

Unlocking Feedback in Remote Retrospectives: Games, Anonymity, and Continuous Reflection in Action

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Abstract

Conducting engaging and productive sprint retrospectives has been a long-standing challenge, further complicated by the shift to remote work due to the COVID-19 pandemic. This transition has introduced new complexities, such as diminished team trust, loss of non-verbal communication, and reduced effectiveness of brainstorming activities. This paper aims to explore strategies to enhance remote retrospectives for Scrum teams struggling with low engagement and reluctance in offering critical feedback during these meetings. Our study involved three Action Research cycles, which sequentially introduced retrospective games, anonymous feedback, and continuous issue documentation throughout the sprint. The use of retrospective games resulted in increased meeting engagement and active participation, while anonymity created a more secure environment for more comprehensive and truthful feedback. Additionally, continuous reflection ensured no crucial matters were overlooked and promoted proactive problem-solving in real-time. This research adds to the existing knowledge on agile software development in remote settings, providing agile practitioners with actionable strategies to enhance their continuous improvement practices.

Keywords: Collaborative Games, Sprint Retrospective, Agile, Software Process Improvement, Remote Work.

1. Introduction

The widespread adoption of agile methods has transformed the landscape of software project management. While the foundational principles of agile methods are straightforward, their practical implementation frequently presents challenges [32, 35, 16, 15, 38, 18, 5, 9, 14, 23]. A recurring theme in the literature pertains to the difficulty in maintaining engaging and productive sprint retrospectives [20, 30, 40, 25, 21, 29, 28, 24, 4]. Strict adherence to the format outlined in the Scrum Guide can make retrospectives tedious, potentially leading to disengagement among

team members and diminishing the impact of this vital agile practice. Additionally, common pitfalls, such as a lack of structure, the dominance of vocal individuals, and the absence of time or authority to implement action items, further erode the efficacy of retrospectives [29, 3].

Recognizing the critical role of sprint retrospectives in promoting continuous improvement, researchers have advocated the adoption of collaborative games in the retrospective process to mitigate these challenges. Indeed, several research studies have reported that introducing games to retrospectives breaks the monotony and boosts their productivity [30, 41, 21, 29, 24, 1].

However, the COVID-19 pandemic posed an unprecedented challenge for agile teams that traditionally relied on collocation and face-to-face interactions. The pandemic forced agile teams to rapidly adapt their work processes and practices to accommodate a work-from-home (WFH) setup [36]. While the direct virtualization of agile practices enabled teams to sustain the delivery of product increments, it was insufficient to replicate the dynamics and effectiveness of in-person collaboration [6].

The agile practice arguably most detrimentally affected by the transition to remote work is the sprint retrospective. This can be attributed to three primary reasons. Firstly, remote teams lack opportunities to foster team morale and build trust through in-person interactions and personal connections [20, 10, 39]. A deficit of mutual trust within a team can lead to reluctance in openly discussing issues, resulting in unresolved problems [22, 3, 2]. Secondly, in face-to-face communication, feedback is accompanied by body language, facial expressions, and tone of voice, which help in conveying the intent clearly and ensuring that criticism is taken constructively [37, 6, 3]. This nuanced interaction, crucial during retrospectives, is lost in remote environments. The absence of these non-verbal cues can lead to misunderstandings and perceptions of feedback being more critical or personal than intended. This can exacerbate feelings of discomfort and resistance to openly discuss and resolve issues. Thirdly, conducting brainstorming activities online has been reported as much less effective than in-person sessions, leading to reduced engagement and productivity [19].

In light of these challenges, this work proposes and explores strategies to enhance sprint retrospectives in remote settings. Insights are drawn from an Action Research project conducted at a multinational corporation, where members of remote Scrum teams hesitated to provide critical feedback to each other due to concerns over potential conflicts and harm to interpersonal relationships. This project was driven by two research questions: (1) What challenges do remote Scrum teams face during sprint retrospectives?; and (2) What strategies can be implemented to address these challenges?

The primary contributions of our research are twofold: firstly, we provide validated strategies that enhance the effectiveness of sprint retrospectives in remote settings; and secondly, we enrich the existing knowledge base regarding remote retrospectives.

2. Related Work

The use of collaborative games to revitalize sprint retrospectives has attracted considerable attention. Przybylek & Kotecka [30] pioneered this approach, adapting and evaluating five retrospective games within a real-world environment at Intel. Their goal was to support more effective and enjoyable retrospective meetings. They found that game-based retrospectives fostered creativity, involvement, and communication among participants, yielding better results than traditional retrospectives. This study spurred further research, with replications in diverse contexts and companies, incorporating additional retrospective games [31, 40, 25, 24]. Notably, Przybylek and his team conducted a follow-up study [29] across three companies, replicating the original study with enhanced scientific rigor. Feedback consistently indicates that retrospective games effectively mitigate common “accidental difficulties” associated with sprint retrospectives, such as lack of structure, monotony, excessive complaints, or uneven participation, ultimately leading to more productive meetings.

Building upon the research methodology established in the aforementioned studies, this paper breaks new ground by exploring the application of retrospectives games within a remote work setting. This shift necessitates addressing novel obstacles, including a lack of trust in virtual settings [20, 10, 39]. Consequently, this study also explores anonymous feedback mechanisms. This direction is informed by the insights from Gaikwad et al. [12], who suggest that the non-anonymous nature of traditional retrospectives can hinder open communication due to potential social repercussions for expressing dissenting opinions. This concern is further supported by our prior research [21], where senior team members dominated retrospective meetings despite the use of games, as junior members hesitated to disagree with those of higher status.

Finally, this study incorporates insights on constructive feedback from management science. The most effective feedback is delivered immediately after an event [27, 33], enabling a clear understanding of what is working well and what areas require improvement. Therefore, feedback should be a continuous process [17, 34].

3. Research Methodology

With a strong foundation in Information Systems [7], Action Research (AR) has recently gained traction in Software Engineering [29, 16, 15, 6]. This method involves a collaborative process between researchers and practitioners to solve real-world problems while simultaneously generating new knowledge [8]. Our study employs AR, drawing on its successful application in a related context [29].

Our data collection strategy was multi-faceted to thoroughly explore the phenomena under study. We began by conducting unstructured interviews to identify and understand the problematic areas. Subsequently, participant observation was used to closely monitor the implementation of interventions in practice. Finally, the evaluation of our interventions incorporated two complementary methods. Firstly, we gathered feedback via a questionnaire distributed after each AR cycle to capture the immediate perceptions and experiences. This questionnaire contained an identical set of questions across all cycles, ensuring consistency in data collection and enabling direct comparisons between interventions. Secondly, at the conclusion of the project, we organized a focus group to facilitate in-depth discussion and qualitative feedback from the participants. The focus group discussion was guided by the following questions:

- Did the interventions we implemented address any of the issues your team previously experienced with retrospective meetings?
- What are the advantages and disadvantages of game-based retrospectives?
- What are your thoughts on the use of anonymous idea generation in retrospectives?
- What do you think about the practice of continuously documenting significant issues throughout the sprint?
- What are your comments on the questionnaire results? Why do you think 5Ls was rated lower than the other games?
- From your experience with this research, can you offer any further insights?

Employing the dual approach of quantitative and qualitative data collection enabled us to triangulate the data, thereby enhancing the reliability and validity of our findings.

4. Research Context

The project was conducted in a multinational corporation that is one of the world's largest semiconductor chip manufacturers. Among the five qualifying Scrum teams, a survey was conducted to assess interest in research participation. Ultimately, we onboarded three teams where every member enthusiastically agreed to participate in the study. The composition of each team is presented in Table 1.

Table 1. Participating teams and their compositions.

	Team_A	Team_B	Team_C
Team Lead	×1	×1	×1
Product Owner	×1	×1	×1
Scrum Master	×1	×1	×1
Developer	×5	×2	×9
Intern		×2	×2

All teams worked remotely in two-week sprints and meetings were held using Microsoft Teams. Each sprint concluded with a Sprint Retrospective, generating action items assigned to specific team members. The subsequent retro began with a review of the previous iteration's action items, scrutinizing their success and evaluating the intended impact against the actual outcome. However, each team had a different format for the Sprint Retrospective.

In *Team_A*, members filled out a table provided by the Scrum Master with two columns: “What we did well” and “What we could have done better”. The team then discussed the items and formulated corrective actions. Their retrospectives often concluded earlier than scheduled, due to a lack of substantial insights for discussion. Typically, only two or three points were noted, resulting in one or two action items to be addressed.

Team_B took an unconventional approach to collecting issues for discussion during the retrospective — they documented them continuously throughout the sprint in a shared document. At the beginning of the retrospective, team members had time to supplement the list of observations, and then the meeting proceeded in a standard manner. The collected insights were categorized into three themes: “What we should stop doing”, “What we should start doing”, and “What we should continue doing”.

Team_C followed the same process as *Team_A*, but their columns were labeled differently: “Stop doing”, “Keep doing”, and “Start doing”.

5. The First Action Research Cycle: Game-Based Retrospectives

5.1. Diagnosing

The primary issue impacting retrospective meetings across all teams was the lack of active participation from team members. Consequently, these sessions often led to minimal outcomes, causing team members to feel that their time was wasted. This perception further reduced their enthusiasm for future retrospectives. Scrum Masters facilitating these meetings encountered difficulties in eliciting insights and encouraging dialogue among their teams. Our investigation identified several root causes, such as timidity, discomfort in offering criticism — particularly towards more experienced colleagues or superiors — and difficulties in identifying issues and developing solutions, as the key obstacles.

5.2. Action Planning and Taking

We chose to incorporate three retrospective games namely *Sailboat*, *Starfish*, and *5L's*, which have been effective in mitigating similar issues in related studies [29, 30, 40, 25, 21, 24].

The *Sailboat* game uses a nautical metaphor to facilitate the identification of factors influencing a team's progression. This includes recognizing elements that propel them forward (wind), those that impede their progress (anchors), potential risks (rocks), and their goal (island) [13].

The *Starfish* encourages reflection on five aspects: keep doing, less of, more of, stop doing, and start doing, providing a comprehensive view of the team's practices [13].

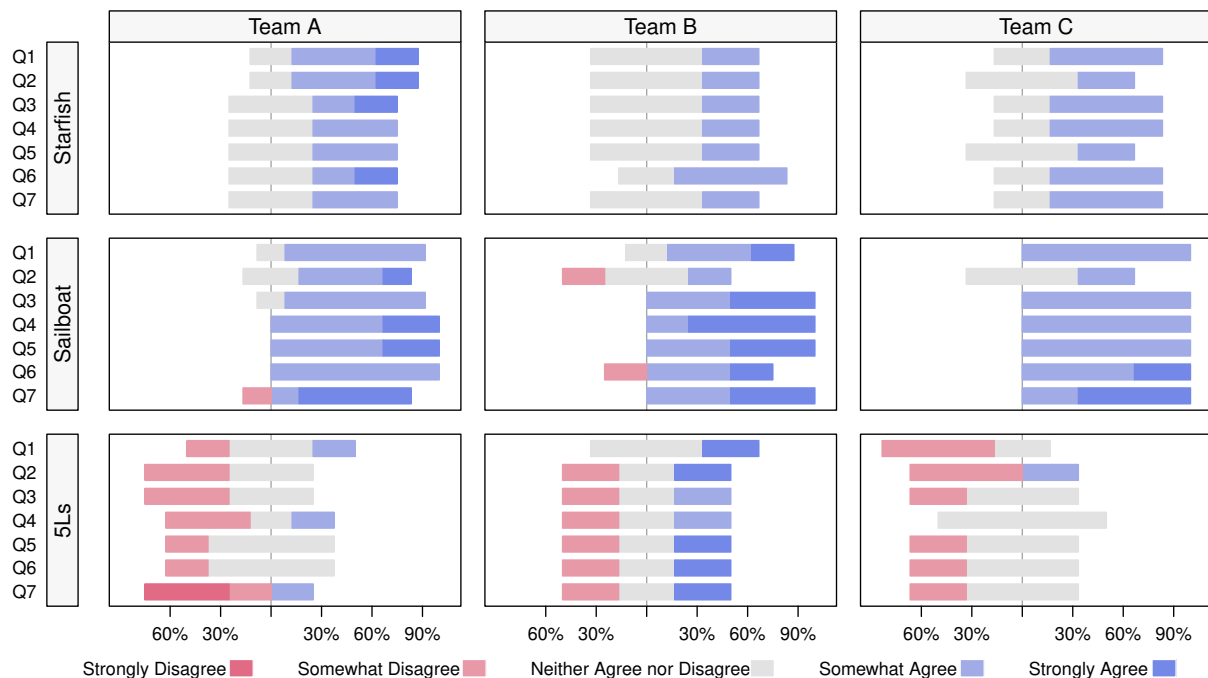
The *5L's* game — standing for Liked, Learned, Lacked, Longed for and Loathed — prompts participants to reflect on what they liked about the past sprint, what they learned, what they felt was lacking, what they longed for or wished had happened, and what things they disliked.

This structure encourages both positive and negative feedback, giving the team a well-rounded perspective [30].

Each game was introduced to the team by the Scrum Master and utilized during a distinct retrospective. Accordingly, the AR cycle spanned over three sprints. The retros were conducted directly in the Microsoft Teams environment. The Scrum Master provided an interactive board on which participants placed their “sticky notes” in chosen categories. Once a participant had placed all their observations, they raised a virtual hand to signal that they were ready for discussion. Once all participants were prepared, the team discussed each category in turn.

5.3. Evaluating and Specifying Learning

The evaluation results (Fig. 1) show that *Sailboat* and *Starfish* were generally well-received by all teams. However, most members of *Team_B* expressed a neutral stance towards *Starfish*. They reasoned that the categories “Stop doing” and “Do less of” were less relevant for mature teams like theirs, where long-term process optimization had already minimized areas for further improvement. As for the *5Ls* game, it was not received positively, with the exception of one-third of *Team_B* members.



- Q1. The game yields better outcomes compared to our standard approach.
- Q2. The game should be permanently adopted by our team.
- Q3. The game is a valuable complement to our standard approach.
- Q4. The game enhances participants' creativity.
- Q5. The game increases participants' involvement.
- Q6. The game enhances communication among team members.
- Q7. The game is easy to understand and play.

Fig. 1. Results of evaluating the intervention in the first AR cycle.

During the focus group session, participants highlighted several advantages of the game-based retrospectives, including the structured approach to collecting insights, and the opportunity to reflect on the sprint from different perspectives. One participant encapsulated this sentiment by stating, “*retro games establish a systematic approach for conveying feedback, or-*

ganizing issues into distinct categories, and ensuring that various viewpoints are heard". Additionally, many participants recognized that the retro games also stimulated creativity. Nonetheless, some voiced concerns about potential drawbacks, such as the difficulty in conducting a root cause analysis of the problems encountered and the possibility of becoming bored with using only *Sailboat* and *Starfish* in the long term.

6. The Second Action Research Cycle: Anonymity in Retrospectives

6.1. Diagnosing

After mitigating the issues related to the team's lack of proactive participation and low engagement, a notable absence of discussion about serious issues during the retrospectives became apparent. This situation could have been a result of either the absence of such issues or a lack of trust within the team, consequently leading to a reluctance to provide critical feedback.

6.2. Action Planning and Taking

In the absence of established best practices for building trust in remote settings beyond what had already been established within the participating teams, we decided to explore an alternative solution. Drawing from our previous study [21], we decided to introduce anonymity in the idea-generation phase of the game-based retrospectives. Although the 5L's game had not gained traction in the first AR cycle, we opted to give it a second chance, this time in an anonymous version. By allowing team members to contribute their thoughts anonymously, we aimed to create a safe space for sharing critical feedback and discussing more serious issues that may have been overlooked in previous retrospectives.

Despite the wide range of web apps available for conducting anonymous game-based retrospectives, we were unable to leverage these platforms due to the company's policy requiring the protection of data discussed in retrospective sessions. To overcome this limitation, we developed a custom in-house tool that allowed team members to submit their ideas anonymously during the retrospective meeting.

This cycle also spanned three sprints, employing the same trio of games but with added anonymity. During the retrospectives, held via Microsoft Teams, the Scrum Master provided a link to our custom tool, enabling team members to anonymously share their thoughts relevant to the game in play. Participants quickly adapted to the new tool. In the case of *Team_A* and *Team_B*, the Scrum Master occasionally prompted participants to provide more detailed entries. This was done to ensure the clarity of ideas for other team members and to minimize the need for authors to offer explanations during the discussion.

6.3. Evaluating and Specifying Learning

The evaluation results (Fig. 2) show that the ratings for the *Starfish* game improved even further compared to the non-anonymous version, whereas the *Sailboat* game received slightly lower ratings than in the previous cycle. Additionally, the 5L's game did not manage to gain traction.

During the focus group discussion, participants acknowledged the benefits of anonymity in creating a safe space for constructive feedback, particularly in teams prone to conflict or where members feel uncomfortable expressing negative opinions. However, a challenge emerged in ensuring that anonymous comments were detailed enough for the team to grasp their meaning without additional clarification from the author.

Moreover, participants suggested that the use of anonymous inputs may serve as an insightful tool for gauging the level of trust within the team. By comparing the nature of the feedback received in both transparent and anonymous settings, the team could observe the impact of anonymity on the openness and honesty of the feedback provided.

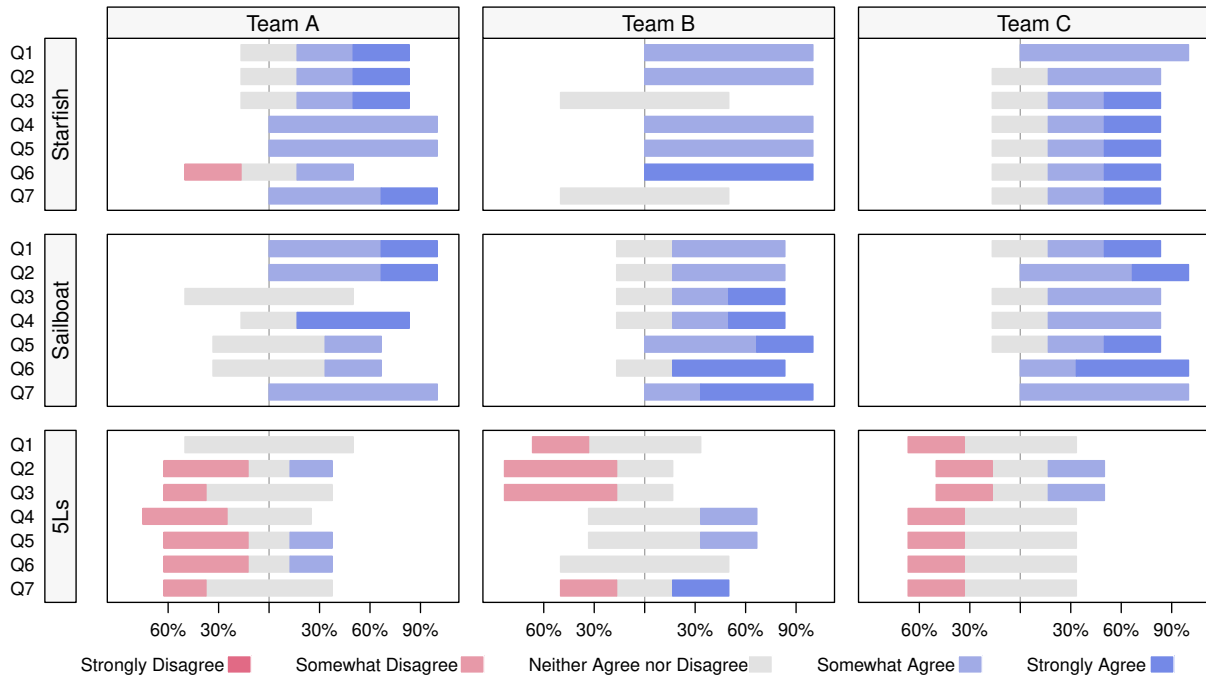


Fig. 2. Results of evaluating the intervention in the second AR cycle.

Lastly, when probed about the continued low ratings for the *5L's* game, participants explained that the game's categories did not resonate with them, finding them ambiguous and not always applicable. They elaborated, *"not every sprint leads to a learning opportunity, and it's often challenging to identify what we liked or loathed"*. Conversely, they appreciated that *"Starfish offers well-defined categories that assist in pinpointing critical issues"* and highlighted that *"Sailboat is also straightforward and uniquely integrates the sprint goal and team vision into the discussion, which are aspects frequently overlooked"*.

7. The Third Action Research Cycle: Ongoing Anonymous Feedback

7.1. Diagnosing

Although the anonymous approach was recognized as a beneficial measure in promoting constructive criticism within the teams, the challenge of not all relevant matters being brought up during the retrospectives remained. This situation could potentially arise from certain issues being unintentionally overlooked.

7.2. Action Planning and Taking

Inspired by *Team_B's* initial retrospective approach, we resolved to introduce a practice of ongoing documentation of significant issues throughout the sprint. These documented issues would then be discussed in the following retrospective session. At the beginning of the sprint, the Scrum Master for each team set up a new instance of the retrospective game in the tool developed in the previous cycle. The game chosen was the team's preferred option from the three introduced earlier. The Scrum Master provided team members with a link and an access code to join this instance. Team members were encouraged to populate the game board whenever they encountered a situation worth noting, ensuring that it would be discussed in the retrospective.

7.3. Evaluating and Specifying Learning

Team_A, which used the *Starfish* game, observed no significant change compared to the previous cycle. For the other teams, *Sailboat* was the game of choice, and documenting events throughout

the sprint led to slightly improved outcomes. The results from the questionnaire assessing this latest cycle are depicted in Fig. 3.

During the focus group, participants were unable to conclusively determine whether this approach was superior to the one used in the previous cycle. One individual expressed concern that continuous documentation might lead to gathering irrelevant information, though this concern was not supported by any observable outcomes.

Conversely, another participant highlighted that this approach helped ensure that crucial matters were not overlooked. Echoing this sentiment, another member remarked, *“although it appears more time-intensive, this approach leads to improved results and enhances communication during the retrospective meeting”*.

In addition, participants acknowledged that the ongoing documentation of issues promoted timely, ad-hoc communication. Documented observations sometimes triggered requests for clarification, leading to clearer communication of problematic issues. Furthermore, this approach enabled some problems to be resolved well before the scheduled retrospective meeting.

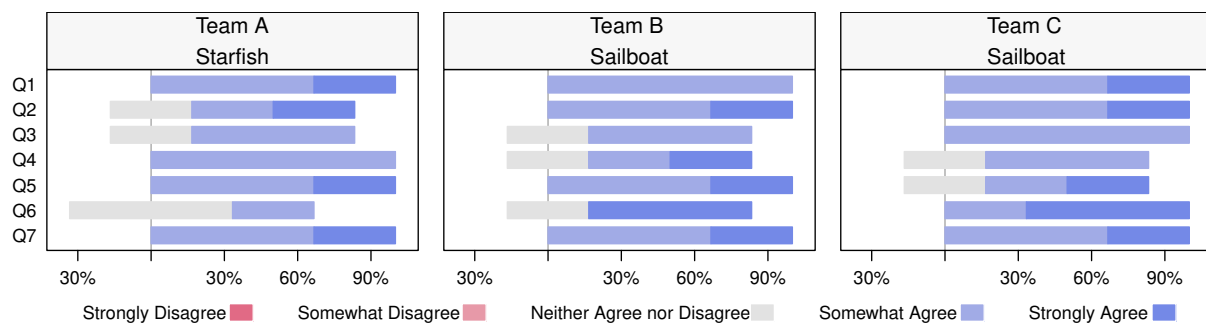


Fig. 3. Results of evaluating the intervention in the third AR cycle.

8. Threats to Validity

8.1. Construct Validity

The main limitation of our study is the reliance on subjective evaluations — perceptions, feelings, experiences, and memories of participants — rather than objective measures like the number of valuable ideas generated. However, objective measurements might not fully capture the unique context of each sprint, as even retrospectives conducted using the same method would yield different results due to the distinct nature of each sprint.

Relying on human input introduces social threats to construct validity. Participants were pre-informed about the intervention’s aims and expected improvements, potentially leading to response bias or socially desirable answers. To mitigate this, we emphasized the importance of honest feedback to figure out useful practices.

Researcher expectancy bias is another potential threat, where we might interpret evidence in line with our preconceptions. To mitigate this, we employed multiple researchers to analyze the data independently, and discrepancies in interpretation were discussed and resolved through consensus.

8.2. Internal Validity

Research conducted in real-world industry settings inherently involves uncontrollable variables. Factors other than our intervention could have influenced the results. Retrospective outputs depend not only on the format employed, but also on the richness of sprint events and team dynamics. Additionally, the diagnosing phase might have biased participants as we inquired about issues with their retrospectives, potentially indicating a need for improvement.

8.3. External Validity

The generalizability of findings from AR is contingent upon contextual similarity, often referred to as transferability. To facilitate transferability, we have provided a comprehensive account of our AR project, including the specific context, challenges, and interventions employed. We believe that remote agile teams facing similar challenges may benefit from adapting our approach, but encourage further research to explore its broader applicability across diverse team settings.

9. Discussion

Drawing from insights gathered through three AR cycles, we have distilled four lessons learned to enhance the effectiveness of sprint retrospectives, particularly in promoting active participation among team members and constructive criticism.

Lesson 1: Experiment with Different Retrospective Formats

Our findings support existing research, confirming that the integration of retrospective games enhances session dynamics and promotes active participation [29, 40]. This approach not only broadens the range of viewpoints brought to the table but also allows team members to reflect on the past through diverse lenses.

Lesson 2: Monitor the Effectiveness of Different Retrospective Formats

While *Starfish* and *Sailboat* were well-received, *5L's* did not gain as much traction. This observation aligns with previous research findings and highlights the importance of monitoring team responses to different formats [29]. Mindfully selecting games that align with the team's specific context and maturity level is crucial for successful retrospective sessions.

Lesson 3: Embrace Anonymity for Constructive Criticism

Creating a safe and comfortable environment is crucial for team members to feel free to share their thoughts and feelings openly. Our implementation of anonymous feedback mechanisms proved beneficial in fostering a space for constructive criticism, leading to more in-depth and honest feedback. Yet, the necessity for detailed explanations when providing anonymous input was time-consuming, posing a disadvantage by requiring additional effort and extending the duration of the sessions.

It is critical to recognize that anonymity is ideally a transitional tool rather than a permanent fixture. In an open feedback culture, the ultimate goal is to build trust and psychological safety within the team, enabling members to provide constructive criticism without the need for anonymity [11]. To this end, we advocate for continued research into strategies that cultivate a culture of trust, respect, and open communication, especially within the context of remote work.

Lesson 4: Experiment with Continuous Reflection

Ongoing population of the game board with significant issues throughout the sprint, while a potentially controversial idea, showed promise in ensuring crucial matters were not overlooked during the retrospective. This proactive approach also triggered ongoing reflection and communication, facilitating immediate resolution of some issues. This continuous reflection adds another valuable layer to the retrospective process and embodies Schön's concept of "reflection-in-action" [33]. Rather than relegating reflection to a dedicated retrospective meeting, this approach encourages team members to engage in a continuous process of thinking about their experiences during the sprint itself. This "knowing-in-action" allows for real-time adjustments and problem-solving, preventing issues from escalating.

Furthermore, London [17] emphasizes the importance of timely and ongoing feedback for continuous improvement and skill development, reinforcing the value of this approach.

10. Conclusions

Our study explored various strategies to enhance retrospectives in remote Scrum teams. The initial lack of engagement and proactive participation observed in the teams highlighted the need to move beyond traditional, rigid retrospective formats. Introducing retrospective games, such as *Starfish* and *Sailboat*, proved highly effective in revitalizing the process, fostering active participation and promoting diverse perspectives.

While games can encourage participation, a safe environment is paramount for honest and constructive feedback [11]. Embracing anonymity for feedback proved instrumental in creating a safe space for constructive criticism, leading to more honest and in-depth discussions.

Finally, ongoing population of the game board with significant issues throughout the sprint not only ensured that all relevant matters were not forgotten, but some of them were addressed immediately before the retrospective meeting.

This study underscores the importance of flexibility and innovation in the conduct of the Sprint Retrospective. Future research should continue exploring innovative ways to unlock the full potential of this vital Scrum practice, potentially with the assistance of Generative AI. AI-driven tools could analyze retrospective data to identify recurring patterns and suggest improvement actions [26]. Ultimately, cultivating a culture of continuous improvement and experimentation will empower teams to overcome any challenge.

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