Integrating Agile Practices into Software Engineering Courses

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Abstract

Agile software development methodologies claim to be superior for adapting to the changing needs of customers and projects and to the people on the team. As a result, these methodologies are steadily gaining interest and popularity in industry. Some examples of agile methodologies are Extreme Programming, Feature-Driven Development, Scrum, and Win-Win Spiral. Each of these processes comprises a set of practices, some of which are currently considered best practices and are consistent with what is taught in software engineering courses today. Other practices, however, are controversial and run contrary to the focus of most curricular materials. As educators, we must assess the academic and technical values of emerging technologies and, if convinced of their worthiness, we owe it to our students to integrate them into our curricula.

1. Operation of the Workshop

Workshop activities will be organized into three types of sessions:

1. *An agile methodology survey.* Summary presentations on four agile methodologies: Extreme Programming [1-3], FDD [4], DSDM [5], and Win-Win Spiral [6].

2. *Thought-provoking discussion led by Nancy Mead. "Agile methodologies: Deja vu all over again?"*

3. Facilitated group discussion on the revolutionary/controversial practices, particularly those that appear frequently in the four methodologies under study. As a group, we will discuss:

   a. the prudence of integrating these practices in our curricula;

   b. implications on Curriculum 2001, SWEBOK and other Software Engineering education reference points;

   c. any experiences participants and conference attendees might have integrating the practices into the classroom;

   d. research plans for assessing the effectiveness of integrating these practices into the classroom; and

   e. communication plans for those of us who are interested in integrating agile methodologies in education.

2. Final Deliverables

The result of the workshop will be a greater understanding among workshop attendees of emerging agile methodologies. Additionally, we identify three specific desirable outcomes from this workshop:

1. Documentation of workshop materials and findings in a journal paper submission.

2. The identification of participants interested in communicating about instructing students in agile practices and a plan to implement this communication via newsgroups, wiki web sites, etc.

3. The identification of those interested in performing research on integrating agile practices into Software Engineering education, including plans for submitting research proposals.

3. References

[1]   K. Beck, *Extreme Programming Explained: Embrace Change*. Reading, Massachusetts: Addison-Wesley, 2000.

[2]   K. Auer and R. Miller, *XP Applied*. Reading, Massachusetts: Addison Wesley, 2001.

[3]   R. Jeffries, A. Anderson, and C. Hendrickson, *Extreme Programming Installed*. Upper Saddle River, NJ: Addison Wesley, 2001.

[4]   P. Coad, J. deLuca, and E. Lefebvre, *Java Modeling in Color with UML*: Prentice Hall, 1999.

[5]   J. Stapleton, *DSDM: The Method in Practice*: Addison Wesley Longman, 1997.

[6]   B. Boehm, A. Egyed, J. Kwan, D. Port, A. Shah, and R. Madachy, "Using the WinWin Spiral Model: A Case Study," *IEEE Computer*, vol. 31, pp. 33-44, July 1998.