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AGILE TEAM AND WORKING ENVIRONMENT: A REFLECTION FROM A COURSE PROJECT WORK

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ABSTRACT: *The main purpose of this paper is to point out a proper working environment in an agile team and to give some reflections on it from a recent course project. Regarding the working environment, it is emphasized here on agile culture in a team, behaviors of the team members, and the significant impact of these on the project team's performance. A group of students worked in a project in an Agile Methods course in a university master program where the purpose of this agile development project was to practice agile values and principles in a team-based development. Observation and document analysis were used as data collection methods. A qualitative method was used as the primary data analysis method along with a quantitative method to some extent in this study. This paper describes some findings from the project on an agile work environment and finishes with some recommendations to build up a proper working environment in an agile team.*
KEYWORDS: Agile methods; Scrum; agile work environment; agile team; agile culture; agile practices

INTRODUCTION

Agile development is a method based on time-boxed iterative and incremental development of building software by trusting and empowering people, embracing change and continuous feedback at the same time, promoting adaptive planning and evolutionary delivery, or any other practice that promotes Agility (Larman, 2003). When we talk about agile, we mean something fast and rapid. In the context of software development, it means the ability to take actions quickly and react to change, at the same time welcoming new change in any point of software development process (Koch, 2004). In recent years, agile development has got strong attention from different organizations and academic institutions. Agile methods were introduced by 17 software professionals and consultants in February 2001, who, form the Agile Alliance, produced the Agile Manifesto (*Manifesto for Agile Software Development*, n.d.). The motivation for the development of agile methods arose from continuous dissatisfaction with the existing development methodologies. The core values behind agile development are best summarized by the Manifesto which is "Individuals and interactions over processes and tools; Working software over comprehensive documentation; Customer collaboration over contract negotiation; and Responding to change over following a plan" (*Manifesto for Agile Software Development*, n.d.). Among the different methods of agile, the one focused in this study is Scrum, which emphasizes on practices such as self-directed and self-organizing co-located teams, sprints of two weeks to one month, daily meetings, demo to stakeholder about the features implemented at the end of each sprint (Larman, 2003).

There are many well-known agile development methods. Among them, eXtreme Programming, Feature-driven development, Scrum, adaptive software development, etc. are widely used in software companies. There is enough empirical proof by researchers supporting the fact that agile methodology had been quite successful since it started. However, when it comes to student perception of agile practices, there is a shortage of empirical and valid data available in the literature.

METHODOLOGY

From the beginning of the course project, all the team members used to write their Daily Logs, and the Scrum Master was responsible to write the Group Log. So, along with the literature review, the author used my log and the group log as well for data collection, along with the feedback from all the team members during the three Sprint reviews. The author also analyzed the project documentation, like Product Backlog, User stories, Database diagram, project plans, feedbacks from meetings, and Project report at the end.

Research Questions: What is the impact of the work environment or agile culture on an agile project team's performance? How can we create a proper agile work environment?

Reflections from the course project

Project description

The purpose of the project was to learn and practice agile values and principles in team-based development. The team was self-organizing in a Scrum project. The task was to develop an online Conference managing system. One main goal during the project was to make the best use possible of the competencies in the team. The team was divided mainly into three subdivisions which are development, design, and testing teams along with one person acting as a scrum master. Team members planned to do the task in three consecutive sprints. They had another hard target to increase the productivity and well-being of the team over time.

Team description

The project was done by a single team consisting of twelve members. Among them, six persons were mostly involved as developers, few as designers, and others as testers. One person was responsible as the Scrum master. As there were three sprints during the whole project, each sprint team assigned current works for the members and discussed several issues, like problems during the sprint, how to improve the communication in the team, as well as the overall productivity. The product owner was involved during the development. The team used several ways such as Google docs, MS Excell, MS Word, a Facebook group to communicate and share documents among the members.

Summary of the sprints during the project

Sprint-1 planning

Agile Practices: The team decided to use the following practices:

- Having daily Scrum meetings.
- Collective sharing of tasks and status.
- Energized work environment.
- Sprint/time boxing.
- Partial solutions encouraged.
- Use of simple design.

Sprint-1 Review

Velocity:

Total estimated Complexity points: 20
Estimated finished work after finishing the sprint: 8
Velocity: 8/20 = 40%

Burndown: Amount DONE tasks = 0

Sprint-2 planning

Agile Practices: The team decided to use the following practices:

- Pair programming rather than projector programming or team programming all together.
- Having daily Scrum meetings and increase its quality.
- Incremental releases. Trying to deliver small tasks rather than big incomplete tasks.
- Collective sharing of status and tasks.
- Immediate disclosure of the problem; we have to share any problem with the team.
- Energized work environment.
- Sprint/time boxing.
- Partial solutions encouraged.
- Use of simple design.
- Customer involvement; we will contact the customer instead of having long discussions regarding requirements.
- Face to Face meetings; we will have more contact with each other, for better workflow.

The team decided not to use the following practices:

- Risk management.
- Test-driven development.

Sprint-2 Review

Velocity:

Total Estimated hours = 381
Total Done hours = 272
Velocity= 272/381 = 0.7139
Velocity for Sprint 2 is 71%

Burndown: Amount DONE tasks = 7

Sprint-3 planning

Agile Practices: The team decided to use the same practices as in Sprint 2.

Sprint-3 Review

Velocity:

Total Estimated hours = 149
Total Done hours = 66
Velocity = 66/149 = 0.442
Velocity for Sprint 3 is 44 %

Burndown: Amount DONE tasks = 9

Summary

During the project, the work environment had a big impact both on overall productivity and following agile principles and values. The team environment also influenced the physical participation of the members. “Team decided not to work together, rather than every sub-team is responsible to do his/her tasks. Later on, we decided to work together, because the previous way did not work” (group log, Sprint 1). In the next sprint, the team decided to work in a big room (lab) together. Then we got better production. “Team worked in the same room; we think it was good to get Face to Face communications” (group log, Sprint 2). Sometimes, the team members were lacking comfort and autonomy during the project. “Programmers could not work in the same room with the team because the room was small and did not have projector” (group log, Sprint 1). In summary, the well physical working environment and agile culture should be ensured for increasing the project team’s performance and well-being over time.

Recommendations for creating a proper Agile work environment

Based on the literature review and after analyzing the data collected from the project, the author believes, the following issues should be kept in mind while doing an agile software development project.

- *Open communication:* Lack of proper communication is regularly cited as a negative point in projects. Everyone should feel free to express their thoughts and opinions, as long as it's done formally and respectfully manner. The communication must also be honest.
- *Empowering teams:* Lack of empowerment is a top workplace stress factor. The team should be authorized to make as many decisions as feasible about their workflow and the deliverables.
- *Rewards to good performances:* Lack of acknowledgment is a common issue in many teams. Verbal praise, especially in front of peers, bears a lot of weight. Rewards might be as simple as a free lunch.
- *Maintaining a positive tone:* Negativity spreads very fast. Team members must have positive attitudes and expect some criticism on their ideas.
- *Social interactions:* We like to know more about the people around us. Office events, outings, gatherings, and other social meet-ups help build good relationships.

CONCLUSION

This paper has mainly concentrated on the team and working environment of agile development and the mission of the study was to find out the practical effect of the work environment on ensuring team effectiveness. Going back to the research questions, we can now answer that the right work environment or agile culture has positive and significant impacts on the agile team's performance. It can be mentioned as one essential checkpoint of increasing the overall team productivity in an agile way. The paper has mentioned some reflections from the course project and ended up with some recommendations to create a proper work environment in an agile team.

Agile development involves much more than writing and testing code. Enforcing command-and-control management techniques to agile development slows the developer's performance down and creates more problems than it solves. Ensuring the right work environment is a must in Agile which supports the team's autonomy, enhances the ability to collaborate and communicate well. It also supports the use of the right tools and processes to become efficient while allowing enjoying the surroundings as well.

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