

Teaching Agile – Agile Teaching: Creating a Holistic Learning Environment

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Abstract

This workshop brings together educators, trainers and students with an interest in teaching Agile principles and practices in an agile way. We will take a holistic approach to courses and curricula to gather advice on effective teaching environments and techniques for agile topics.

1. Introduction

As agile techniques and methodologies become more mainstream in industry, the need for effective teaching becomes acute. Many of us have tried various techniques and environments and many of us have been successful, though not without difficulty. As the need increases, it will be useful for the early adopters to gather their advice so that newcomers to the teaching of agile topics need not reinvent good techniques nor fall into traps that slowed others down.

This workshop brings together educators, trainers, and even students with some background and/or interest in effective teaching-learning environments and methodologies. A permanent record of the proceedings will be maintained on an interactive web site (wiki) so that the results may be extended and disseminated.

Participants will identify success factors as well as challenges for effective ways of teaching and learning agile principles and practices. The workshop will begin to elicit which factors are necessary for a successful infusion of agile into curricula.

One important question for the organizers and we hope for participants, is whether agile principles themselves can inform the teaching.

2. The Challenges

Teaching and learning agile principles and practices is more than teaching pair programming and test-driven development, yet that is typically where the

focus lies in programming and software engineering courses. We want to consider the challenges and opportunities for creating a holistic teaching-learning environment for agile principles and practices. Can these principles help us teach agile development more effectively? Some of the questions and challenges we see and hope to explore are:

- When to introduce agile into the curriculum (learning experience) – at beginning (perhaps coordinated with OO) or later after they have had some “traditional” software development education
- Where in the curriculum - put in a single course or distribute throughout program. How to reconcile with other courses (pre and post)?
- Which methodologies to introduce and use – does it matter - XP, scrum, etc.
- Agile think first, then agile software development? What is best way to instill the principles?
- Teaching techniques explicitly or implicitly as a by-product of other lessons?
- Teaching vs. coaching – apply agile approach to teaching - don’t teach it all in one lump.
- How to transfer experience? Students and faculty come with different levels of experience in software development – professionals with 10+ years, students with 0 -3 years of “academic” experience. How to capitalize on this diversity of skill, experience and interest?
- How should traditionally educated faculty get the required skills?
- Team teaching, team learning – building the community.
- Are the best techniques different in an industrial training setting than in academia?
- Text and materials
- Retrospectives

- Agile development projects – infrastructure, platform, programming language(s), open source
- Games, tools, techniques

3. Purpose and Goals

The purpose of the workshop is to introduce the topic and elicit the issues and experiences of teaching agile. Participants will be invited to share relevant stories and experiences with the group, leading into a brainstorming session to identify pedagogy techniques or advice on how to teach and learn agile principles, practices and values. During these explorative discussions we will look for the emergence of key factors leading to the success or failure of such pedagogy.

Participants will then be divided into small work groups according to their interests and assigned one or more of the factors to explore further in an effort to define or adapt practice(s) to support the chosen factor(s). Each work group will present their findings to the rest of the group with continuing contributions afterwards.

Short summaries will be given during the workshop, with a permanent and longer record on the wiki. At a future time the wiki discussion may be distilled into a more stable permanent web site.

4. Background

The first two authors teach a Software Engineering course with a broad perspective of software design and development in a Doctor of Professional Studies (DPS) in Computing program at Pace University. The third author is a student in the program. Like the other students, he has deep industry experience that is drawn on. Most of the students, however, do not have a background in agile development, and so we use agile development as a catalyst to expand their thinking and also to give them something about which not all research questions have yet been answered. Bergin's web site (among other resources) serves as a repository of ideas for these students (<http://csis.pace.edu/~bergin>).

One technique that we use in the program is to bring in visitors to meet with the students and discuss research ideas. Many of these visitors are founders of key ideas in object-orientation, patterns, and agile methods. These three topics, in fact, are woven

through our course and appear elsewhere in the DPS curriculum.

5. Format of the Workshop

The workshop will meet for 90 minutes and has three parts. The first part is to target agreements and challenges, perhaps like those mentioned above. The second portion will gather communities of interest from among participants to gather ideas and caveats from the participants. The final part will present brief summaries and a brief wrap-up discussion. Time is very condensed here, so it is expected that we will only touch on important topics to be developed later on the provided wiki:

<http://dps.csis.pace.edu:8077/AgileTeachingWorkshop2006>.

6. Biographies of the Leaders

Joe Bergin and Fred Grossman have been teaching for over 30 years. They are professors of Computer Science and Information Systems, respectively, in the Ivan G. Seidenberg School of Computer Science and Information Systems at Pace University in New York, USA. They also do consulting, training and coaching, especially in agile development. They have jointly presented workshops at OOPSLA, CASCON, and XP and are both ScrumMasters. Joe is a frequent contributor to the Patterns community and is the author of four books. Fred is director of the DPS program in the Seidenberg school. They employ team teaching in the DPS program.

Rinaldo DiGiorgio has worked as a programmer, software developer, and Software Engineer for the past 25 years in many different industries in research and product divisions. He is employed by Sun Microsystems and is a doctoral student at Pace University under the direction of Dr. Fred Grossman and Dr. Joe Bergin.

7. Conclusion

Necessity requires that this be written before the workshop. We hope and expect that the workshop will gather important information for both the participants and for the wider educational community.

Participants should be able to take what was learned and begin to implement these ideas into their teaching.