



Playing the Sprint Retrospective: A Replication Study

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Abstract. The Sprint Retrospective is a vehicle for continuous process improvement. Even though it is a well established agile practice, running effective retrospective meetings is challenging. There have been a lot of identified problems that commonly occur during these meetings. To address them, Przybyłek & Kotecka [20] successfully revitalized retrospective meetings by adopting collaborative games, which represent a powerful tool in improving interactions among team members. In this paper, we report on a replication of their study in Bluebay Poland and IHS Markit Gdańsk. The received feedback confirms the original findings and indicates that game-based retrospectives improve team members' creativity, involvement, and communication as well as produce better results than the standard retrospectives. This paper is an extended version of our previous work [25].

Keywords: Retrospective · Collaborative games · Agile · Scrum

1 Introduction

Agile methods emerged as a response to traditional ways of software development and acknowledged that in today's competitive environment, which creates demand for high quality services at lower costs and with shorter cycle times, customers are not able to definitively express their needs up front [16, 17, 22]. In agile software development requirements and solutions evolve through the collaboration of all stakeholders. The Agile Manifesto [8] promotes principles and values such as face-to-face conversation within a development team, motivated individuals, self-organizing teams, and retrospectives at regular intervals. Besides, agile team members are expected to be proactive and creative in solving complex software development problems [3, 7, 11, 15, 21, 22, 26]. Nevertheless, agile methods do not define techniques to support these attitudes. Responding to this challenge, Przybyłek and his team [19–22, 26] suggested to equip agile teams with collaborative games.

Collaborative games are structured techniques that help a team think together. They are inspired by game play, but designed for the purpose of solving practical problems [20], for instance they are quite widely used as a requirements gathering technique [14,

22]. By involving visual activities like moving sticky notes and drawing pictures, they provide multiple dimensions of communication, which results in deeper, richer and more meaningful exchanges of information [9, 21]. Furthermore, several research indicates that fun is a powerful tool in unleashing creativity and facilitating collaboration [6, 9, 24].

Przybyłek & Kotecka [20] showed that the promised benefits of collaborative games were materialized when running a game-based retrospective in 3 teams in Intel Technology Poland. The Sprint Retrospective is a postmortem meeting at the end of a Sprint in which the team inspects and adapts its way of working [10, 23]. It aims to recognize the successes and failures of the last Sprint and to define steps to improve the process in the future. The importance of retrospectives for the agile community is reflected in one of the principles of the Agile Manifesto [8]: “At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly”. While retrospectives can positively impact teamwork, productivity, and work satisfaction, findings presented in the literature [4, 5, 12] suggest that running successful retrospectives is challenging.

In this paper, we report on a replication of the study carried out in Intel by Przybyłek & Kotecka [20]. The feedback received from 3 Scrum teams confirms the findings from the original work and indicates that collaborative games improve participants’ creativity, motivation, communication, knowledge sharing, make participants more willing to attend Scrum meetings, and produce better results than the standard retrospective.

The rest of this paper is organized as follows. Section 2 provides an overview of the previous studies. Section 3 explains the employed research methodology. Sections 4 and 5 report the research project and its results. Finally, the last section concludes the paper.

2 Related Work

There has been lots of interest in adopting collaborative games to support agile teams. Trujillo et al. [24] proposed a game-based workshop used as an alternative for the Inception phase of a project. The workshop combines classical and game-based techniques to increase stakeholders’ involvement and improve collaboration between stakeholders and the team.

Przybyłek & Olszewski [19] proposed an extension to Open Kanban, which comprises of 12 collaborative games divided into four categories in accordance with four Open Kanban principles. The extension was proved to help inexperienced team members better understand the principles of Kanban and promote teamwork.

Przybyłek & Zakrzewski [22] elaborated a framework for extending Scrum with 9 collaborative games. This framework was proved to improve agile requirements engineering.

Besides, a web portal which provides 8 collaborative games to be used in agile software development was implemented by Przybyłek & Kowalski [21].

Przybyłek & Kotecka [20] adopted 5 collaborative games to support running an effective and enjoyable retrospective meetings. Our study is a continuation of their work, since we evaluate these games in other companies and teams.

3 Research Method

Our study was carried out as Action Research [1]. In Action Research, the researcher plays the role of a facilitator to coordinate a group of practitioners, so as to solve a real-world problem while simultaneously expanding scientific knowledge [22]. The researcher contributes his knowledge of action research while the practitioners provide their practical knowledge and context [1]. A precondition for Action Research is to have a problem owner willing to collaborate to identify a problem, engage in an effort to solve it, analyze the results, and determine future actions [22].

There are two independent problem owners in this research: (1) Bluebay Poland, which is a software development house; and (2) the Product Development & Delivery department of the Gdańsk-based office of IHS Markit. IHS Markit is a global information provider specializing in conducting economic, financial and subject analyses on financial and capital markets as well as supporting decision-making processes for both business and institutional clients across 165 countries. Both organizations were interested in auditing their work practices related to the Sprint Retrospective and improving identified deficiencies. As for Bluebay Poland, two Scrum teams participated in the study. Team 1 developed a web store for Aclari Diamonds, which is a jewellery company, while Team 2 developed print management software for POSperita, which is a printer & advertising agency. When it comes to IHS Markit Gdańsk, one team engaged in our research. The team was responsible for developing shared components and libraries of IT platform used by IHS Markit and its clients. The participated teams are presented in Table 1. All teams worked in two-week sprints.

Table 1. Participating teams (role, experience in years); SM denotes Scrum Master.

Team 1 - Bluebay Poland	Team 2 - Bluebay Poland	Team 3 - IHS Markit Gdańsk
Team Leader & SM, 10	Team Leader & SM, 10	Team Leader & SM, 8
Developer, 5	Developer, 8	Front-end developer, 1
Developer, 3	Developer, 6	Front-end developer, 1
Tester, 2	Developer, 5	Front-end developer, 3
	Tester, 5	Full-stack developer, 3
		Back-end developer, 6
		Tester, 3
		UX Designer, 7
		UI Designer, 6

4 Diagnosing and Planning

Teams 1 and 2 held regular Sprint Retrospective meetings. As for team 3, several members considered the Sprint Retrospective as useless, so it was run only every few sprints. Moreover, only three members of team 3 actively contributed to the discussion during retrospective meetings, while others seemed to be boring. Overall, we discovered that the participated teams encountered similar issues related to the Sprint Retrospective as those presented in the original study [20] and these issues hindered the teams in realizing their retrospective's full potential. Therefore, we decided to implement all the games introduced in the original study. In addition, we decided to implement one new game, i.e. 360° Appreciation.

360° Appreciation [2] is a game to promote a conducive working environment that strengthens people relationship and boosts team morale. It allows team members to give open positive feedback as well as appreciating the time and effort contributed by the team members. In other words, it focuses only on the developers' strength instead of their weaknesses. The game is easy to be conducted in any environment. What is more, no additional equipments such as blackboards, posters and sticky notes are required. In order to run this activity, the facilitator asks every participant to write down their appreciations about one another on a piece of paper. After that, the team forms a circle with one team member sitting in the middle. The other participants will then read their appreciation feedback to the one in the center. The same process is repeated until everybody in the team has received appreciations.

5 Action Taking and Evaluating

Each game was run twice in each team. An explanation of the rules of the game was given before the team plays the game for the first time. After each game session, we distributed a questionnaire to collect feedback from the participants. The responses were made on a five-point Likert scale. Finally, the results were analyzed and discussed with the respondents.

6 Bluebay Poland

Besides 5L's and 360° appreciation, all games were evaluated positively with respect to all categories. This is due to the fact that playing 5L's consumed too much time, while the obtained results were worse when compared to Starfish, Sailboat or Mood++. As for 360° appreciation, although low scores were obtained for questions 3–6, it is still successful overall, because it was not designed to promote these issues. This game was considered helpful in relieving the tension or getting to know new team members. Since this game does not provide any feedback on the issues during the Sprint, it should be carried out together with another collaborative game during one retrospective session. As for Sailboat, it was especially appreciated for allowing participants to identify risks in a project. The detail results obtained from both teams are presented in Fig. 1. Note that in Bluebay Poland we did not implement Mad-Sad-Glad, which was depreciated in the original study and revised by Mood++.

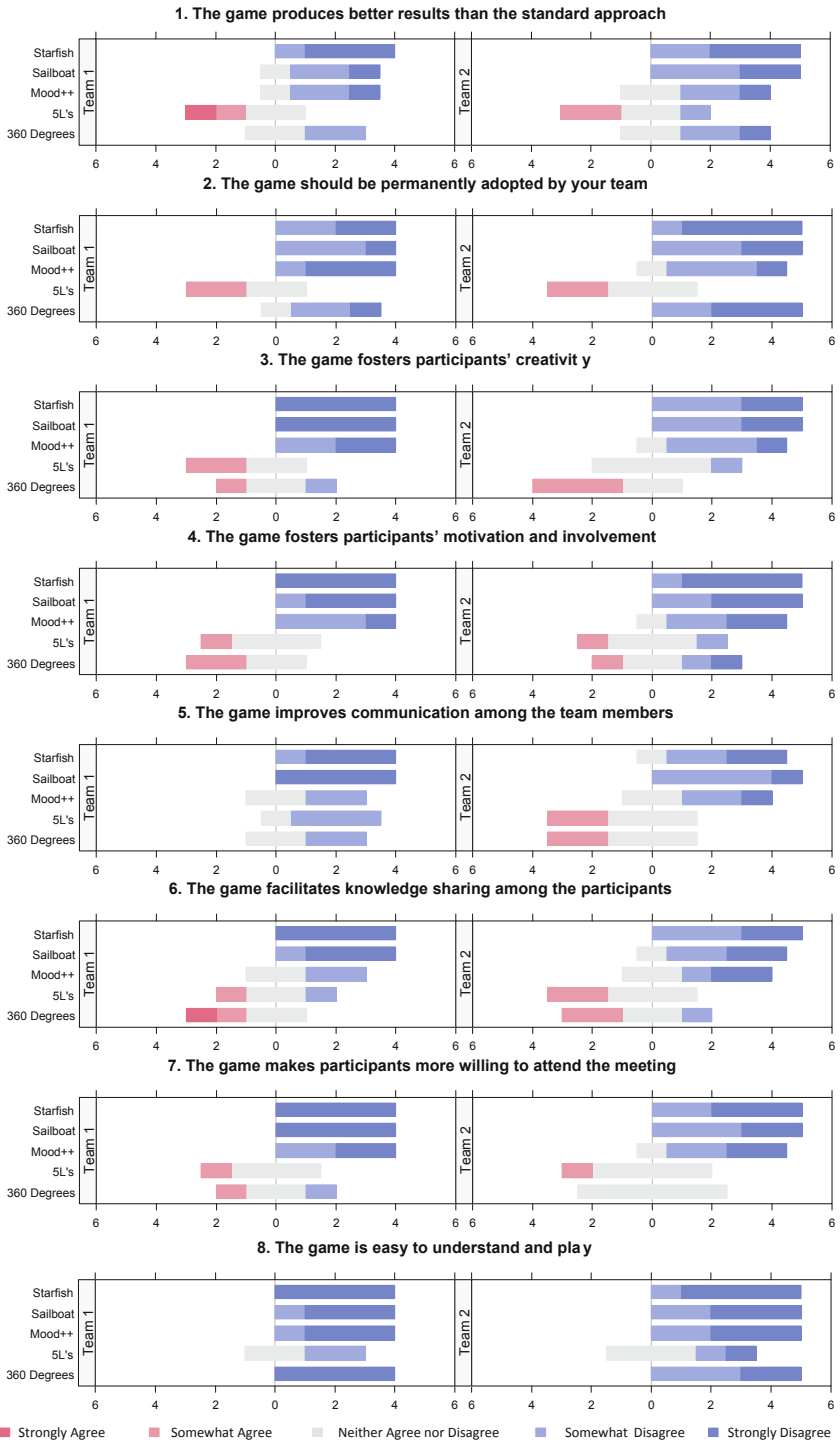


Fig. 1. Aggregated results for the teams in Bluebay Poland.

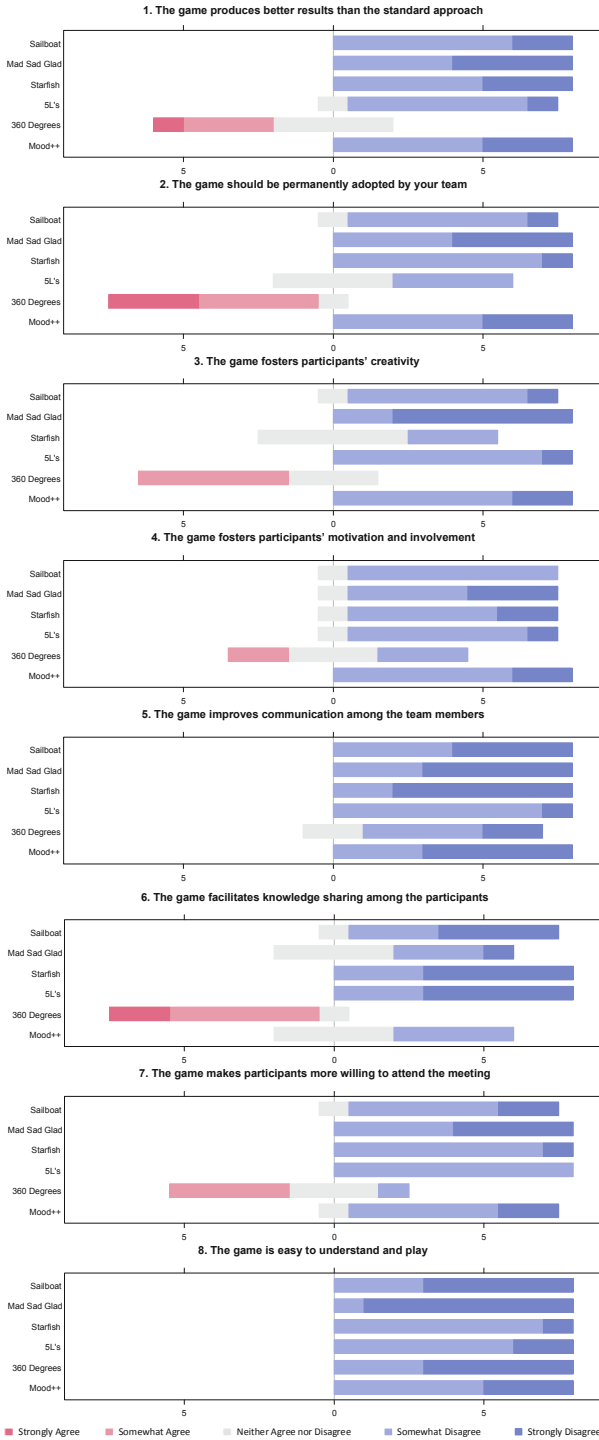


Fig. 2. Aggregated results for the team in IHS Markit Gdańsk.

6.1 IHS Markit Gdańsk

All games except 360° appreciation were evaluated positively with respect to all categories. The detail results scores are presented in Fig. 2. The 360° appreciation game was considered useful only in the context of improving communication. Other conclusions on 360° appreciation were consistent with the findings from Bluebay Poland. As for Sailboat, it was praised for its game board which unleashes imagination, creativity and introduces well defined, unambiguous areas. The team even named the painted sailboat with the team's name. On the other hand, the team claimed that Starfish and 5L's introduce ambiguous categories and provide unattractive game boards. When it comes to Mad-Sad-Glad and Mood++, they were praised for covering different aspects than had been usually discussed during a retrospective. Indeed, both games focus on feelings and emotions instead of organizational or technical issues. At the same time, this explains why both games performed worse than Sailboat, Starfish and 5L's with regard to knowledge sharing. To summarize, the social and entertaining aspects of the proposed games, except 360° appreciation, improved motivation in retrospective meetings.

7 Conclusions

This paper reports on Action Research projects carried out in Bluebay Poland and IHS Markit Gdańsk. In accordance with the best practices developed by Przybyłek & Kotecka [20], we freshened retrospective meetings by introducing collaborative games. The feedback gathered from three Scrum teams confirms the positive influence of collaborative games in the Sprint Retrospective. Game-based retrospectives provided structure and guided teams through the meeting. They enforced balanced participation and led to a variety of measurable societal outcomes. The most successful games, i.e. Sailboat, Mad-Sad-Glad, Mood++, and Starfish improved team members' creativity, motivation, communication, knowledge sharing and make them more willing to attend retrospective meetings. The results obtained from both companies are very consistent except 5L's, which received high scores only from the team in IHS Markit Gdańsk. Moreover, the participated teams intended to continue playing collaborative games after the research finished.

As future work, we intend to conduct a control experiment with settings similar to [18] whether game-based retrospectives are more effective than standard retrospectives. Moreover, we would like to spread the use of collaborative games in other companies. After collecting more data from more teams, we plan to build a recommender system [13] that will help scrum teams to choose a retrospective game suitable for a given context.

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