

Collaboration in mature XP teams

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1. Introduction

Over the last five years we have studied five mature XP teams in industry using an ethnographic-based observational approach. We characterise ‘mature XP teams’ as teams who have been applying the 12 original practices of XP for at least a year (Beck 2000). Our research approach is to study the team for a minimum of a week, focusing on social and cultural aspects.

In this brief article we aim to summarise some of our findings which relate directly to collaboration in XP teams. XP teams are a rich environment of collaboration. If you want to know more about any of the issues raised here, please refer to the references or contact the authors for more information.

2. Reassuring rhythms

All of our teams conformed to a set of rhythms: a daily rhythm, an iteration (usually weekly) rhythm and a longer rhythm based around the release planning timescale. These rhythms are illustrated below:

Daily rhythm: Start of day → stand-up → pairing conversations → end of day

Rhythm of the iteration: Pre-planning → planning game → daily rhythm → retrospective

These rhythms are important to the team and their continued productivity. These rhythms are sometimes referred to as the ‘heartbeat’ of XP.

3. Team characteristics

From the very first team we observed, we have identified clear characteristics of XP teams:

1. Individuals and the team do work which demonstrates respect for each other;
2. Individuals and the team take responsibility – i.e. they are self-managing teams;
3. Individuals and the team actively encourage preservation of sustainable pace in their working practices;
4. Through their everyday actions, individuals and the team demonstrate faith in their own abilities and trust in each other.

4. Issues of sustainability

One of the problems with traditional software development approaches that XP is intended to address is the need for sustainable software development, i.e. for teams and individuals to avoid overworking so that the pace of development can be maintained over a long period of time. However, we have observed several issues which need to be addressed to support make sure that XP development is sustainable:

1. Pairing is an intense and tiring activity. One of our collaborators reported that they had tried to pair throughout the day, but found it too intense. All of our teams paired only for about five hours a day, and one of them would not release any changes into the shared code base after 5pm because they had found that code released at that time tended to be most problematic.
2. XP requires continual interactions between developers and the ‘customer’, i.e. the person who represents the business domain and end user of the product. Often the customer and the developers come from different parts of the organisation and we have observed clashes of culture between the two roles. XP has a strong set of values which are designed to support sustainability. Although the organisation needs to be sympathetic to these values for an XP project to succeed, it is not unusual for organisational and team values to differ.
3. The strong rhythms of XP have their disadvantages: boredom and promotion. XP developers have reported a sense of boredom because each day is the same, without as many highs and lows that they have found in traditional software development. All members of an XP team are treated equally – in our observations we have occasionally played a game trying to determine which developer(s) in the team are more senior and which more junior, but we have always found it difficult. This lack of seniority causes problems for promotion cases or when a developer

PPIG Newsletter – September 2006

wishes to move on. In one company, it was agreed that the developer could use any job title they felt was appropriate, and any reference from the company would support that claim.

4. When developers always produce code as part of a pair, it has been reported to us that they sometimes lack confidence to then do any significant development on their own.

5. Physical layout and visibility

In all our teams, physical layout and the ability to provide facilities for making progress visible have been very important. In one large international bank, the developers had resorted to dismantling their desks in order to make it feasible to practise pairing; also they were not allowed to hang anything up on the walls, so they relied on portable flip charts to display progress and other important information.

6. XP teams as distributed cognition

Following our most recent study, we have been analysing the data using distributed cognition. This has provided a different and revealing analytical framework focusing on information flows and information transformation through the wider cognitive system formed by the team. This analysis shows that XP teams use simple flows of information underpinned by shared understanding and sufficient common ground to support effective communication. XP teams work in information-rich environments with easily accessible, easily applicable knowledge, and individual team members put effort into making sure the cognitive system performs as it should. We are now applying distributed cognition to understand the relationships between the different XP practices.

References

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