Agile Teaching and Learning

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What would you like to get out of this workshop?
Agile Methods

The Kool-Aid Talk
How a typical software project is run in the real world
Industrial Process Control

• **Two** types of process control
  – #1 - Defined Process Control
    • Every task completely understood
    • Ala PSP/TSP or Waterfall…
  – #2 - Empirical Process Control
    • Frequent “Inspect and Adapt” cycles
    • Tasks not well defined or completely understood
    • Tasks with unpredictable and/or unrepeatable outputs

• Interesting **excerpt from Ken Schwaber:**

  “I have rarely provided a group with so much laughter. They were amazed and appalled that my industry, systems development, was trying to do its work using a completely inappropriate process control model. They said systems development had so much complexity and unpredictability that it had to be managed by a process control model they referred to as ‘empirical.’”
Agile Principles

- We are uncovering better ways of developing software by doing it and helping others do it.
- Through this work we have come to value:
  - Individuals and interactions over processes and tools
  - Working software over comprehensive documentation
  - Customer collaboration over contract negotiation
  - Responding to change over following a plan
- That is, while there is value in the items on the right, we value the items on the left more.

From the “Manifesto for Agile Software Development”
See http://agilemanifesto.org/
SCRUM Process Overview

- **Who’s Who**: Scrum Master and Product Owner
- **What’s What**: Product Backlog and Sprint Backlog
- **Why?**: The Sprint Goal
- **When?**: Daily Scrum, Sprint Planning, Sprint Review
- **Where?**: Teams work together
- **And finally, How?**:
  - Sprint teams are totally empowered to do whatever they deem necessary to achieve the Sprint Goal within that Sprint
Who’s Who

- **Scrum Master**
  - This person is responsible for *removing impediments*
  - This person is *not* “the boss” or “taskmaster”
  - This person is responsible for enforcing the Scrum rules
  - Observes and gauges team progress
  - Makes immediate decisions in the face of uncertain or incomplete info

- **Product Owner**
  - Responsible for the product
    - Should be outside the team – manager, sales, or customer
  - This person owns the Product Backlog (and priorities)
  - High visibility

- **Chickens and Pigs**
  - Chickens: stakeholders
  - Pigs: committed
What’s What

Scrum: 15 minute daily meeting. Teams member respond to basics:
1) What did you do since last Scrum Meeting?
2) Do you have any obstacles?
3) What will you do before next meeting?

Sprint Backlog: Feature(s) assigned to sprint
Backlog items expanded by team

New functionality is demonstrated at end of sprint
Product Backlog

– Prioritized queue of all work to be done on the product
  “…represents everything that anyone interested in the product or process has thought is needed or would be a good idea in the product…”

– As long as the product exists, the PB exists
– It is dynamic and sorted by priority at all times
– The Product Owner owns the Product Backlog
What’s What

- Sprint Backlog
  - A subset of the PB assigned to the current Sprint
  - May include tasks and subtasks identified as needed in this Sprint to finish the work.
  - The Scrum team owns the backlog
  - Scrum Master facilitates but does not own the SB
Why?

• The Sprint Goal:
  – A declarative statement of the objective of the Sprint
    • The SG can be met to different degrees
    • Doing all of the work in the SB implies the SG should be achieved, but this is not a necessary condition
    • The converse is also true; the team may achieve the SG without completing all of the SB items.
  – The team is fully empowered to achieve the SG in whatever manner they deem is best
    • This is the self-organizing, autonomous philosophy in action
When? Sprint Planning

- Sprint Planning:
  - Attended by Chickens, Pigs, and any other parties that want to see how the next sprint will likely go.
  - 1\textsuperscript{st} half of the meeting (~ 4 hours):
    - Scrum Team and the Scrum Master select items from Product Backlog that can be implemented in the next sprint
    - Scrum Team and the Scrum Master agree on a Sprint Goal: a simple statement of what this Sprint will accomplish.
  - 2\textsuperscript{nd} half of the meeting (~ 12-20 hours):
    - The Scrum Team creates the Sprint Backlog.
- The Product Owner is usually involved during or at least at the end to \textit{negotiate} the Sprint Goal and Backlog to ensure the shippable increment adds business value.
The Daily Scrum

- Attended by Chickens and Pigs
- Each team member answers 3 questions
  1. “Since last Scrum I…”
  2. “Before next Scrum I will…”
  3. “My impediments are…”
- Scrum Master runs it
  - Documents impediments
  - Makes all “now” decisions
- The questions should be answered with respect to specific User Stories and/or Tasks in the Sprint Backlog, and reference specific work items (commits) in your SCM
  - “I did some stuff” doesn’t cut it
When? - Sprint Review

• Sprint Review
  – When Sprint is complete, the Sprint Team conducts a demo of what was completed. \(\leq 2\) hours of preparation allowed.
    • This is a purely functioning demo; no use of PowerPoint.
  – All interested in seeing the results of the Sprint attend.
  – Purpose is to solicit feedback. Observations and comments will commonly become items on the Product Backlog.
When? - Sprint Retrospective

• A *postmortem* or *project review* is an accepted software engineering process practice
  – Conducted at the end of projects
  – Focuses on process improvement
  – And yes, a chance to vent.

• Sprint Retrospectives are not as comprehensive
  – Addresses what is going in with the team today
  – Suggests improvements that can be implemented today
  – Often recommendations are not earth-shattering re-definition of processes or tools, but merely small changes (sound familiar?) or reminders on what needs to be done.
Where & How

• Where?
  – Teams work together in a co-located space
  – The space is arranged in a “bullpen”, or open area
  – Facilitates quick communication
  – Conference or breakout rooms can be used for disruptive conversations

• How?
  – Sprint teams are totally empowered to do whatever they deem necessary to achieve the Sprint Goal within that Sprint
Questions?