat common problems
- Excellent Retrospectives can **improve teamwork**, work satisfaction, quality of work and productivity [Gonçalves, 2014]
- **Future work:** Refine mapping and make it more accessible for practitioners, e.g. through websites or software solutions

Summary

Scrum Development Method

The Role of the Retrospective Meeting



Source: C. Matthies, F. Dobrigkeit, and A. Ernst, "Counteracting Agile Retrospective Problems with Retrospective Activities," in Systems, Software and Services Process Improvement, Cham: Springer International Publishing, 2019, pp. 532-545

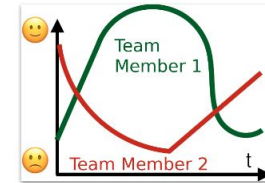
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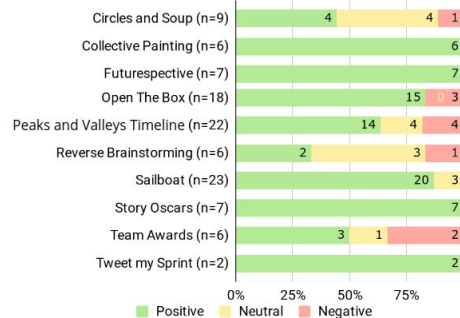


[Caroli, 2015] Caroli, P., Caetano, T.: Fun Retrospectives — Activities and ideas for making agile retrospectives more engaging. Leanpub, Layton (2015)

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