

# Applying the Dreyfus Learning Model to

Agile 2011 August 11, 2011  
Jaron Lambert and Simon Orrell

# Ski



# Bake



# Play an Instrument



# Practice Yoga



# Fly a plane



# What we'll cover today

- Agile as a skill
- The Dreyfus Model of Skill Acquisition
- Dreyfus Applied to Agile
- Coaching Approaches
- Application at Landmark

**Skills**



# Skills

Scrum

Iterative/Incremental Delivery

Software Development

Design, Code, Test, Ux, Doc etc.

# Ski



# How do we learn?



# Dreyfus Model of Skills Acquisition



[http://ieor.berkeley.edu/  
People/Faculty/dreyfus.htm](http://ieor.berkeley.edu/People/Faculty/dreyfus.htm)



[http://socrates.berkeley.edu/  
~hdreyfus/](http://socrates.berkeley.edu/~hdreyfus/)

# A FIVE-STAGE MODEL OF THE MENTAL

- 5 Distinct Stages
- “As the student becomes skilled he depends less on abstract principles and more on concrete experience”.

“We conclude that any skill training procedure must be based on some model of skill acquisition, so that it can address, at each stage of training, the appropriate issues involved in facilitating advancement.”

A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition”, Stuart and Hubert Dreyfus

# Dreyfus Model of Skills Acquisition

- Novice
- Advanced Beginner
- Competent
- Proficient
- Expert

# Stage I

- No sense of context
- Only want to accomplish a goal
- Define “features” (recognizable without experience) and provide “rules” for determining action
- Only feel responsible for following rules







- “Features”
- Going Too Fast
- Going Too Slow
- Want To Turn
- Going To Fall!

# Stage 2

- Have a sense for context
- Encounter new situations,  
Develop new rules
- Decisions still driven by rule application
- Does not feel personally responsible
- “Features” → Situations and “Aspects”



# Stage 3

## “Competent”



- Features give way to Aspects
- “ASPECT” = “a situational COMPONENT”
- Recognize “Aspects” that vary in relevance depending on the situation, apply “Guidelines”
- Agile Teams: Self-Managed Now  
“Actively and continuously refining their

# “Aspects” For A Pilot

- VERGING ON STALL
- DANGEROUS CRAB ANGLE
- HIGH IN LANDING ENVELOPE
- TERRAIN BEYOND THE RUNWAY

# Stage 4 “Proficient”

“The brain-state correlated with the performer’s experiencing a whole situation from a particular perspective is organized and stored in such a way as to provide a basis for future recognition of similar situations viewed from similar perspectives.”

A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition, Stuart and Hubert Dreyfus

# Stage 4

## “Proficient”

- “Situation”: Group of Aspects and “Saliences” from a particular perspective
  - Apply a “Maxim” from experience
  - Maxim: A memorized principle to determine action
- Gaining experience with virtually any type of situation

# Stage 5

## “Expert”

- Vast repertoire of experiences
- Action driven by intuition
- Pilots: no longer aware they are flying an airplane; instead, they have the experience that they are flying.







# A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition

- Shu-ha-ri
  - protect, obey, tradition
  - detach, digress
  - leave, transcend

# Dreyfus Applied to Agile

Stage	Traits/Characteristics
1	No context; have a simple goal; following rules
2	New situations, new rules; Not personally responsible
3	Recognize situations and “aspects”; Responsible, self-directed
4	Employs maxims
5	Vast experience; Intuition determines action

# Coaching Approaches

# Coaching vs Training

- Training leads to the acquisition of skills and knowledge
- Coaching leads to the acquisition of optimal performance

# Coaching vs Training

- Performance = capability - interference
  - increase capability (skills) via training
  - decrease interference via coaching

# COACHING



TRAINING



NOVICE

ADV. BEG.

COMPET.

PROFICIENT

EXPERT





Copyright Columbia Pictures 1984



Copyright Columbia Pictures 1984

# Novice (1) to Advanced Beginner (2)

- On a new team OR when you see Novice behaviours ...
  - Teach to set/stick the rules
  - Teach/Coach to deal with the inevitable impediments
  - Teach/Coach to apply rules situationally

# Stage 2: New Rules for New Situations



Copyright Disney/Pixar 1998

# Advanced Beginner(2) to Competent(3)

- When you see teams routinely apply rules but not yet taking responsibility ...
  - Coach to drive out fear
  - Coach to help adapt rules within principles

# Competent(3) to Proficient(4)

- When you see teams working via principles, and taking responsibility ...
  - Advise based on maxims/experience
  - Coach to promote holistic thinking

# Proficient(4) to Expert (5)

- When you see teams thinking holistically ...
- Intuition is only gained through extensive experience
- As a coach, you're likely simply facilitating

# Danger!

The training implications of this taxonomy are obvious. The designer of training aids and courses must at all times be aware of the developmental stage of the student, so as to facilitate the trainee's advancement to the next stage, and to avoid the temptation to introduce intricate and sophisticated aids which, although they might improve performance at a particular level, would impede advancement to a higher stage, or even encourage regression to a lower one.

**A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition, Stuart and Hubert Dreyfus**







Copyright Warner Bros. 1987

# Valuable side-effects

- Provides a consistent foundation necessary for successful:
  - scaling for integrated teams
  - distributed team communication

# Agile at Landmark

Rules to Follow

# Agile at Landmark

- Spring 2007
- Pilot Project (“Grizzly”) completed July ’07
- Rest of the teams “started doing agile”

# Agile at Landmark

- “TiLT”
  - Continuous Build
  - Automated Testing
  - Documented Process, Roles & Responsibilities, Sharepoint
  - Tactical Decisions, Process Mods

# Team Assessments

## *Agile Team Assessment*

Team: \_\_\_\_\_ Assessment Date: \_\_\_\_\_  
Assessed By: \_\_\_\_\_

Practice	Level 1 Novice	Level 2 Advanced Beginner	Level 3 Competent	Level 4 Proficient	Level 5 Expert
<b>Sprint Execution: inspect / adapt</b>					
- roles					
- definition of done					
- iteration goal					
- communication					
- continuous integration / automated testing					
- scrums					
<b>Release Planning</b>					
<b>Iteration Planning</b>					
<b>Retrospectives</b>					
<b>Demo's</b>					
<b>Release Process (Stabilization)</b>					
<b>Overall</b>					

# Assessments

- 2 observers
- 2 iterations (1 month+)
- Assessed, Self-Assessed
- Compared & Agreed on “Stage”
- NEXT: Provide Teaching/Coaching  
Appropriate for Their Stage



# Rules?

## 1. Novice

- "rigid adherence to taught rules or plans"
- no exercise of "discretionary judgment"

source: [http://en.wikipedia.org/wiki/Dreyfus\\_model\\_of\\_skill\\_acquisition](http://en.wikipedia.org/wiki/Dreyfus_model_of_skill_acquisition)





## Novice Rules

- Make pizza to slow down
- French fries to go faster
- Arm up to turn
- Falling? Touch Your Knees!

# Demos - The Rules

- All Stories should:
  - (a) meet the team's definition of done, and
  - (b) be accepted prior to the demo. Issues, enhancement requests, trouble-shooting, and other lengthy discussion at the demo suggest that more feedback and discussion could have taken place earlier in the iteration, while there was still time to “get it right” and finish / accept all Stories

# Demos - The Rules

- Product Owner (or tester) demonstrates only what the team accomplished (i.e. Stories the Product Owner has already accepted) using a build from the build system.

# Demos - The Rules

- Record any issues, bugs, or enhancements that come up (and assign them or add them to the backlog after the demo). The team should find ways to uncover and resolve such issues prior to the demo

# Demos - The Rules

- Product Owner accepts any Stories that weren't accepted prior to the demo (or decides not to accept them).

# Demos

- Purpose: For the team to show what it accomplished against the release backlog (Stories it implemented) during the iteration.

# Rules of Backgammon

To start the game, each player throws a single die. This determines both the player to go first and the numbers to be played. If equal numbers come up, then both players roll again until they roll different numbers. The player throwing the higher number now moves his checkers according to the numbers showing on both dice. After the first roll, the players throw two dice and alternate turns.

The roll of the dice indicates how many points, or **pips**, the player is to move his checkers. The checkers are always moved forward, to a lower-numbered point. The following rules apply:

1. A checker may be moved only to an **open point**, one that is not occupied by two or more opposing checkers.
2. The numbers on the two dice constitute separate moves. For example, if a player rolls 5 and 3, he may move one checker five spaces to an open point and another checker three spaces to an open point, or he may move the one checker a total of eight spaces to an open point, but only if the intermediate point (either three or five spaces from the starting point) is also open.

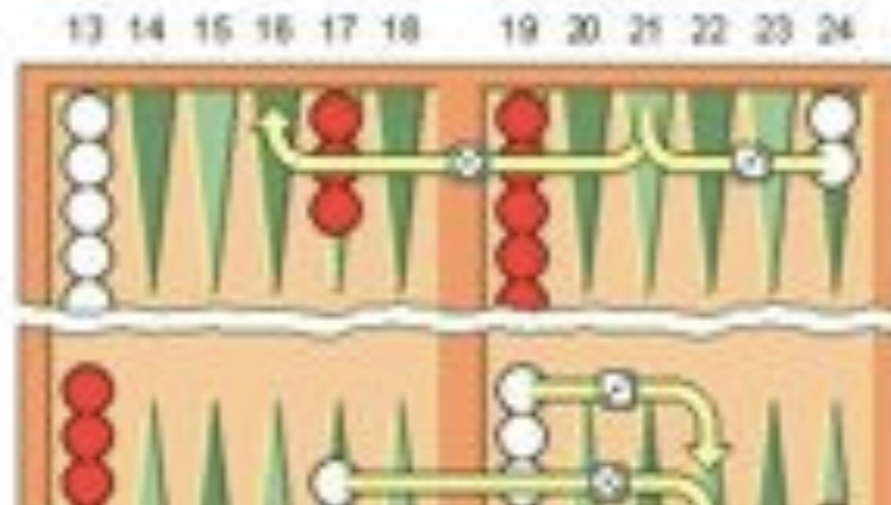


Figure 3. Two ways that White can play a roll of 5-3.



# The Daily Stand-Up

## Scrums (Daily Stand-up)

**Purpose:** For the team to decide how to make the best use of the upcoming day, so they can deliver on their iteration goal (see "Iteration Planning").

The Program Manager makes sure these points are covered in each scrum:

- 1. Each member of the team updates the other team members on progress against the Stories** they are working on:
  - **What did you accomplish yesterday** (since the last scrum)?  
Team members update their teammates on commitments made the previous day.
  - **What do you plan to accomplish today** (before the next scrum)?  
Team members make commitments to each other at the daily scrum by estimating how much time is left on current tasks (updated in Rally before the scrum).
  - **What is getting in your way?**
    - Testers:** Do you have something to test today?
    - Developers:** Will you have something ready for testing today?

# The Daily Stand-Up

2. **Are we on track to deliver on our commitment?** Does the plan need to change in order to keep the team's commitment, or to better reflect reality? If so, change it now!
3. **Does everyone know what they are doing today?** Is today's goal clear to everyone? If anyone doesn't have work, decide what they will do at the scrum.
4. **Any outstanding roadblocks?** What's the status? Any new roadblocks? Does each unresolved roadblock have a date (when it was first brought up) and an owner (a member of the team)?
  - Topics outside these questions should be addressed outside (after) the scrum.
  - Generally, only people with work assigned in the iteration speak during the scrum.
  - **All members of the team watch for Bad Smells** in their scrums, and mention any apparent infractions. All members of the team work together to remove "bad smells" from their daily scrums.

# Hold Up! That's not agile!



# Where Do You Start?

# "Let the Team Decide"

"They're Supposed to Self-Organize"

"They'll Figure It Out"

"Agile is Not For Everyone"

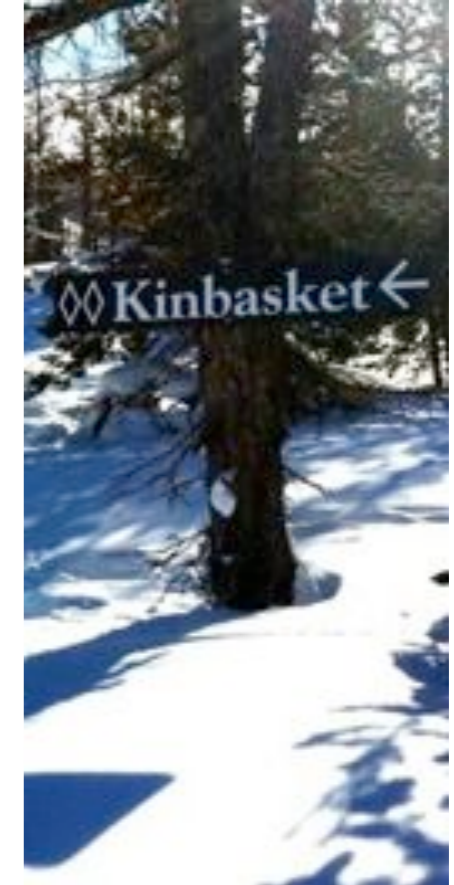
# Where Do You Start?

“Rules”

New Rules

“Instinct”

Self-Managed



# Help Define the "Rules"?

- [agilerulesfornovices.wikispaces.com](http://agilerulesfornovices.wikispaces.com)

# Questions?

- Jaron - jlambert@lgc.com  
jlambert@cronologic.ca  
(Twitter: @jaronlambert)
- Simon - simon@snowdolphin.com  
(Twitter: @snowdolphin)



# Thank You!

- Jaron - jlambert@lgc.com  
jlambert@cronologic.ca  
(Twitter: @jaronlambert)
- Simon - simon@snowdolphin.com  
(Twitter: @snowdolphin)

[agilerulesfornovices.wikispaces.com](http://agilerulesfornovices.wikispaces.com)